WRD Exp. (GW)
April 1966

Well No. 071-06W-09 CBB

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by D. AARONSON | Source of data FILE | Date 1/9/68 | Map 1:63,360 COUNTY HWY.

State IOWA (16) | County (or town) HENRY (44)

Latitude: 40 57 41 N | Longitude: 091 33 45 | Sequential number: 2

Lat-long accuracy: 2 | T 71 N, R 6 W | Sec 9, NW ¼, NW ¼, SW ¼ 5

Local well number: 071 06W 09 CBB | Other number: W-0052 B & M

Local use: 00052 US ØBS 9M1 | Owner or name: MT. PLEASANT CITY #3

Owner or name: MT PLEASANT IA3 | Address: MT. PLEASANT, IA.

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, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Z) Desal-other, Other — P

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

DATA AVAILABLE: Well data 1 | Freq. W/L meas.: QUARTERLY Q | Field aquifer char.

Hyd. lab. data:

Qual. water data; type: COMPLETE — C

Freq. sampling: INTERMITTENT (3/23/55) I | Pumpage inventory: yes / no, period:

Aperture cards: yes

Log data: GEOLOGIST LOG — G A

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD | Depth well: 1896* ft | 1896 | Meas. rept DRILLER'S LOG accuracy 3

Depth cased; (first perf.) 1689 ft | 1689 | Casing type: STEEL ; Diam. 16 in | 16

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

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 — C

Date Drilled: (MARCH 1955) 3 55 | Pump intake setting: ft

Driller: C.L. JENNINGS (name), NEW LONDON, IA. (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 D

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

Descrip. MP CURB 3.14 ft above/below LSD, Alt. MP 677

Alt. LSD: 674 | 6734 | Accuracy: (source) ALTIMETER 7

Water Level 91.6 ft above/below MP; Ft above/below LSD | 94 | Accuracy: DRILLER'S LOG D

Date meas: MARCH 1955 3 55 | Yield: 314 gpm | 314 | Method determined

Drawdown: 27.9 ft | 28 | Accuracy: 3 | Pumping period 1½ hrs | 2

QUALITY OF WATER DATA: Iron 5.9 ppm 7 | Sulfate 680 ppm 8 | Chloride 110 ppm 3 | Hard. 620 ppm 8

Sp. Conduct 1490 K x 10^6 5 | Temp. 68 °F | 68 | Date sampled 4 MAY 1967 | 5 67 B

Taste, color, etc. TURBID & YELLOW-BROWN IN COLOR WITH SETTLEABLE BLACK PARTICLES ON RECEIPT IN LAB.

Well No. 071-06W-09 CBB

IW 68

Well No. 071-06W-09 CBB

Latitude-longitude 40 | 57 | 41 (N) S 091 | 33 | 45.2
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD (19) Physiographic Province: CENTRAL LOWLAND [1|2] (20 21) Section: DISSECTED

TILL PLAIN [E] (22) Drainage Basin: SKUNK [2|5|C] (23 25) Subbasin: [ ] (26)

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, (K) sink, (L) swamp, (Φ) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat — VALLEY SLOPE [S] (27)

MAJOR AQUIFER: CAMBRIAN (system), UPPER (series) [C|3] (28 29) JORDAN Ss. (aquifer, formation, group) [S|J] (30 31)

Lithology: MED. SANDSTONE [3|V] (32 33) Origin: MARINE [6] (34) Aquifer Thickness: 116 ft

[1|1|6] (35 37) Length of well open to: 116 ft [1|1|6] (38 40) Depth to top of: 1729 ft [A|7|3] (41 43)

MINOR AQUIFER: CAMBRIAN (system), UPPER (series) [C|3] (44 45) ST. LAWRENCE FM (aquifer, formation, group) [S|L] (46 47)

Lithology: FINE DOLOMITE [2|D] (48 49) Origin: MARINE [6] (50) Aquifer Thickness: ft

[| |] (51 53) Length of well open to: 51 ft [5|1] (54 56) Depth to top of: 1845 ft [A|8|4] (57 59)

Intervals Screened: NONE

Depth to consolidated rock: 12'7" ft [|1|2] (60 63) Source of data: DRILLER'S LOG [D] (64)

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

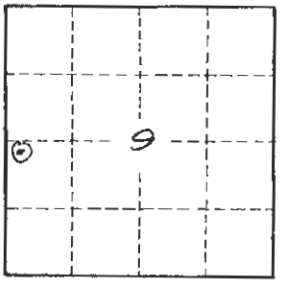
Surficial material: CALC. LOESS [C|Q] (70 71) Infiltration characteristics: FAIR [3] (72)

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

Coefficient Perm: gpd/ft²; Spec cap: 11.2 gpm/ft; Number of geologic cards: [ ] (79) C

CASING:

16" PIPE 0-210'
10" PIPE 203'-213'
8" PIPE 213'-1689'



* ORIG. T.D. OF WELL 1802' & PLUGGED BACK TO 1794'.
SEE 071-06W-09 CBB SEQ.# 1 WELL DEEPENED
IN MARCH 1955

Well No. 071-06W-09 CBB

GPO 857-703

WRD Exp. (GW)
April 1966

Well No. 071-06W-09CBB

WELL SCHEDULE

U. S. DEPT. OF THE INTERIOR — GEOLOGICAL SURVEY — WATER RESOURCES DIVISION

MASTER CARD

Record by D. AARONSON (J.B COOPER) Source of data FILE Date 1/9/68 Map 1:63,360 COUNTY HWY.

State IOWA 16 County (or town) HENRY 44

Latitude: 40 57 41 N (deg 7 min 9 sec 11) Longitude: 091 33 45 (12 degrees 15 min sec 18) Sequential number: 1

Lat-long accuracy: Z T 71 S, R 6 E Sec 9, NW ¼, NW ¼, SW ¼ 5

Local well number: 071 06 W 09 C B B Other number: W-0052 B & M

Local use: 00052 US ØBS 9M1 Owner or name: MT. PLEASANT CITY #3

Owner or name: MT PLEASANT IA3 Address: MT. PLEASANT, IA.

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, (B) Bottling, (C) Comm, (D) Dewater, (E) Power, (F) Fire, (H) Dom, (I) Irr, (M) Med, (N) Ind, (P) P S, (R) Rec, (S) Stock, (T) Instit, (U) Unused, (V) Repressure, (W) Recharge, (X) Desal-P S, (Y) Desal-other, (Z) Other — P

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

DATA AVAILABLE: Well data I Freq. W/L meas.: QUARTERLY Q Field aquifer char.

Hyd. lab. data:

Qual. water data; type: COMPLETE — C

Freq. sampling: INTERMITTENT (4/12/35) I Pumpage inventory: yes / no, period:

Aperture cards: yes

Log data: GEOLOGIST LOG — G — A

WELL-DESCRIPTION CARD

SAME AS ON MASTER CARD Depth well: 1794* ft 1794 Meas. rept DRILLER'S LOG accuracy 3

Depth cased: (first perf.) 1689 ft 1689 Casing type: STEEL ; Diam. 16 in 16

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, (Z) other — X

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 — C

Date Drilled: MARCH 1935 935 Pump intake setting: ft

Driller: THORPE WELL CO. name, DES MOINES, IA. 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 — T Deep / Shallow D

Power (type): diesel, elec, nat gas, gasoline, hand, LP gas, wind; H.P. 25 — V Trans. or meter no.

Descrip. MP: CURB 2.5 ft above/below LSD, Alt. MP 671

Alt. LSD: 674 6 7 4 Accuracy: (source) ALTIMETER — 7

Water Level 53 ft above/below MP; Ft above/below LSD 53 Accuracy: DRILLER'S LOG — D

Date meas: JULY 1935 735 Yield: 225 gpm 225 Method determined

Drawdown: 110 ft 110 Accuracy: 3 Pumping period hrs

QUALITY OF WATER DATA: Iron 3.3 ppm 6 Sulfate 488 ppm 7 Chloride 82 ppm 2 Hard. 437 ppm 7

Sp. Conduct 1480 K x 10^6 5 Temp. °F Date sampled 20 AUG. 1952 852 — B

Taste, color, etc.

Letter to Iowa

JAN 68

Well No. 071-06W-09CBB

Well No. 071-06W-09 CBB

Latitude-longitude 40, 57, 41 (N) 091, 33, 45.1 (W)
d m s d m s

HYDROGEOLOGIC CARD

SAME AS ON MASTER CARD [1 19] Physiographic Province: CENTRAL LOWLAND [20 21: 12] Section: DISSECTED

TILL PLAIN [22: E] Drainage Basin: SKUNK [23 25: 25C] Subbasin: [26]

Topo of well site: (D) depression, (C) stream channel, (E) dunes, (F) flat, (H) hilltop, sink, (K) swamp, (O) offshore, (P) pediment, (S) hillside, (T) terrace, (U) undulating, (V) valley flat — VALLEY SLOPE [27: S]

MAJOR AQUIFER: CAMBRIAN system, UPPER series [28 29: C3] JORDAN SS aquifer, formation, group [30 31: SS]

Lithology: MEDIUM SANDSTONE [32 33: 3V] Origin: MARINE [34: 6] Aquifer Thickness: 116 ft

[35 37: 116] Length of well open to: 65 ft [38 40: 065] Depth to top of: 1729 ft [41 43: A73]

MINOR AQUIFER: ORDOVICIAN system, LOWER series [44 45: 01] PRAIRIE DU CHIEN aquifer, formation, group [46 47: LP]

Lithology: CHERTY DOLOMITE [48 49: QD] Origin: MARINE [50: 6] Aquifer Thickness: 614 ft

[51 53: 614] Length of well open to: 40 ft [54 56: 040] Depth to top of: 1165 ft [57 59: A16]

Intervals Screened: NONE

Depth to consolidated rock: 12½ ft [60 63: 12] Source of data: DRILLERS LOG [64: D]

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

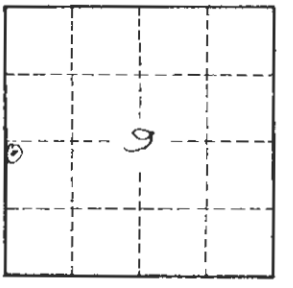
Surficial material: CALCAREOUS LOESS [70 71: CQ] Infiltration characteristics: FAIR [72: 3]

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

Coefficient Perm: gpd/ft²; Spec cap: 2.04 gpm/ft; Number of geologic cards: [79: C]

CASING

16" PIPE TO 210'
10" PIPE 203' TO 213'
8" PIPE 213' TO 1689'



*ORIG. DEPTH 1802'. PLUGGED BACK TO 1794 FT.

WELL DEEPENED TO 1896' IN MARCH 1955
SEE 071-06W-09CCB SEQ No. 2

Well No. 071-06W-09CBB

GPO 857-700

52

Name: Mt. Pleasant City well No. 3

Loc. NW NW SW 9-71-6W, Henry Co

Drilling depth: [illegible] base Maple Hill

Drilled Thorpe 1935

Log W-0052 Ellis

Remarks: Well was completed in St. Lawrence at 1802

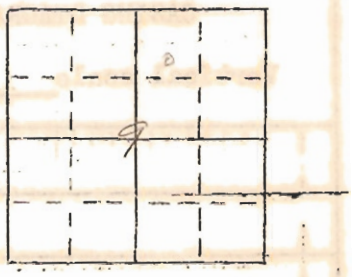
Elevation 671'

Formations	Depth	Top	Base	Thick.
St. Louis	8	663	646	17
Warsaw	25	646	611	35
Keok.	60	611	533	78
Burl.	138	533	471	62
Wassen	200	471	461	10
No Hill	210	461	450	11
Pros Hill	221	450	416	34
McCraney	255	416	410	
Eng River	261	410	401	9
Maple Hill	270	401	126	
Dev.				
C.V	545	126		

IOWA GEOLOGICAL SURVEY W-0052

In Cooperation with U. S. Geological Survey

RECORD OF WELL



Location:

Town: Mt. Pleasant (N E / S W): County Henry

S½ NW-NE sec. 9 T 71 N., R. 6 W. Center Twp.

Well name and number City Well #2 (City's well #3)

Owner _____ Address _____

Tenant _____ Address _____

Contractor Thorpe Well Co. Address Des Moines

Drillers _____

Drilling dates Nov. 1934 to March 1935

Well data:

Elevations: Drilling curb 671 feet; Land surface _____ feet

Determined by _____

Topographic position Valley slope

Total depth: Reported _____ feet, Measured 1802 feet

Deepened by Jennings March 1935 to 1896'

Drilling method cable

Hole and casing data 16" pipe to 210'; 10" from 203'-213'; 8" from 213 to 1689'; Cement at surface to 210'; lead at 203'-210' between 10" & 16" casing; cement at bottom of 8" pipe & plug in bottom of hole 1794-1802'

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

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

Sources of water: Principal Jordan ss ; Others _____

Production data: Date July 11, 1935

Static depth to water 53 Measuring point

Pumping level 163 at 225 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	July 11, 1935	April 25, 1936		
Sampled by	A C Tester	A C Tester		
Total solids	1150	1168.0		
Insoluble matter	24.3	15.6		
Alkalinity (Meo)	254	[illegible]		
Alkalinity (Phn)	0	0.0		
pH	7.2	7.1		
Fe_2O_3+ Mn_2O_3 +Al_2O_3	5.4	8.8		
Alkali as sodium	252.3	228.80		
Calcium	97.3	103.48		
Magnesium	36.2	37.64		
Iron (unfiltered)	.50	3.50		
Manganese	0.0	0.0		
Nitrate	0.0	0.00		
Fluoride	1.5	1.0		
Chloride	98.0	101.0		
Sulfate	500.9	492.84		
Bicarbonate	309.9	250.10		
Hardness (ppm)	393	420.37		
Hardness (gpg)	22.0	24.7		

Remarks

Laboratory data: Sample storage location

Sample range 0-1802 No. spls. 385 No. dupls. & cond. 119 P-Board

Spls. prepared by Washed range by

Driller's log and cond.

Insoluble residues: Prepared by Studied by Strip log

Microscopic study Elva Tully strip log Elva Tully

Gen. log Correl. by Elva Tully

SUMMARY OF WATER ANALYSES from

MT. PLEASANT CITY WELL NO. 2 taken
FEBRUARY 4, 1935.

TOTAL DEPTH AT TIME OF SAMPLING 1183 FEET
Well Cased and Cemented to 219 ft.

	Sample No. 93210 Depth 850 Ft.	Sample No. 93211 925 Depth 950 Ft.	Sample No. 93212 Depth 1026 Ft.	Sample No. 93213 Depth 1150 Ft.	Sample No. 93214 Composite
Total Solids	5980.0	6705.0	6010.0	10821.0	1515.0
Susp. Solids	4740.0	5465.0	4745.0	9615.0	179.0
Alkalinity (MeO)	262.0	260.0	256.0	256.0	278.0
Alkalinity (Phn.)	0.0	0.0	0.0	0.0	0.0
Insol. Matter	20.4	11.2	23.2	24.4	29.8
R_2O_3	0.4	2.0	3.2	3.2	1.6
Alkalies (as Na)	304.5	309.2	306.5	299.8	283.1
Ca	95.8	96.2	101.8	92.7	112.0
Mg	16.1	16.0	16.8	16.6	38.6
Fe	0.1	0.09	0.09	0.05	0.05
Mn	Tr.	0.0	Tr.	Tr.	0.2
Al	0.2	1.0	1.6	1.6	0.8
NO_2	0.003	0.015	0.002	0.003	0.003
NO_3	0.0	0.0	0.0	0.0	0.0
F	1.1	1.2	1.6	1.5	1.8
Cl	132.0	134.0	132.0	134.0	128.0
SO_4	530.0	525.9	540.3	504.5	577.2
HCO_3	319.6	317.2	312.3	312.3	339.2
P_2O_5	0.005	Tr.	0.0	0.005	0.0
BO_3	6.0	6.0	6.0	6.0	6.0
Calc. Hardness	305.	306	321	300	439.0
1.	35 ft. below top of Galena Ls. 815'-1023'	110 ft below top and 100 ft above base of Galena L.	opposite Decorah Sh 1023-1032	St. Peter Ss. 1128'-1163'	
2.	Samples taken after 1½ hours bailing which removed approximately 7500 gallons (100 bailers)				
3.					
4.					
5.					

Copy for Dr. Tester

May 22, 1935

Mr. T. W. McMillan,
Mt. Pleasant, Iowa.

Dear Mr. McMillan:

Our examination of the sample of water from your 1820 foot city well, shows the water to be in excellent bacteriological condition. I have called it slightly suspicious because of the nitrate content which is high. This high nitrate content points to intermittent pollution and the entrance of surface waters. Such a condition may result in giving an unfavorable analysis.

Yours very truly,

Jack J. Hinman Jr

Jack J. Hinman, Jr.,
Chief, Water Laboratory Division.

JJH:EE

Copy to State
Sanitary Engineer.

COPY

Summary of Water Analyses from Mt. Pleasant City Well No. 2 taken February 4, 1935

Total Depth at Time of Sampling 1183 feet.

Well Cased and Cemented to 210 feet.

Samples taken after 1½ hours bailing which removed approximately 7500 gallons (100 bailers)

	1	2	3	4	5
	Sample No. 93213 Depth 1150'	Sample No. 93211 Depth 925'	Sample No. 93210 Depth 850'	Sample No. 93212 Depth 1026'	Sample No. 93261 Composite
Total Solids	10821.0	6705.0	5980.0	6010.0	1515.0
Susp. Solids	9615.0	5465.0	4740.0	4745.0	179.0
Alkalinity (MeO)	256.0	260.0	262.0	256.0	278.0
Alkalinity (Phn.)	0.0	0.0	0.0	0.0	0.0
Insol. Matter	24.4	11.2	20.4	23.2	29.8
R_2O_3	3.2	2.0	0.4	3.2	1.6
Alkalies (as Na)	299.8	309.2	304.5	306.5	283.1
Ca	92.7	96.2	95.8	101.8	112.0
Mg	16.6	16.0	16.1	16.8	38.6
Fe	0.05	0.09	0.1	0.09	0.05
Mn	Tr.	0.0	Tr.	Tr.	0.2
Al	1.6	1.0	0.2	1.6	0.8
NO_2	0.003	0.015	0.003	0.002	0.003
NO_3	0.0	0.0	0.0	0.0	0.0
F	1.5	1.2	1.1	1.6	1.8
Cl	134.0	134.0	132.0	132.0	128.0
SO_4	504.5	525.9	520.0	540.3	577.2
HCO_3	312.3	317.2	319.6	312.3	339.2
P_2O_5	0.005	Tr.	0.005	0.0	0.0
BO_3	6.0	6.0	6.0	6.0	6.0
Calc. Hardness	300	306	305	321	439

1. Sample taken at 1150 feet opposite St. Peter sandstone which occurs between 1128 and 1163 feet. This was first sample taken.

2. Second sample taken in sequence from depth of 925 feet, which is 110 feet below top and 100 feet above base of Galena limestone which occurs between 815 and 1023 feet.

3. Third sample taken in sequence from depth of 850 feet, which is 35 feet below top of Galena limestone which occurs between 815 and 1023 feet.

4. Fourth sample taken in sequence at depth of 1026 feet, which is opposite the Decorah shale which occurs between 1023 and 1032 feet.

5. This sample was taken from the regular bailer after a period of approximately 45 minutes of bailing and was taken from near the top of water column. It represents a composite of all the water in the hole.

The St. Peter water is the best water in this well. The differences between a composite sample and waters taken from respective horizons may be recognized by study of the individual constituents of each sample.

Summary of Water Analyses from Mt. Pleasant City Well No. 2 taken February 4, 1935

Total Depth at Time of Sampling 1183 feet.

Well cased and cemented to 210 feet.

Samples taken after 1½ hours bailing which removed approximately 7500 gallons (100 bailers)

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Alkalinity (MeO)	256.0	260.0	262.0	256.0	278.0
Alkalinity (Phn.)	0.0	0.0	0.0	0.0	0.0
Insol. Matter	24.4	11.2	20.4	23.2	29.8
R_2O_3	3.2	2.0	0.4	3.2	1.6
Alkalies (as Na)	299.8	309.2	304.5	306.5	283.1
Ca	92.7	96.2	95.8	101.8	112.0
Mg	16.6	16.0	16.1	16.8	38.6
Fe	0.05	0.09	0.1	0.09	0.05
Mn	Tr.	0.0	Tr.	Tr.	0.2
Al	1.6	1.0	0.2	1.6	0.8
NO_2	0.003	0.015	0.003	0.002	0.003
NO_3	0.0	0.0	0.0	0.0	0.0
F	1.5	1.2	1.1	1.6	1.8
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UNIVERSITY OF IOWA

STATE HYGIENIC LABORATORIES

HYPOTHETICAL COMBINATIONS

(Bartow Method)

for

Sample # 96844 - Mt. Pleasant

Iowa State Planning Board

Compound	Parts per Million	Grains per gallon
$NaNO_2$ (Sodium Nitrite)	0	0
$NaNO_3$ (Sodium Nitrate)	0	0
NaF (Sodium Fluoride)	1.5	0.09
NaCl (Sodium Chloride)	161.7	9.46
Na_2SO_4 (Sodium Sulfate)	577.4	33.77
$(NH_4)_2SO_4$ (Ammonium Sulfate)	7.0	0.41
$MgSO_4$ (Magnesium Sulfate)	131.2	7.67
$MgCO_3$ (Magnesium Carbonate)	33.6	1.96
$CaCO_3$ (Calcium Carbonate)	214.0	12.51

Chief, Water Laboratory Division.

Iowa City, Iowa, August 6, 1935.

Jack J. Hinman, Jr., Supervisor,
Sub-Project No. 1044 B,
P.O. Box 363, Iowa City, Iowa.

August 6, 1935

Mr. T. W. McMillan, City Manager,
Mt. Pleasant, Iowa.

Dear Mr. McMillan:

Dr. Allen Tester asked me to calculate the hypothetical combination on water sample No. 96844, which was reported recently. I have had this done and the data will be found on the attached sheet. Both parts per million and grains per U. S. gallon are shown.

Personally, I have very little faith in these hypothetical combinations for the reason that they merely represent the idea of some individual chemist as to the composition of the solids. There are a multitude of schemes for calculating hypothetical combinations and they do not give identical results. The United States Geological Survey abandoned hypothetical combinations along in the 1880's as being artificial, not representing the exact state of affairs and being likely to lead to misconceptions on the part of non-technical users.

It is on account of the above facts that I prefer not to use the hypothetical combination method of reporting specimens.

Yours very truly,

Jack J. Hinman, Jr., Supervisor,
Sub-Project No. 1044 B.

Enc.
JJH/B

Mt Pleasant

GW

No copy

IOWA GEOLOGICAL SURVEY

TABULATION OF WATER ANALYSES
(parts per million)

COUNTY Henry

TOWN Well No. Depth Use & location Ft.	Geol. form.	Diss. Solids	Ins. Mat.	NO_3	Na	Ca	Mg	Fe	Mn	Al	F	Cl	SO_4	HCO_3	PO_4	BO_3	Calc. Hard.
Mt Pleasant #3	Jordan																
depth 1802'																	
Static Level 53'																	
Pumped Level 110-163																	
pumping at 225 gpm																	
Water temp 70.2 7-4-35		1150	243	0.0		97.3	36.2	0.50	0.0		1.5	98.0	500.*	309.9			393.
Mt Pleasant South Park Pumphouse #3	Jordan																
depth 1794'																	
static level 55'																	
drawdown 93' (285 gpm)																	
* Pumping level 148'																	
pumping at 285 gpm																	
Water temp 67° 4-25-36		1168	15.6	0.00		103.48	37.84	3.5	0.0	–	1.00	101.0	492.84	250.10			420.37

NOTES:

* Well rated at 390 gpm with 135.7' drawdown

Preliminary Report of Water Analyses from Mt. Pleasant Well
(Shown in parts per million)

Samples taken by W. O. George

	T.D. 1723'			T.D. 1750'		T.D. 1790'-9"	
	No.94167-3/19 Sampler @1625'	No. 94169-3/19 Sampler @1660'	No.94168-3/20 Bailer @ 1723'	No.94185-3/20 Bailer @ 1750'	No.94199-3/23 Sampler @1740'	No.94189-3/21 Sampler @ 1785'	No.94190-3/21 Bailer @ bottom
Total Solids	2564.0	2635.0	4502.0	5072.0	1685.0	2175.0	1087.0
Susp. Solids	1349.0	1283.0	3354.0	3822.0	343.0	950.0	—
Diss. Solids	1215.0	1352.0	1148.0	1250.0	1342.0	1225.0	1087.0
Insol. Matter	27.0	15.0	16.6	21.6	26.0	6.2	15.2
Nitrites (NO_2)	0.002	0.002	0.003	0.035	0.05	0.02	0.004
Nitrates (NO_3)	0.0	0.0	0.0	0.0	0.08	0.0	0.0
Cl	116.0	133.0	100.0	145.0	89.0	95.0	69.0
SO_4	462.0	513.0	458.0	498.0	566.0	569.0	379.0
F	1.2	1.2	1.3	1.2	1.2	1.4	1.2
Alkal. (MeO)	298.0	292.0	314.0	300.0	266.0	266.0	362.0
" (phn)	4.0	6.0	4.0	14.0	0.0	4.0	0.0
Ca	93.0	96.0	102.0	72.0	123.0	112.0	84.0
Mg	59.0	58.0	52.0	67.0	46.0	43.0	43.0
Fe (unfiltered)	12.5	10.0	20.0	—	7.0	12.0	—
Fe (filtered)	0.5	0.2	0.1	0.2	0.5	0.1	0.3
HCO_3	353.8	341.6	373.3	331.8	324.5	314.8	441.6
CO_3	4.8	7.2	4.8	16.8	—	4.3	—
Calc. Hard.	476.0	479.0	469.0	456.0	496.0	457.0	412.0

Hotel Brazelton
Mt. Pleasant, Iowa.
Feb. 3, 1935

Dr. Allen C. Tester
Asst State Geologist
Iowa Geological Survey
Iowa City, Iowa.

Dear Doctor Tester:

Your letters of Feb. 2, were received and I have arrived in Mt. Pleasant.

The following is quoted from a letter by Tom Thorpe which arrived after I had made an impression block.

" The traps that we ordered to use, and I think that were placed in this well, have a hole approximately 5½ inches in diameter and have a bar across the middle of the hole, so as to be removed with the proper fishing tool. That would make it that the hole would be only about 2 inches on either side of the bar."

The impression showed two nuts or bolt heads one on each side of the block and I suppose that is how the bar is fastened to the trap. I revised my bait slightly and got a bite the first time in. I could not lift it alone but with two of us pulling on the crank it broke away. The bait came out intact but slightly chewed. I do not think the fish was moved.

I hesitate to make the bait any stronger unless you are assured that Mr. Thorpe or some one will be hired to fish it out if I fail.

There will be plenty of time for the wire to get there to do some good because after the fish is out there will be 3 days for replacing the pump and tubing.

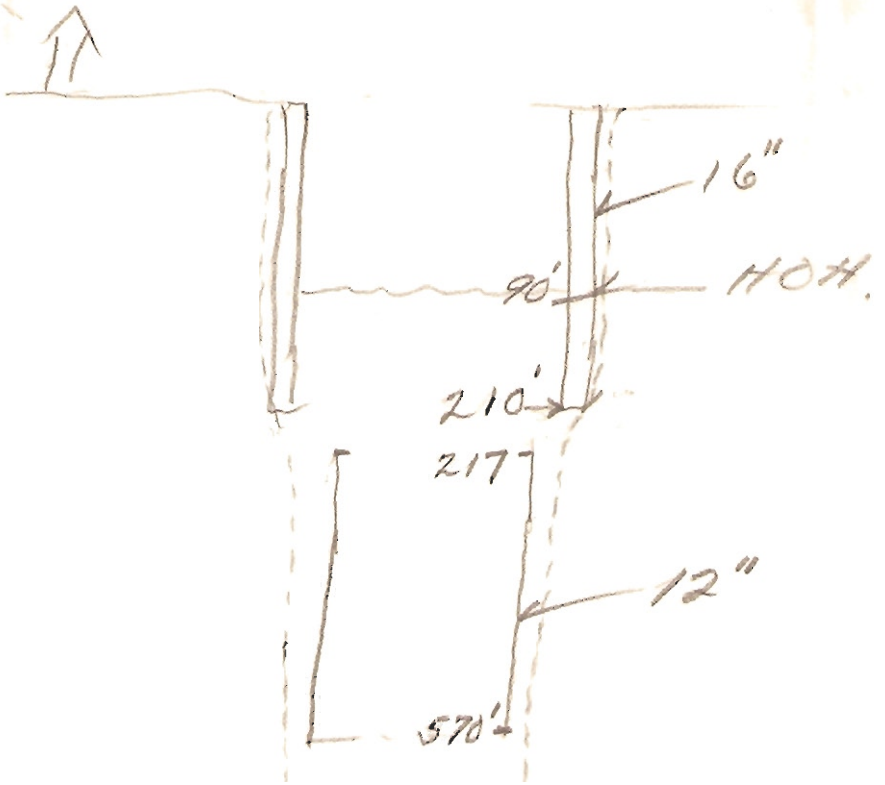
Mr. Thorpe also included a drillers log of the well and indicates that packers were placed at 770, 885 and 1070. I assume that they were wall packers but I do not understand their position. There is nothing to indicate that the spaces between the various sizes of casing were sealed.

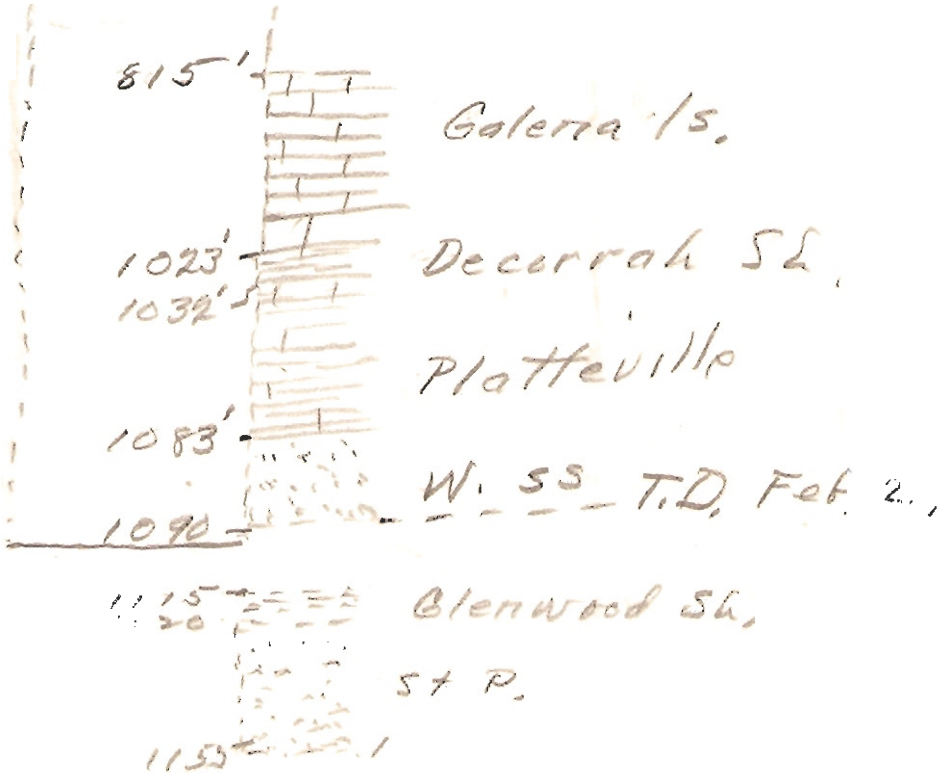
He gives the "static head " as 340 feet, draw down 185'.

I am enclosing a diagram of the Mt. Pleasant well drawn from the information contained in your letter. I assume that you want enough water bailed to replace the entire column of water from 90' to 1090' and that I will be told at the well what the various water bearing horizons are below 570'. and that I am to wait here until they have drilled thru the St. P. Yours very truly,

H P George.

Mt. Pleasant Well





April 4, 1935

Mr. Tom McMillan
City Engineer
Mt. Pleasant, Iowa

Dear Mr. McMillan:

Referring to my letter of Tuesday, April 2, I now have available the details concerning the character of the formations in the lower part of city well No. 2 at Mt. Pleasant.

The top of the St. Lawrence dolomite was reached at 1784 feet, which is also, of course, the base of the Jordan sandstone. It is interesting that the samples of water taken from the bottom of the hole by the bailer (No. 94190), which would represent the water from this zone, is of a better character so far as the total solids, chlorides, sulphates, and calcium are concerned than the water taken by the sampler at elevations just above.

The top of the Jordan sandstone is at 1729 feet, and it appears to be fairly uniform in character down to 1740 feet. From 1740 to 1757 feet there is considerable lime in the sand, and the grains are fairly angular and moderately well cemented. However, I do not recommend shooting any part of this zone between 1729 and 1757.

The character of the sand in its angularity and degree of cementation below 1764 is such that a moderate charge of dynamite would not cause a packing of the wall of the hole. However, it would be safer to keep the charge of dynamite below a depth of 1771 feet. In such a case a charge of not to exceed 75 pounds of 60% dynamite should be used in a capsule lowered to a depth of 1782 feet and discharged at that point. A full column of water should be held above the dynamite at the time of discharge.

Before shooting the well, I believe it would be more desirable to drill an additional 10 or 15 feet

into the St. Lawrence dolomite and watch the head of water closely and take new samples.

I will be pleased to hear from you and to know your decision in handling this well.

Yours very truly,

A. C. Tester

ACT:A

(Survey)

Written at Iowa City

April 12, 1935

Mr. T. W. Thorpe
Thorpe Well Company
2340 Sixth Avenue
Des Moines, Iowa

Dear Tom:

With reference to our conversation in Des Moines last Monday afternoon, I have since seen Mr. McMillan and again recommended that the Mt. Pleasant city well be drilled ten or fifteen feet deeper than at the present. This is in accordance with my letter to Mr. McMillan on April 4, a copy of which you received from Mr. McMillan.

At the time that I wrote the letter to Mr. McMillan I mentioned the dolomite which was encountered at 1784 as being of St. Lawrence type. There is some question as to whether this is the true St. Lawrence dolomite, although it has many of the characteristics of this formation. If the log of the No. 1 well at Mt. Pleasant is correct, than there is 34 feet of sandstone below the dolomite between 1784 and the bottom of the hole at 1791. Whether this sandstone is a part of the Jordan or St. Lawrence formation makes little difference so far as the name is concerned, but if it contains the type of water as shown by the bailing test at 1790 than it is logical to drill into the lower sandstone and test it. In the No. 1 well the water which was encountered below the dolomite, which is now in the bottom of the hole at No. 2, gave a higher static level than any part of the well and presumably the best type of water.

Because of the above situation, I believe that you will agree with me that it will be advantageous to drill the well to a total depth of approximately 1810 feet to test the lower sand if the first 10 to 15 feet of additional drilling show the increased supply of the better grade of water. If the water is not favorable, it is easy to plug the bottom of the hole.

Yours very truly,

A. C. Tester

ACT:A
CC: Mr. Tom McMillan

Sent McM. a copy of log of #7 well.

Mr. T. W. McMillan
City Manager
Mt. Pleasant, Iowa

Dear Mr. McMillan:

I stopped at the No. 2 city well shortly after five o'clock Thursday, July 11. The pumping test was going at this time and at five-thirty or approximately thirty minutes before the pump was shut down I took a sample of water for mineral analysis. At the same time I read the temperature of the water with a carefully calibrated and accurate thermometer and after checking several times found the temperature to be 70.8 degrees Fahrenheit.

I will be interested to learn when the new pumping test is run so that I can be there for at least a part of the time.

Yours very truly,

A. C. Tester

ACT:A
CC: Thorpe Well Co.

July 16, 1935

Mr. T. W. McMillan
City Manager
Mt. Pleasant, Iowa

Dear Mr. McMillan:

In response to your telephone call yesterday morning, I visited the No. 2 city well between eleven and twelve o'clock Monday morning, July 15. At that time you started the pumping machinery, and we made readings of the capacity on the two meters. A ten-minute interval, accurately timed to the second, showed a production on the gallons per minute meter of 275 g.p.m. After speeding up the motor slightly the same meter showed a production of 276 g.p.m. At the time of the last reading mentioned, the cubic foot meter was read and the production calculated as ~~259.5~~ 255.1 g.p.m.

The temperature of the water was again read and found to be 70.5° F. At the same time the air temperature was 83.8° F. The water temperature is .3 of a degree lower than that read on Thursday, July 11, but the air temperature on the July 11 reading was 87.8° F. In the approximately 20 feet of pipe exposed to the sun, this difference in temperature would probably cause the difference of .3 of a degree in the water temperature at the outlet. If we could measure the temperature of the water directly at the mouth of the well, we would probably have a temperature of almost exactly 70° F.

With respect to the condition of the water, such as the odor and small amount of air or gas bubbles, I do not believe that it is a factor which needs to offer any material concern. There is a possibility that the odor may be related to the fact that the

well was shot with dynamite. Frequently such odors are noticed in wells that have been shot and they remain for a number of weeks, depending upon the amount of pumping and other conditions attending the development of the well. Your experience in quarries has probably taught you that the rock material immediately adjacent to the place a shot was discharged may retain a small but noticeable odor for a long period of time even though it is exposed to the atmosphere. It is logical to believe that some of the gas in the water also may be related to the shooting of the well. Obviously, neither of these circumstances has injured the well in any way, as I would expect these conditions to clear up and change as production continues.

Yours very truly,

A. C. Tester

ACT:A
CC: Thorpe Well Co.

P. O. BOX 277

Recd May 1 P. M.

PHONE 36

2

City of Mount Pleasant, Iowa

OFFICE OF

CITY MANAGER

April 30/36

A.C.Tester,

Iowa City, Ia.

Dear Sir;-

I have your letter of April 28th. Sorry I missed you the other day for there some things that I wanted to talk over with you. I can answer your questions better in person than by letter.

This well pulled a queer stunt. When we got out the specifications for our pump we figured on 225 gpm with 129 ' draw down, which was in line with our tests made at the time. After pumping a few weeks I noticed a change in the draw down. Yesterday I made some measurements with an electric wirewith the following results; 220 gpm with 72' draw down and 285 gpm with 93' draw down.

These results are very gratifying but I suspect that there has been a change in the iron content for iron was not in evidence when we first pumped the well. Before we use this water extensively I am afraid we will have to aerate and repump to get rid of the iron and the odor which is objectionable. We have pumped a little over 3½ million gallons from this well since starting.

Drop in the next time you are down this way.

Yours truly,

Wm Millar

May 7, 1936

Mr. T. W. McMillan
City Manager
Mt. Pleasant, Iowa

Dear Mr. McMillan:

Thank you for your letter of April 30 which arrived during my absence from the city. Your comments concerning the testing at the new well are interesting. There are a number of other things about this well that I wish to learn. For instance, according to the meter readings a volume of 390 g.p.m. was produced at the time of my visit, yet you mention much lower figures.

I will make it a point to stop at Mt. Pleasant at the very first opportunity.

With best regards, I remain,

Yours very truly,

A. C. Tester

ACT:A

File with Mt. Pleasant U.W.

RECOMMENDATIONS
FOR
PREPARATION OF A GLASS TUBE SECTION
FOR
MOUNT PLEASANT WELL

The samples to be used in the preparation of the tube section have been graded in size and washed free of all silt and rock flour. They have been prepared for a tube with the same inside diameter as the one at hand, namely 1.9 inches. If a tube of greater diameter is used there will be insufficient sample. Each sample has been prepared in slight excess to provide additional material to compensate for any compaction during preparation, but insufficient sample is available for a second or third attempt and once the sample has been placed in the tube it cannot be removed without disrupting and mixing with samples below, so that greatest care should be taken that each unit is properly added and the right thickness obtained the first time.

The accompanying strip log will give in detail the desired thickness of each unit to the actual scale of the section, together with the desired printed matter, such as rock names and geologic correlations of the section. The basic scale on which the accompanying strip log has been built is one foot ~~which~~ equals 400 feet.

The samples have been labelled in order of their increasing depth, and in preparing the tube the sample with

the greatest depth should be placed in the bottom of the tube and the section so built up that the unit labelled 0-8 feet is the uppermost sample.

In regard to the preparation of such a tube section, the greatest difficulty is encountered from compaction of the material as the section is built up and by vibration after it is completed, thus throwing the section out of scale. This difficulty has been partially overcome by screening of the samples to produce a nearly uniform grain size. It is suggested that the filling of the tube be accompanied by thorough tapping of the side of the tube to create vibration and by carefully "bouncing" the tube against a resilient base such as a rubber block or two or three layers of ordinary packing box cardboard.

The tube should be well tapped and carefully bounced after each unit has been added, and while adding the thicker units the tube should be bounced and tapped thoroughly after the addition of each one inch of material. Furthermore, in the lower part of the tube the thicker units should be built one-sixteenth inch thicker than required by the log to compensate for settling as the upper units are added and tapped.

The "bouncing" should be done with utmost care as the lower portion of the tube may easily be cracked if it is not held vertically and if bouncing is too hard. In this regard it would also be much more advisable to use a tube with a corked open bottom rather than one with a close glass bottom. This

would lessen the danger of breaking during bouncing and would give a more natural appearance to the bottom of the section.

If an open-bottomed tube is used, the lower portion of the tube can be sealed before filling, by inserting a closely fitting cork until it is flush with the bottom edge of the tube and then dropping several pieces of parafin into the tube. The tube can then be carefully warmed until the parafin melts, flows around the cork and forms a level seal. The seal should not be more than one-eighth inch thick above the cork and the cork should not exceed one-half inch in length.

Screening of the samples has also in part removed the difficulty found in preventing finely divided samples from settling down through more coarse materials immediately underlying, but it is believed that this condition could be further lessened by use of thin transparent discs of cellophane as dividers between each unit. These discs can be cut to very nearly the exact size of the inside of the tube, dropped into the tube and worked into place on top of each unit as the section is built up. After each of the samples is placed in the tube and thoroughly tapped to bring about compaction, the top of the sample should be carefully levelled off before the cellophane disc is dropped in and worked into place. This is to prevent variations of thickness from one side of the tube to the other and to prevent the rock from being higher in the center of the tube than at the edge, a condition which would

cause folds in the cellophane and void spaces in the tube as the next unit was placed above the cellophane.

After the section has been completed another one-half inch cork should be placed in the top of the tube and pressed tightly against the top of the section, and thereafter the tube should be jarred as little as possible.

The above remarks are to be considered only in the light of suggestions. Considerable judgment and revision will be necessary to obtain the desired results.

HOWARD R. GREEN, CO.
Consulting Engineers
208-209-210 BEVER BUILDING, CEDAR RAPIDS, IOWA

WATER SUPPLY AND TREATMENT
SEWERS AND SEWAGE DISPOSAL
STRUCTURES, BRIDGES, BUILDINGS
UTILITY VALUATIONS, RATES
INVESTIGATIONS, REPORTS

July 13, 1944.

JUL 13 1944

Dr. H. G. Hershey,
Assistant State Geologist,
Iowa Geological Survey,
Geology Annex,
Iowa City, Iowa.

Dear Dr. Hershey:

Pursuant to your suggestion concerning the advisability of having additional analyses made of the water produced by the three respective city wells at Mt. Pleasant, we recently received laboratory reports which closely confirm the information in your files on the shallow wells and the deep well at the City Park, but which are materially different for the deep well at the power plant. The shallow well analysis at this time shows 17.4 grains per gallon of total hardness against 22 previously reported by your Department and 25.2 grains for deep well #3 against your 25. Deep well #2 shows 27.8 against your reported 70. The details of well #2 are as follows:

DETERMINATIONS MADE

PHYSICAL

	Parts per Million	Grains per Gallon
Suspended Matter	0.0	
Turbidity	0.0	
Color (apparent as received)	0.0	
Color (filtered thru paper)	0.0	
Odor Faint sweet due to bottle.		

CHEMICAL

	Parts per Million	Grains per Gallon
Ca	132	
Mg	35	
Na	259	
CO_3	136	
SO_4	660	
Cl	87	
NO_3	n.d.	
Fe	*Trace	
Mn	0.0	
SiO_2	10	
F	1.6	
Free Carbon Dioxide	5.0	
Hydrogen Sulfide	n.d.	
$CaCO_3$	0.0	
Oxygen Consumed	n.d.	
pH	7C8	
*Trace less than	0.05	

#2
Dr. H. G. Hershey

7/13/44.

HYPOTHETICAL COMBINATIONS

		Parts per Million	Grains per Gallon
Calcium Carbonate		227	
Calcium Sulfate		140	
Calcium Chloride		0.0	
Magnesium Carbonate		0.0	
Magnesium Sulfate		175	
Magnesium Chloride		0.0	
Sodium Carbonate		0.0	
Sodium Sulfate		626	
Sodium Chloride		144	
Iron Oxide (unfiltered)	*Trace		
Iron Oxide (filtered thru paper)		n.d.	
Silica		10	
Total Dissolved Solids		1322	77.3
Alkalinity (P)	as $CaCO_3$	0.0	0.0
Alkalinity (M)	" "	227	13.2
Total Hardness	" "	476	27.8
Calcium Hardness	" "	330	19.3
Magnesium Hardness	" "	146	8.5
Non-Carbonate Solids	" "	813	47.5
Total Solids	" "	1040	60.7
Mineral Acidity	" "	0.0	0.0
Total Sodium Salts		770	45.0
Compensated Hardness			36.1

This is for your files. The City Council has authorized the preparation of contract documents looking toward the drilling of a deep well into the Eau Claire formation. If you are in Cedar Rapids during the next two weeks we would appreciate discussing the proposed construction with you and if I get to Iowa City in the meantime I will call upon you.

Yours very truly,

HOWARD R. GREEN CO.

By H R Green

HRG:ab

MT. Pl
Henry

March 26, 1951

Mr. Lee F. Speaker
City Manager
Mt. Pleasant, Iowa

Dear Mr. Speaker:

In response to your recent request for information on increasing the yield of the No. 3 city well at Mt. Pleasant, we have reviewed our records on wells in the city.

The casing and construction data that we have for this well are as follows:

Surface altitude: 671 feet
Drilled: Thorpe Well Company, 1934-35
Depth: 1,802 feet; plugged back to 1,794 feet
Casing: 16-inch from 0-210 feet (Cemented, 0-210 feet)
10-inch from 203-213 feet
8-inch from 213-1,689 feet (Cemented at bottom)
Open hole (8-inch) from 1,689-1,802 feet
Plugged back to 1,794 feet
Lead seals between 10- and 16-inch casings

The lower Prairie du Chien dolomite and Jordan sandstone are open in this well. Essentially the same section is exposed in city well No. 2, but city well No. 4 is not cased through the Devonian and upper Ordovician beds and also penetrates the St. Lawrence dolomite below the Jordan sandstone.

The yield of well No. 4 seems greater than that at the other two wells, and available records suggest strongly that the crevised upper St. Lawrence dolomite is the major source of water. Presumably only small quantities of water are being obtained from the formations above the Jordan sandstone. If a check on the major sources of water in well No. 4 is desired, however, the Geological Survey well-logging equipment would be available to log the hole in detail when the pump can be removed.

The St. Lawrence dolomite below the Jordan sandstone seems from drillers' reports and sample study to be very porous and filled with crevices or solution channels at Mt. Pleasant. This water probably is interconnected with water in the suprajacent sandstone, but significantly larger yields seem to be possible at equivalent pumping levels by complete penetration of the Jordan and porous St. Lawrence dolomite. The underlying Franconia and Dresbach formations, excepting the Galesville and Mt. Simon members, are relatively impermeable. Inasmuch as saline

water was encountered at city well No. 4 in some part of this section and as these beds will not increase the yield very greatly, deepening a well into or through these formations seems undesirable.

These data indicate, therefore, that the yield of well No. 3 may be increased importantly by drilling out the plug in the bottom and deepening the well to a depth of about 1,900 feet. The depth should be sufficient to penetrate all the porous St. Lawrence dolomite, and careful examination of the drilling record and well cuttings may suggest some modification of this estimate of about 100 feet.

Mineral analyses of water from each of the three city wells (see attached summary sheet) do not indicate very great differences between the water from wells 2, 3, and well 4. The hardness and dissolved solids are slightly greater at well 4 but this should not be noticed by domestic users.

You may be interested, also, in the slow decline of the non-pumping water levels at the deep wells as was noted in our examination of the records. On the basis of non-pumping levels reported by your office and measured by the Geological Survey periodically since 1946, a decline of about 68 feet is evident for the period from 1915 to 1949. Assuming a continued rate of withdrawal that approximates that during recent years, these records suggest, tentatively, the following water levels for 1955 and 1960:

Estimated Water Levels at Mt. Pleasant Deep Wells

Year	Non-pumping level (altitude, in feet)	Non-pumping water level, in feet below surface		
		Well No. 2	Well No. 3	Well No. 4
1949 (a)	590	143	81	142
1955	578	155	93	155
1960	566	167	105	166

(a) observed

We shall be pleased to discuss in more detail any of this information and to assist in the interpretation of samples or pumping tests should changes be made in the well installations. If we may be of other service at any time, do not hesitate to let me know.

Very truly yours,

H. G. Hershey

HGH:RMJ:emh

IOWA GEOLOGICAL SURVEY
TABULATION OF WATER ANALYSES
(Dissolved constituents in parts per million)

XXXXXX Mt. Pleasant

TOWN - Well No. Use - Location	Date of coll.	Depth (ft.)	Geol. source	°F.	Diss. solids	Fe	Mn	Ca	Mg	Na+K(as Na)	HCO_3	SO_4	Cl	F	NO_3	Hardness (calc. as $CaCO_3$) Tot.	Carb.	Non-carb.	pH	Cond.
Well No. 2	9/5/34	1820	Jordan	-	1,174	0.5	0.0	102	43	212	300	493	30	1.5	1.8	432	246	186	7.9	
Well No. 3	7/11/35	1794a	Jordan	-	1,150	.5	.0	97	36	252	310	501	98	1.5	.0	390	254	136	7.2	
do	7/15/35	1794a	"	-	1,140	.3	.02	98	38	229	310	497	96	1.5	.0	401	254	147	7.1	
do	4/25/36	1794a	"	67	1,168	3.5	.0	103	38	229	250	493	101	1.0	.0	420	205	215	7.1	
Well No. 4	5/6/46	1860a	Jordan-St.Louis	-	1,259	.1	.0	109	43	256	285	550	134	1.6	.0	449	234	215	7.7	
do	1/26/49	1860a	"	-	1,203	1.1	.0	103	41	230	288	553	102	1.6	.0	443	236	207	7.8	
do	7/5/49	1860a	"	-	1,303	.5	.0	105	45	229	288	546	101	1.6	.0	447	236	211	7.6	1,960

NOTES: a - plugged back

HOWARD R. GREEN CO.
Consulting Engineers

WATER SUPPLY AND TREATMENT
SEWERS AND SEWAGE DISPOSAL
STRUCTURES, BRIDGES, BUILDINGS
UTILITY VALUATIONS, RATES
INVESTIGATIONS, REPORTS

205-213 BEVER BUILDING, CEDAR RAPIDS, IOWA

February 19, 1955

Mr. H. G. Hershey
Director Iowa Geological Survey
Geological Annex
Iowa City, Iowa

Re: Deepening Public
Well #3, Mount Pleasant,
Iowa.

Dear Sir:

This is to advise you that C. L. Jennings, Driller, has been awarded the contract for deepening the existing well #3 and is now on the job. Work involves drilling a 6" hole approximately 100 feet below the present well depth. As a precautionary measure against drilling into high chloride waters we propose to check the water by field analysis after each 25 feet of drilling.

Knowing of the Survey's particular interest in the mineral quality of the deeper waters under southeastern Iowa it occurred to us that you might desire to have someone from your staff follow this work in the field.

I plan to go down to Mt. Pleasant as soon as the Driller gets started - perhaps by the middle of next week - and will keep your office advised as to the progress.

Very truly yours,

HOWARD R. GREEN COMPANY

By J. A. Sampson
J. A. Sampson

JAS:kh

IOWA GEOLOGICAL SURVEY
Iowa City, Iowa OFFICE COPY
Generalized Well Log
Based on Examination of Drill Cuttings

Name of Well Mt. Pleasant City Well No. 3 Survey No. W.-0052

Location S½ NW¼ NE¼ sec. 9, T. 71 N., R. 6 W. County Henry

Total depth 1802 ft. Drilled by Thorpe Well Co. Date Nov. 1934-March 1935

Curb elevation 671 ft. Static level ____ ft.; Drawdown ____ ft. at ____ gal. per min.

Casing and hole size record _____

Description of Formation	Thickness	Depth in feet From	To
Pleistocene system			
1. Till, yellowish brown, calcareous, little gravel	8	0	8
Mississippian system			
Iowa series			
Meramec group			
St. Louis formation			
2. Limestone, light gray, lithographic, floury, dolomitic. Some calcite crystals	4½	8	12½
3. Dolomite, light gray, very fine-grained, very calcareous, very sandy	12½	12½	25
Warsaw formation			
4. Shale 70-90%, light gray, laminated, calcareous. Chert 10-30%, pale gray to pale buff, opaque	15	25	40
5. Shale, light gray, laminated, calcareous, silty	10	40	50
6. Limestone, light to medium gray, very fine- to fine-grained, very dolomitic, argillaceous	5	50	55
7. Shale as from 40 to 50 feet	5	55	60
Osage group			
Keokuk formation			
8. Limestone 70%, pale and dark gray, mottled, medium- to coarse-grained, dolomitic, argillaceous. Siltstone 30%, light gray	5	60	65
9. Siltstone, light and medium gray, calcareous	3	65	68
10. Limestone, pale and dark gray, mottled, fine- to very fine-grained, very silty	14	68	82
11. Limestone 70%, gray, medium- to coarse-grained, with black fossil fragments. Siltstone 20%, gray, calcareous. Chert 10%, gray, translucent	13	82	95
12. Siltstone 95%, light to medium gray, very calcareous. Limestone 5%, dark gray, very fine-grained	5	95	100
13. Limestone 70%, light gray, very fine- to medium-grained. Chert 30%, light to medium gray, some brown mottling, opaque to translucent	40	100	140

4/13/45: 1 copy to Mr. Lee S. Speaker, City Manager, P.O. Box 277, Mt. Pleasant, Iowa

	Description of Formation	Thickness	Depth in feet From	To
	Burlington formation			
14.	Limestone 90%, pale gray, coarse-grained, glauconitic. Chert 20%, pale to light gray, some dark spots	20	140	160
15.	Dolomite 60%, pale gray and light buff, very fine- to fine-grained, saccharoidal, dense. Chert 40%, white to light gray, opaque to translucent	10	160	170
16.	Limestone 65%, light gray, fine-grained, saccharoidal, fossiliferous, slightly dolomitic, chert 35%, white to light gray, medium gray spicules, opaque	10	170	180
17.	Dolomite 50-80%, light gray, fine-grained, granular, glauconitic. Chert 50-20%, light gray, translucent, spicules	15	180	195
	Kinderhook group			
	Hampton formation			
18.	Limestone, light to medium gray, fine-grained, saccharoidal, very dolomitic	25	195	220
	English River formation			
19.	Shale, greenish gray, some laminated, silty	15	220	235
20.	Siltstone, light gray, hard dolomitic cement, some very fine sand	35	235	270
	Maple Mill formation			
21.	Shale, light greenish gray, poorly laminated, dolomitic, silty. Pyrite common	30	270	300
22.	Shale, light greenish gray with some light brown, poorly laminated, slightly dolomitic and silty	85	300	385
23.	Shale, dark and medium gray, poorly laminated, slightly dolomitic	15	385	400
24.	Shale, light gray to brownish gray, laminated, slightly dolomitic	145	400	545
	Devonian system			
	Upper Devonian series			
	Cedar Valley formation			
25.	Limestone, pale to light drab, floury to very fine-grained, fossiliferous. Shale 5% from 545' to 564'	125	545	670
26.	Limestone 90-60% as from 545' to 670'. Gypsum 10-40%, crystalline	10	670	680
	Middle Devonian series			
	Wapsipinicon formation			
27.	Sandstone 60%, coarse- and medium-grained, angular. Limestone 20%, light buff, floury. Gypsum 20%, crystalline	5	680	685
28.	Limestone 80%, light buff, sublithographic. Sandstone 10%. Anhydrite 10%	15	685	700
29.	Limestone, light gray and brown, very fine-grained	13	700	713
30.	Limestone 90-10%, light brownish gray, sublithographic. Anhydrite 10-90%	22	713	735
31.	Dolomite, light brownish gray, fine-grained, saccharoidal, somewhat porous	10	735	745
32.	Chert 80%, white, translucent, few dark gray spots. Dolomite 20% as from 735' to 745'	5	745	750

Description of Formation	Thickness	Depth in feet From	To
33. Dolomite, light gray, floury to very fine-grained. Gypsum 50% from 762' to 770'. Chert 40% from 776' to 770', white, translucent	20	750	770
34. Dolomite, light gray, floury, argillaceous, slightly sandy	15	770	785
Ordovician system			
Cincinnatian series			
Richmond group			
Maquoketa formation			
35. Shale, light gray, slightly greenish, laminated, very dolomitic, sandy	30	785	815
Mohawkian series			
Trenton group			
Galena formation			
36. Dolomite, light to medium drab, medium-grained, granular, sandy	20	815	835
37. Dolomite, light buff and light drab, medium-grained, saccharoidal	65	835	900
38. Dolomite 95-60%, light buff and light drab, medium-grained, saccharoidal, porous. Chert 5-40%, pale drab and white, opaque, contains sponge spicules	122	900	1022
Decorah formation			
39. Dolomite 60%, medium drab to dark brown, medium-grained. Shale 40%, reddish brown, laminated	8	1022	1030
Black River group			
Platteville formation			
40. Dolomite 75-20%, light to medium drab, fine- to medium-grained, saccharoidal. Limestone 25-80%, pale buff and gray, phenoclastic	46	1030	1076
41. Sandstone, white, medium- and fine-grained, angular to subangular, slightly dolomitic	28	1076	1104
42. Shale 20-75%, light gray green, soft, laminated. Sandstone 25-80% as from 1076 to 1104	11	1104	1115
43. Shale, greenish gray, laminated, soft	10	1115	1125
Chazyan series			
St. Peter formation			
44. Sandstone 95%, medium- and fine-grained, some coarse-grained, angular to curvilinear, frosted. Shale 5%, gray	35	1125	1160
45. Shale, light greenish gray, calcareous, sandy	5	1160	1165
Beekmantownian series			
Prairie du Chien formation			
Willow River member			
46. Dolomite 65%, light buff to drab, very fine- to fine-grained, few scattered oolites, sandy. Sand 20%, medium-grained, angular to curvilinear, frosted. Chert 10%, white, opaque to translucent, oolitic in part. Shale 5%, dark greenish gray, laminated	73	1165	1238
47. Dolomite 90%, pale buffish gray, very fine-grained. Shale 10%, light to dark greenish gray. Chert trace	23	1238	1261
48. Dolomite 70%, pale gray, very fine- to fine-grained. Shale 15%, light to dark greenish gray. Sand 10%, medium-grained. Chert 5%, white opaque	14	1261	1275

	Description of Formation	Thickness	Depth in feet From	To
49.	Sandstone 65%, medium-grained, angular. Dolomite 25%, pale to light buff, very fine- to fine-grained. Shale 10%, greenish gray	5	1275	1280
50.	Dolomite 85%, pale to light buff, very fine-grained. Sand 10%, medium-grained. Chert 5% white	20	1280	1300
51.	Dolomite as from 1280 to 1300. Chert trace	50	1300	1350
52.	Dolomite, light to medium drab, fine- to medium-grained, sandy. Traces of chert from 1380 to 1425	85	1350	1435
53.	Dolomite 80%, light buff to drab, very fine- to fine-grained, saccharoidal, sandy. Chert 20%, white, translucent, oolitic	15	1435	1450
54.	Dolomite as from 1350 to 1435. Shale trace	25	1450	1475
	Root Valley member			
55.	Sandstone, white, medium-grained, some coarse- and fine-grained, angular to subangular, frosted, partly dolomitic	17	1475	1492
	Oneota member			
56.	Dolomite 90%, light to medium drab, fine- to medium-grained, saccharoidal. Chert 10%, white to light drab, oolitic	31	1492	1523
57.	Chert 60-75%, white, opaque, partly oolitic. Dolomite 25-40%, light gray, fine- to medium-grained	19	1523	1542
58.	Dolomite 55%, light gray, medium-grained. Chert 45%, white opaque to translucent	33	1542	1575
59.	Dolomite, light gray, medium-grained, saccharoidal, friable. Chert trace	20	1575	1595
60.	Dolomite 60-80%, light gray, medium- to coarse-grained, friable. Chert 20-40%, white to light gray, opaque to translucent. Shale traces	60	1595	1655
61.	Dolomite 90%, light buff and drab, medium- and coarse-grained, saccharoidal. Chert 10%, white	57	1655	1712
62.	Dolomite 95%, drab, medium-grained, saccharoidal. Sand 5%, medium-grained, subangular	17	1712	1729
	Cambrian system			
	St. Croixan series			
	Trempealeau formation			
	Jordan member			
63.	Sandstone, medium-grained, some coarse- and fine-grained, angular to subangular, dolomitic cement	42	1729	1771
64.	Sandstone, fine-grained, angular to subangular, dolomitic	14	1771	1785
65.	Sandstone 50% as from 1771 to 1785. Dolomite 50%, light gray, medium-grained, saccharoidal, sandy	17	1785	1802

Total Depth - 1802 feet

IOWA GEOLOGICAL SURVEY
Iowa City, Iowa
Generalized Well Log
Based on Examination of Drill Cuttings

Name of Well Mt. Pleasant City Well No. 3 Survey No. W.-0052

Location S½ NW¼ NE¼ sec. 9, T. 71 N., R. 6 W. County Henry

Total depth 1802 ft. Drilled by Thorpe Well Co. Date Nov. 1934-March 1935

Curb elevation 671 ft. Static level ____ ft.; Drawdown ____ ft. at ____ gal. per min.

Casing and hole size record _____

Description of Formation	Thickness	Depth in feet From	To
Pleistocene system			
1. Till, yellowish brown, calcareous, little gravel	8	0	8
Mississippian system			
Iowa series			
Hermosa group			
St. Louis formation			
2. Limestone, light gray, lithographic, floury, dolomitic. Some calcite crystals	4½	8	12½
3. Dolomite, light gray, very fine-grained, very calcareous, very sandy	12½	12½	25
Warsaw formation			
4. Shale 70-90%, light gray, laminated, calcareous. Chert 10-30%, pale gray to pale buff, opaque	15	25	40
5. Shale, light gray, laminated, calcareous, silty	10	40	50
6. Limestone, light to medium gray, very fine- to fine-grained, very dolomitic, argillaceous	5	50	55
7. Shale as from 40 to 50 feet	5	55	60
Osage group			
Keokuk formation			
8. Limestone 70%, pale and dark gray, mottled, medium- to coarse-grained, dolomitic, argillaceous. Siltstone 30%, light gray	5	60	65
9. Siltstone, light and medium gray, calcareous	3	65	68
10. Limestone, pale and dark gray, mottled, fine- to very fine-grained, very silty	14	68	82
11. Limestone 70%, gray, medium- to coarse-grained, with black fossil fragments. Siltstone 20%, gray, calcareous. Chert 10%, gray, translucent	13	82	95
12. Siltstone 95%, light to medium gray, very calcareous. Limestone 5%, dark gray, very fine-grained	5	95	100
13. Limestone 70%, light gray, very fine- to medium-grained. Chert 30%, light to medium gray, some brown mottling, opaque to translucent	40	100	140

	Description of Formation	Thickness	Depth in feet From	To
	Burlington formation			
14.	Limestone 90%, pale gray, coarse-grained, glauconitic. Chert 20%, pale to light gray, some dark spots	20	140	160
15.	Dolomite 60%, pale gray and light buff, very fine- to fine-grained, saccharoidal, dense. Chert 40%, white to light gray, opaque to translucent	10	160	170
16.	Limestone 65%, light gray, fine-grained, saccharoidal, fossiliferous, slightly dolomitic, chert 35%, white to light gray, medium gray spicules, opaque	10	170	180
17.	Dolomite 50-80%, light gray, fine-grained, granular, glauconitic. Chert 50-20%, light gray, translucent, spicules	15	180	195
	Kinderhook group			
	Hampton formation			
18.	Limestone, light to medium gray, fine-grained, saccharoidal, very dolomitic	25	195	220
	English River formation			
19.	Shale, greenish gray, some laminated, silty	15	220	235
20.	Siltstone, light gray, hard dolomitic cement, some very fine sand	35	235	270
	Maple Mill formation			
21.	Shale, light greenish gray, poorly laminated, dolomitic, silty. Pyrite common	30	270	300
22.	Shale, light greenish gray with some light brown, poorly laminated, slightly dolomitic and silty	85	300	385
23.	Shale, dark and medium gray, poorly laminated, slightly dolomitic	15	385	400
24.	Shale, light gray to brownish gray, laminated, slightly dolomitic	145	400	545
	Devonian system			
	Upper Devonian series			
	Cedar Valley formation			
25.	Limestone, pale to light drab, floury to very fine-grained, fossiliferous. Shale 5% from 545' to 564'	125	545	670
26.	Limestone 90-60% as from 545' to 670'. Gypsum 10-40%, crystalline	10	670	680
	Middle Devonian series			
	Wapsipinicon formation			
27.	Sandstone 60%, coarse- and medium-grained, angular. Limestone 20%, light buff, floury. Gypsum 20%, crystalline	5	680	685
28.	Limestone 80%, light buff, sublithographic. Sandstone 10%. Anhydrite 10%	15	685	700
29.	Limestone, light gray and brown, very fine-grained	13	700	713
30.	Limestone 90-10%, light brownish gray, sublithographic. Anhydrite 10-90%	22	713	735
31.	Dolomite, light brownish gray, fine-grained, saccharoidal, somewhat porous	10	735	745
32.	Chert 80%, white, translucent, few dark gray spots. Dolomite 20% as from 735' to 745'	5	745	750

Description of Formation	Thickness	Depth in feet From	To
33. Dolomite, light gray, floury to very fine-grained. Gypsum 50% from 762' to 770'. Chert 40% from 776' to 770', white, translucent	20	750	770
34. Dolomite, light gray, floury, argillaceous, slightly sandy	15	770	785
Ordovician system			
Cincinnatian series			
Richmond group			
Maquoketa formation			
35. Shale, light gray, slightly greenish, laminated, very dolomitic, sandy	30	785	815
Mohawkian series			
Trenton group			
Galena formation			
36. Dolomite, light to medium drab, medium-grained, granular, sandy	20	815	835
37. Dolomite, light buff and light drab, medium-grained, saccharoidal	65	835	900
38. Dolomite 95-60%, light buff and light drab, medium-grained, saccharoidal, porous. Chert 5-40%, pale drab and white, opaque, contains sponge spicules	122	900	1022
Decorah formation			
39. Dolomite 60%, medium drab to dark brown, medium-grained. Shale 40%, reddish brown, laminated	8	1022	1030
Black River group			
Platteville formation			
40. Dolomite 75-20%, light to medium drab, fine- to medium-grained, saccharoidal. Limestone 25-80%, pale buff and gray, phenoclastic	46	1030	1076
41. Sandstone, white, medium- and fine-grained, angular to subangular, slightly dolomitic	28	1076	1104
42. Shale 20-75%, light gray green, soft, laminated. Sandstone 25-80% as from 1076 to 1104	11	1104	1115
43. Shale, greenish gray, laminated, soft	10	1115	1125
Chazyan series			
St. Peter formation			
44. Sandstone 95%, medium- and fine-grained, some coarse-grained, angular to curvilinear, frosted. Shale 5%, gray	35	1125	1160
45. Shale, light greenish gray, calcareous, sandy	5	1160	1165
Beekmantownian series			
Prairie du Chien formation			
Willow River member			
46. Dolomite 65%, light buff to drab, very fine- to fine-grained, few scattered oolites, sandy. Sand 20%, medium-grained, angular to curvilinear, frosted. Chert 10%, white, opaque to translucent, oolitic in part. Shale 5%, dark greenish gray, laminated	73	1165	1238
47. Dolomite 90%, pale buffish gray, very fine-grained. Shale 10%, light to dark greenish gray. Chert trace	23	1238	1261
48. Dolomite 70%, pale gray, very fine- to fine-grained. Shale 15%, light to dark greenish gray. Sand 10%, medium-grained. Chert 5%, white opaque	14	1261	1275

	Description of Formation	Thickness	Depth in feet From	To
49.	Sandstone 65%, medium-grained, angular. Dolomite 25%, pale to light buff, very fine- to fine-grained. Shale 10%, greenish gray	5	1275	1280
50.	Dolomite 85%, pale to light buff, very fine-grained. Sand 10%, medium-grained. Chert 5% white	20	1280	1300
51.	Dolomite as from 1280 to 1300. Chert trace	50	1300	1350
52.	Dolomite, light to medium drab, fine- to medium-grained, sandy. Traces of chert from 1380 to 1425	85	1350	1435
53.	Dolomite 80%, light buff to drab, very fine- to fine-grained, saccharoidal, sandy. Chert 20%, white, translucent, oolitic	15	1435	1450
54.	Dolomite as from 1350 to 1435. Shale trace	25	1450	1475
	Root Valley member			
55.	Sandstone, white, medium-grained, some coarse- and fine-grained, angular to subangular, frosted, partly dolomitic	17	1475	1492
	Oneota member			
56.	Dolomite 90%, light to medium drab, fine- to medium-grained, saccharoidal. Chert 10%, white to light drab, oolitic	31	1492	1523
57.	Chert 60-75%, white, opaque, partly oolitic. Dolomite 25-40%, light gray, fine- to medium-grained	19	1523	1542
58.	Dolomite 55%, light gray, medium-grained. Chert 45%, white opaque to translucent	33	1542	1575
59.	Dolomite, light gray, medium-grained, saccharoidal, friable. Chert trace	20	1575	1595
60.	Dolomite 60-80%, light gray, medium- to coarse-grained, friable. Chert 20-40%, white to light gray, opaque to translucent. Shale traces	60	1595	1655
61.	Dolomite 90%, light buff and drab, medium- and coarse-grained, saccharoidal. Chert 10%, white	57	1655	1712
62.	Dolomite 95%, drab, medium-grained, saccharoidal. Sand 5%, medium-grained, subangular	17	1712	1729
	Cambrian system St. Croixan series Trempealeau formation Jordan member			
63.	Sandstone, medium-grained, some coarse- and fine-grained, angular to subangular, dolomitic cement	42	1729	1771
64.	Sandstone, fine-grained, angular to subangular, dolomitic	14	1771	1785
65.	Sandstone 50% as from 1771 to 1785. Dolomite 50%, light gray, medium-grained, saccharoidal, sandy	17	1785	1802

Total Depth - 1802 feet

IOWA GEOLOGICAL SURVEY
Iowa City, Iowa
Generalized Well Log
Based on Examination of Drill Cuttings

Name of Well Mt. Pleasant City Well No. 3 Survey No. W.-0052

Location S½ NW¼ NE¼ sec. 9, T. 71 N., R. 6 W. County Henry

Total depth 1802 ft. Drilled by Thorpe Well Co. Date Nov. 1934-March 1935

Curb elevation 671 ft. Static level ____ ft.; Drawdown ____ ft. at ____ gal. per min.

Casing and hole size record ____

Description of Formation	Thickness	Depth in feet From	To
Pleistocene system			
1. Till, yellowish brown, calcareous, little gravel	8	0	8
Mississippian system			
Iowa series			
Meramec group			
St. Louis formation			
2. Limestone, light gray, lithographic, floury, dolomitic. Some calcite crystals	4½	8	12½
3. Dolomite, light gray, very fine-grained, very calcareous, very sandy	12½	12½	25
Warsaw formation			
4. Shale 70-90%, light gray, laminated, calcareous. Chert 10-30%, pale gray to pale buff, opaque	15	25	40
5. Shale, light gray, laminated, calcareous, silty	10	40	50
6. Limestone, light to medium gray, very fine- to fine-grained, very dolomitic, argillaceous	5	50	55
7. Shale as from 40 to 50 feet	5	55	60
Osage group			
Keokuk formation			
8. Limestone 70%, pale and dark gray, mottled, medium- to coarse-grained, dolomitic, argillaceous. Siltstone 30%, light gray	5	60	65
9. Siltstone, light and medium gray, calcareous	3	65	68
10. Limestone, pale and dark gray, mottled, fine- to very fine-grained, very silty	14	68	82
11. Limestone 70%, gray, medium- to coarse-grained, with black fossil fragments. Siltstone 20%, gray, calcareous. Chert 10%, gray, translucent	13	82	95
12. Siltstone 95%, light to medium gray, very calcareous. Limestone 5%, dark gray, very fine-grained	5	95	100
13. Limestone 70%, light gray, very fine- to medium-grained. Chert 30%, light to medium gray, some brown mottling, opaque to translucent	40	100	140

	Description of Formation	Thickness	Depth in feet From	To
	Burlington formation			
14.	Limestone 90%, pale gray, coarse-grained, glauconitic. Chert 20%, pale to light gray, some dark spots	20	140	160
15.	Dolomite 60%, pale gray and light buff, very fine- to fine-grained, saccharoidal, dense. Chert 40%, white to light gray, opaque to translucent	10	160	170
16.	Limestone 65%, light gray, fine-grained, saccharoidal, fossiliferous, slightly dolomitic, chert 35%, white to light gray, medium gray spicules, opaque	10	170	180
17.	Dolomite 50-80%, light gray, fine-grained, granular, glauconitic. Chert 50-20%, light gray, translucent, spicules	15	180	195
	Kinderhook group			
	Hampton formation			
18.	Limestone, light to medium gray, fine-grained, saccharoidal, very dolomitic	25	195	220
	English River formation			
19.	Shale, greenish gray, some laminated, silty	15	220	235
20.	Siltstone, light gray, hard dolomitic cement, some very fine sand	35	235	270
	Maple Mill formation			
21.	Shale, light greenish gray, poorly laminated, dolomitic, silty. Pyrite common	30	270	300
22.	Shale, light greenish gray with some light brown, poorly laminated, slightly dolomitic and silty	85	300	385
23.	Shale, dark and medium gray, poorly laminated, slightly dolomitic	15	385	400
24.	Shale, light gray to brownish gray, laminated, slightly dolomitic	145	400	545
	Devonian system			
	Upper Devonian series			
	Cedar Valley formation			
25.	Limestone, pale to light drab, floury to very fine-grained, fossiliferous. Shale 5% from 545' to 564'	125	545	670
26.	Limestone 90-60% as from 545' to 670'. Gypsum 10-40%, crystalline	10	670	680
	Middle Devonian series			
	Wapsipinicon formation			
27.	Sandstone 60%, coarse- and medium-grained, angular. Limestone 20%, light buff, floury. Gypsum 20%, crystalline	5	680	685
28.	Limestone 80%, light buff, sublithographic. Sandstone 10%. Anhydrite 10%	15	685	700
29.	Limestone, light gray and brown, very fine-grained	13	700	713
30.	Limestone 90-10%, light brownish gray, sublithographic. Anhydrite 10-90%	22	713	735
31.	Dolomite, light brownish gray, fine-grained, saccharoidal, somewhat porous	10	735	745
32.	Chert 80%, white, translucent, few dark gray spots. Dolomite 20% as from 735' to 745'	5	745	750

Description of Formation	Thickness	Depth in feet From	To
33. Dolomite, light gray, floury to very fine-grained. Gypsum 50% from 762' to 770'. Chert 40% from 776' to 770', white, translucent	20	750	770
34. Dolomite, light gray, floury, argillaceous, slightly sandy	15	770	785
Ordovician system			
Cincinnatian series			
Richmond group			
Maquoketa formation			
35. Shale, light gray, slightly greenish, laminated, very dolomitic, sandy	30	785	815
Mohawkian series			
Trenton group			
Galena formation			
36. Dolomite, light to medium drab, medium-grained, granular, sandy	20	815	835
37. Dolomite, light buff and light drab, medium-grained, saccharoidal	65	835	900
38. Dolomite 95-60%, light buff and light drab, medium-grained, saccharoidal, porous. Chert 5-40%, pale drab and white, opaque, contains sponge spicules	122	900	1022
Decorah formation			
39. Dolomite 60%, medium drab to dark brown, medium-grained. Shale 40%, reddish brown, laminated	8	1022	1030
Black River group			
Platteville formation			
40. Dolomite 75-20%, light to medium drab, fine- to medium-grained, saccharoidal. Limestone 25-80%, pale buff and gray, phenoclastic	46	1030	1076
41. Sandstone, white, medium- and fine-grained, angular to subangular, slightly dolomitic	28	1076	1104
42. Shale 20-75%, light gray green, soft, laminated. Sandstone 25-80% as from 1076 to 1104	11	1104	1115
43. Shale, greenish gray, laminated, soft	10	1115	1125
Chazyan series			
St. Peter formation			
44. Sandstone 95%, medium- and fine-grained, some coarse-grained, angular to curvilinear, frosted. Shale 5%, gray	35	1125	1160
45. Shale, light greenish gray, calcareous, sandy	5	1160	1165
Beekmantownian series			
Prairie du Chien formation			
Willow River member			
46. Dolomite 65%, light buff to drab, very fine- to fine-grained, few scattered oolites, sandy. Sand 20%, medium-grained, angular to curvilinear, frosted. Chert 10%, white, opaque to translucent, oolitic in part. Shale 5%, dark greenish gray, laminated	73	1165	1238
47. Dolomite 90%, pale buffish gray, very fine-grained. Shale 10%, light to dark greenish gray. Chert trace	23	1238	1261
48. Dolomite 70%, pale gray, very fine- to fine-grained. Shale 15%, light to dark greenish gray. Sand 10%, medium-grained. Chert 5%, white opaque	14	1261	1275

	Description of Formation	Thickness	Depth in feet From	To
49.	Sandstone 65%, medium-grained, angular. Dolomite 25%, pale to light buff, very fine- to fine-grained. Shale 10%, greenish gray	5	1275	1280
50.	Dolomite 85%, pale to light buff, very fine-grained. Sand 10%, medium-grained. Chert 5% white	20	1280	1300
51.	Dolomite as from 1280 to 1300. Chert trace	50	1300	1350
52.	Dolomite, light to medium drab, fine- to medium-grained, sandy. Traces of chert from 1380 to 1425	85	1350	1435
53.	Dolomite 80%, light buff to drab, very fine- to fine-grained, saccharoidal, sandy. Chert 20%, white, translucent, oolitic	15	1435	1450
54.	Dolomite as from 1350 to 1435. Shale trace	25	1450	1475
	Root Valley member			
55.	Sandstone, white, medium-grained, some coarse- and fine-grained, angular to subangular, frosted, partly dolomitic	17	1475	1492
	Oneota member			
56.	Dolomite 90%, light to medium drab, fine- to medium-grained, saccharoidal. Chert 10%, white to light drab, oolitic	31	1492	1523
57.	Chert 60-75%, white, opaque, partly oolitic. Dolomite 25-40%, light gray, fine- to medium-grained	19	1523	1542
58.	Dolomite 55%, light gray, medium-grained. Chert 45%, white opaque to translucent	33	1542	1575
59.	Dolomite, light gray, medium-grained, saccharoidal, friable. Chert trace	20	1575	1595
60.	Dolomite 60-80%, light gray, medium- to coarse-grained, friable. Chert 20-40%, white to light gray, opaque to translucent. Shale traces	60	1595	1655
61.	Dolomite 90%, light buff and drab, medium- and coarse-grained, saccharoidal. Chert 10%, white	57	1655	1712
62.	Dolomite 95%, drab, medium-grained, saccharoidal. Sand 5%, medium-grained, subangular	17	1712	1729
	Cambrian system St. Croixan series Trempealeau formation Jordan member			
63.	Sandstone, medium-grained, some coarse- and fine-grained, angular to subangular, dolomitic cement	42	1729	1771
64.	Sandstone, fine-grained, angular to subangular, dolomitic	14	1771	1785
65.	Sandstone 50% as from 1771 to 1785. Dolomite 50%, light gray, medium-grained, saccharoidal, sandy	17	1785	1802

Total Depth - 1802 feet

Sheet No. ..... Name of Well Mt. Diamond Coal Well #2 ..... Survey No. ..... (WVGES)

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

CWD Co. 671

00 — Loess, calc. pale to lt yellow brown, silty, gravel.

10 — Limestone, calc, silty, lt gray to med gray, vfxln, slightly shaly, lt & med gray mottled, some chert, yellowish brown, slightly fossiliferous.

Dolomite, calc., argillaceous, lt & dk gray & yellowish gray, vfxln, containing abundant vesicles and pods of large calcite xls; 10% chert, lt to dk yellowish brown, some as vesicle fillings, 10% gyp as vesicle fillings, slightly silty, some with vugs lined with dolomite xls; also present as above, as a group of nearly 1%.

20 — Sample as above as 15-20'

Shale, slightly dolomitic, lt gray, faintly laminated, 30% chert, opaque, pale gray and pale buff, 10% translucent, 10% lt gray to buff, as fragments

30 — Shale, lt gray, faintly laminated, 5% chert, as above.

Shale, calc, slightly silty, lt gray, 10% chert, yellowish brown and some lt buff, opaque, some translucent, 5% lt to lt gray, as fragments

40 — Shale, calc, slightly silty, lt gray with some darker and grey areas, laminated, 1% chert

Shale as in 40-45'.

50 — Limestone (calc.) w dolomitic, argillaceous, lt to med gray, vfxln to fn, some with small green mica specks, 10% lt buff, 5% chert with translucent, white cortex as above

Shale, calc, silty, lt gray with some darker and grey specks and mottling, slightly micaceous

60 — Limestone, pale gray with darker mottling and shale (calc.) fragments, med. to coarse, 30% siltstone

Siltstone, calc., lt to med gray

70 — Limestone, pale gray and lt gray, mottled, med to coarse, some large xls, black shale fragments, some small pods of lt green clay, 5% siltstone

Limestone, as in 69-70', white pale gray chert with black cast, 15% siltstone

Limestone, calc, lt to med gray with some black shale laminations, fn to med xln, 10% lt as in 69-70'; 20% siltstone

77 — Limestone, silty and shaly, pale to lt gray, vfxln to fn.

80 — Limestone, some gray with dk gray mottling, some shale, pale to v coarse, some lt buff, brecciated, some fragments of large clear calc xls, some lt buff chert; 10% siltstone

85 — siltstone, dolomitic, lt to med gray; 30% lt as in 82-87' with some glauconite; 10% chert pale to med gray with black dots, fragmental, 10% opaque.

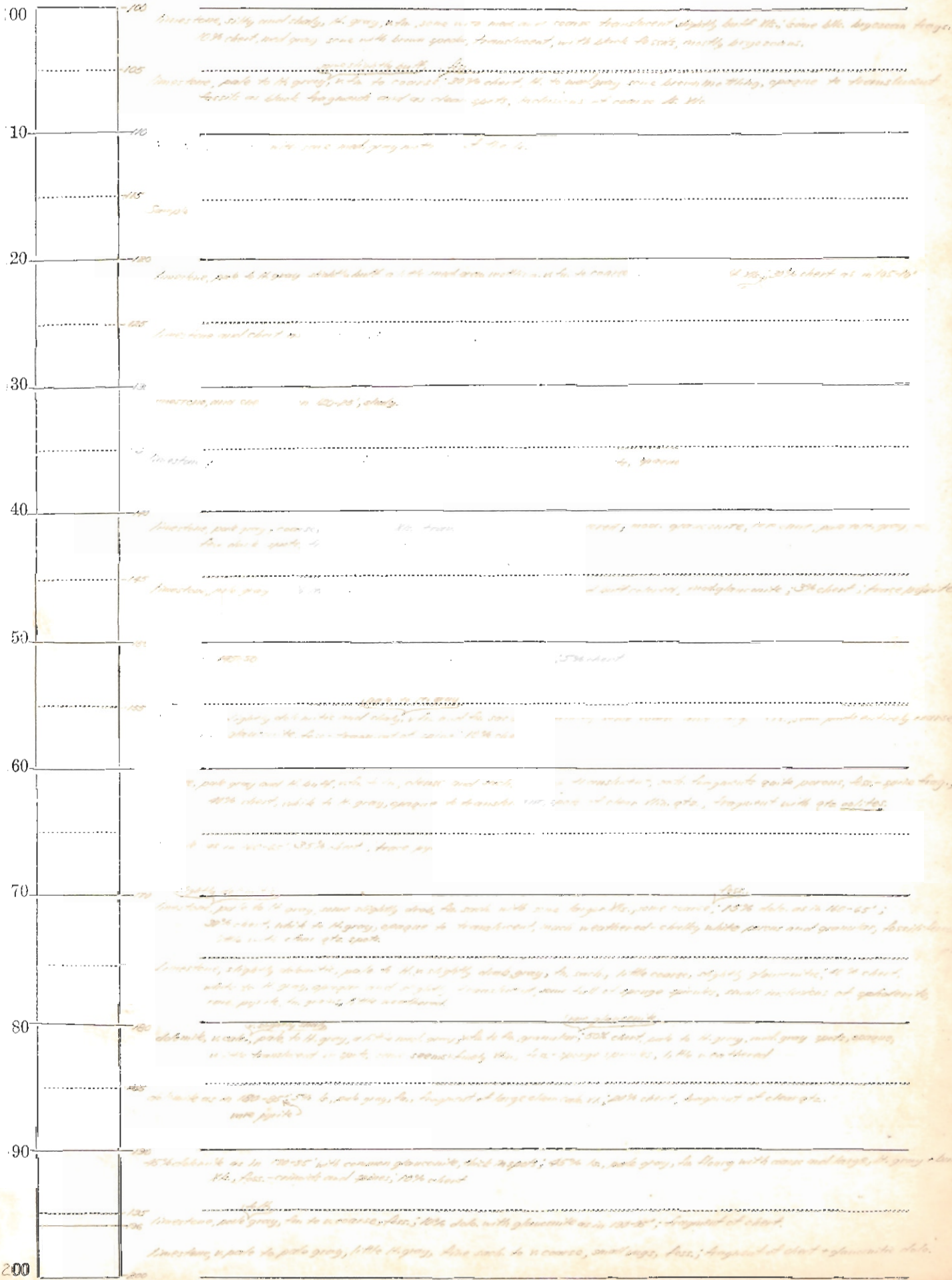
90 — Limestone, as in 82-87'; 15% chert pale to med gray with lt buff fossil fragments, translucent, 10% opaque; 20% siltstone

95 — Siltstone, calc, lt gray to med gray, 5% lt, pale gray, vfx

100

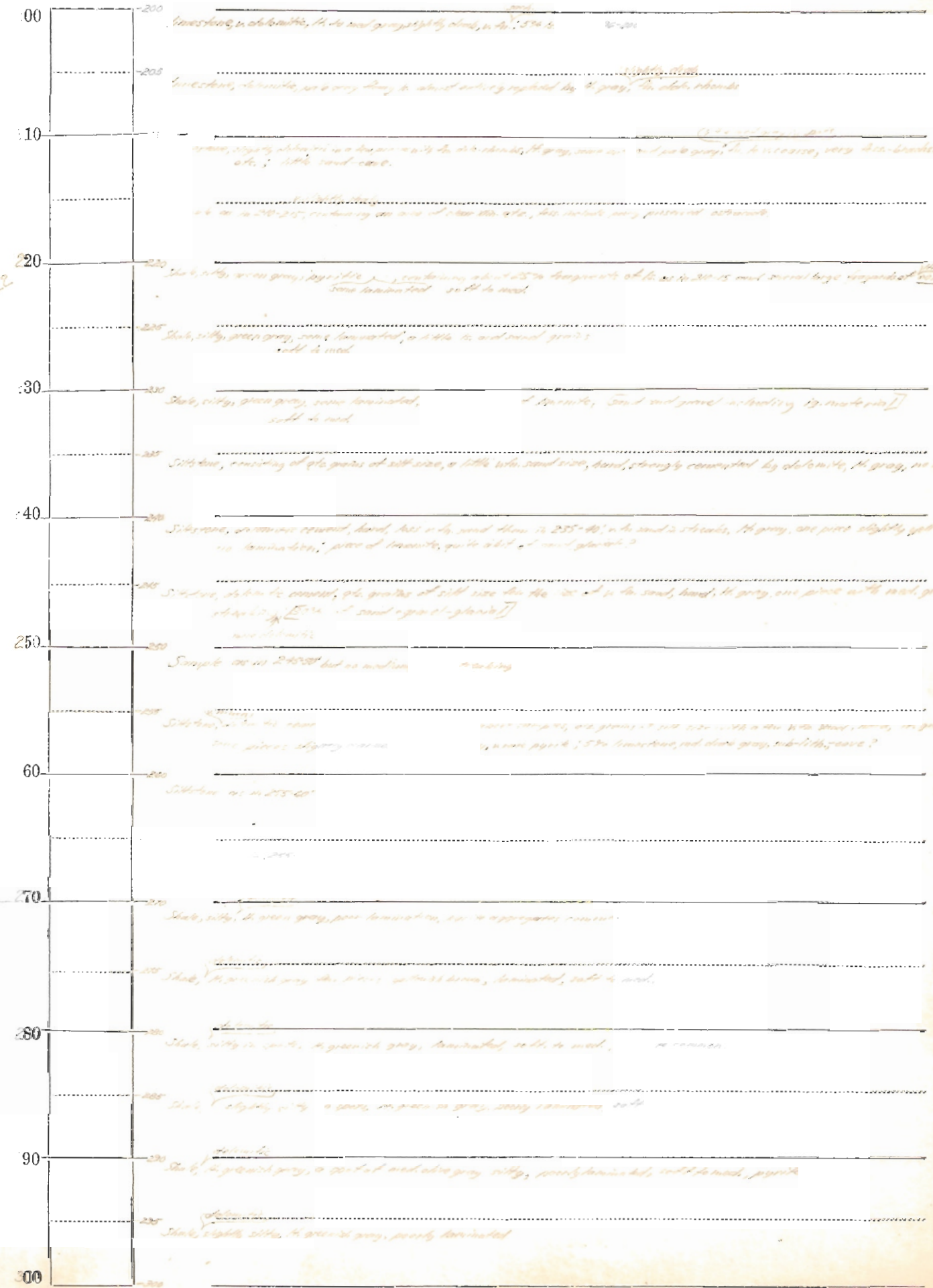
Sheet No. 2 Name of Well Mt. Pleasant City Well #2 Survey No. M-005B

Location Haney Co. Date Drilled 2-24-54 Analyst M. Elias



Sheet No. 2 Name of Well Mt. Pleasant City, Utah Survey No. W-0052

Location ..... Date Drilled 7-31-July 32 Analyst M. Ellis



Sheet No. ..... Name of Well Mt. Pleasant City Well #2 ..... Survey No. W-2052

Location Hemet ..... Date Drilled Oct. 24 - July 25 Analyst M. Elias



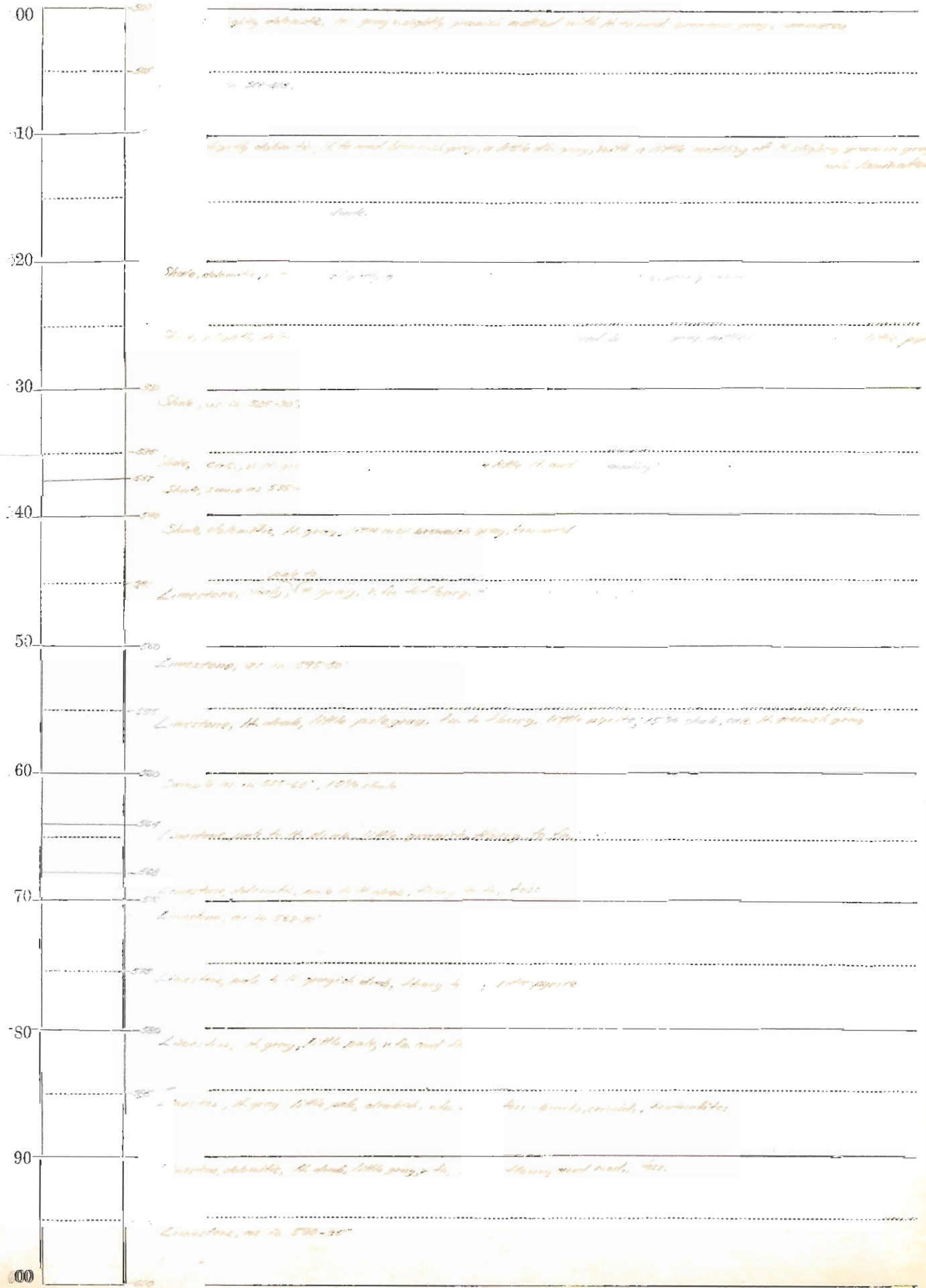
Sheet No. 2 Name of Well Pleasant City Well Survey No. W-0052

Location Henry Date Drilled 7-24-1945 Analyst M. Elias



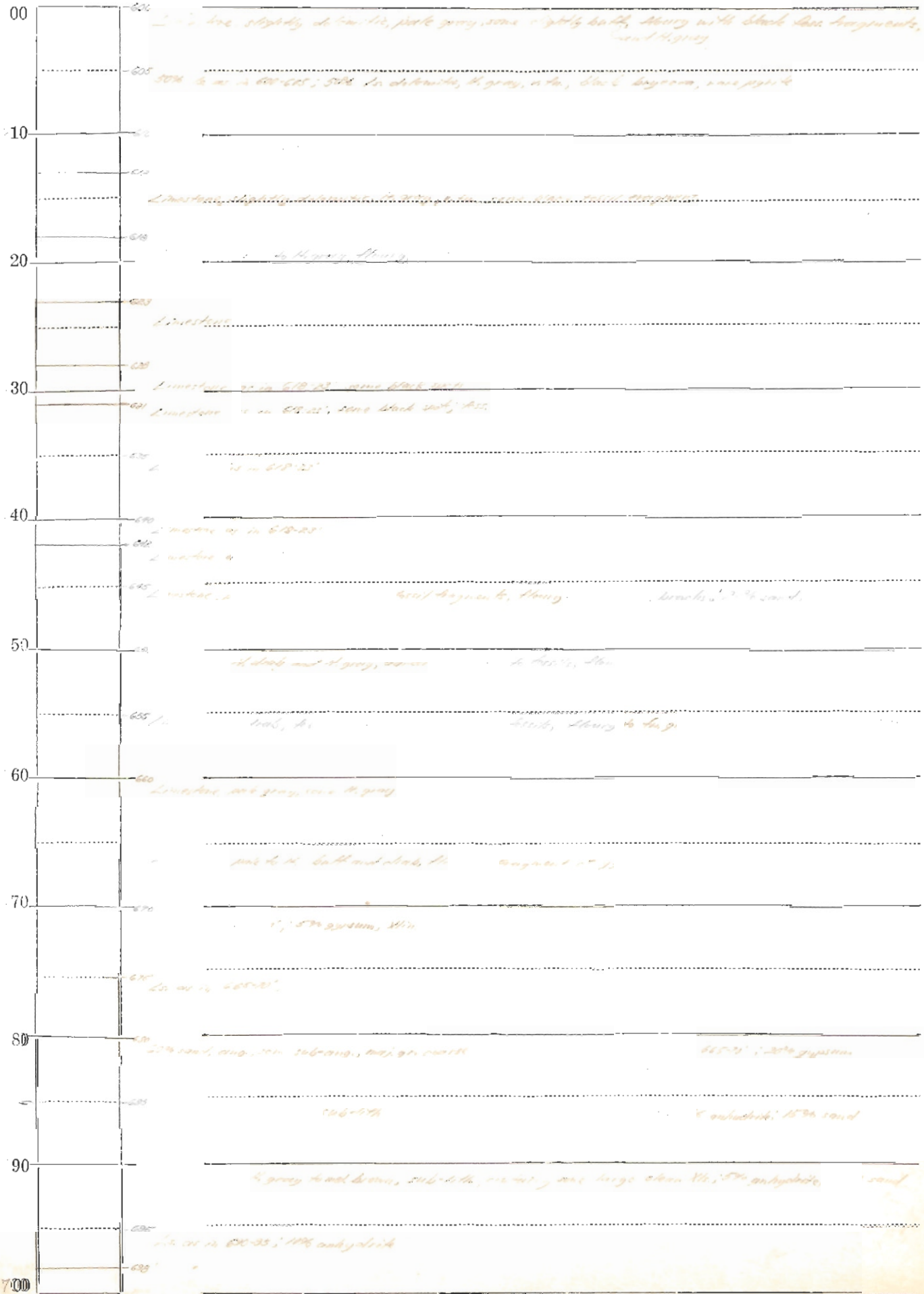
Sheet No. ..... Name of Well ..... Survey No. .....

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



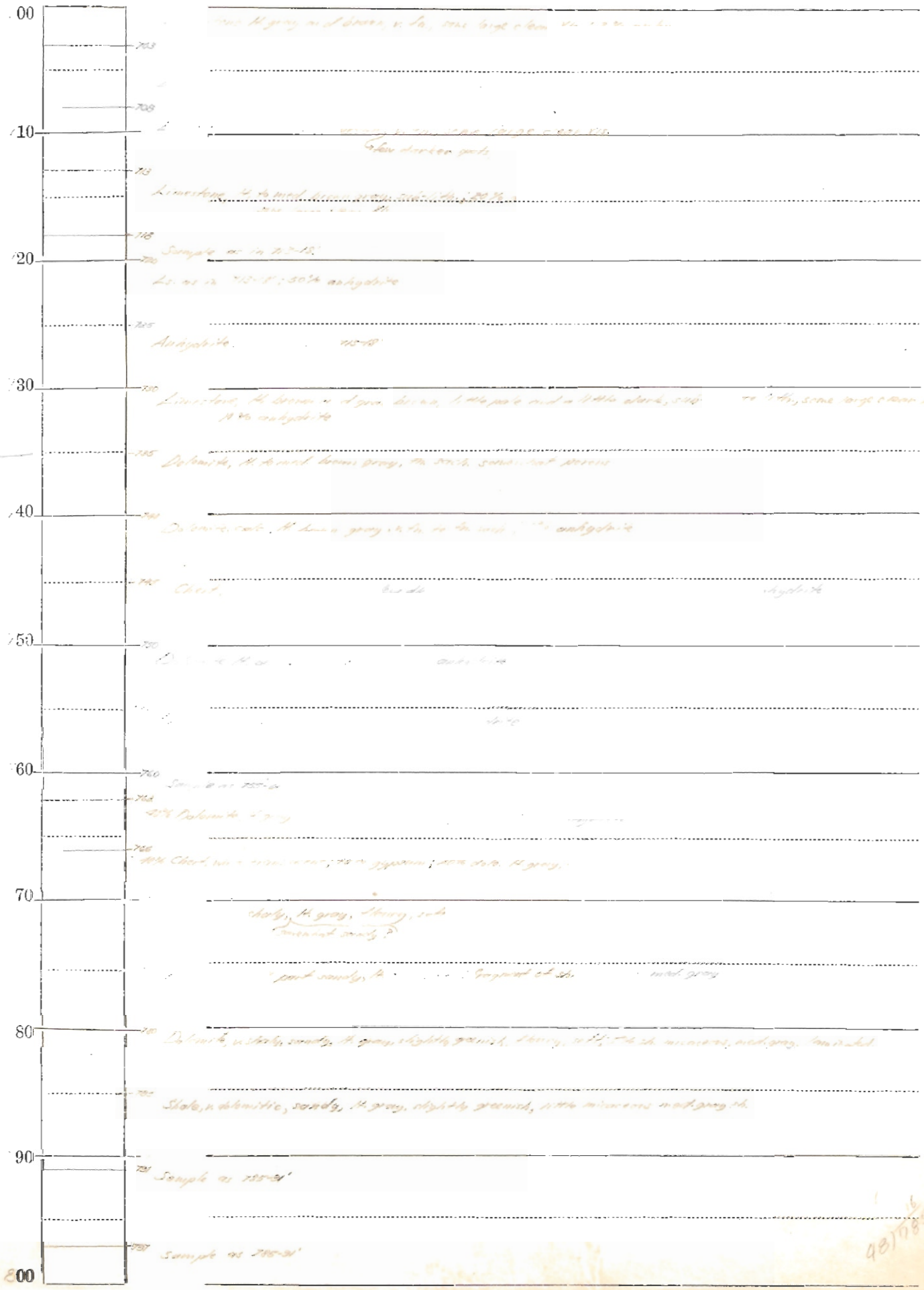
Sheet No. ..... Name of Well. Ottawa Well ..... Survey No. W-0052

Location ..... Date Drilled Oct 22 to Nov 25 Analyst M. Elias



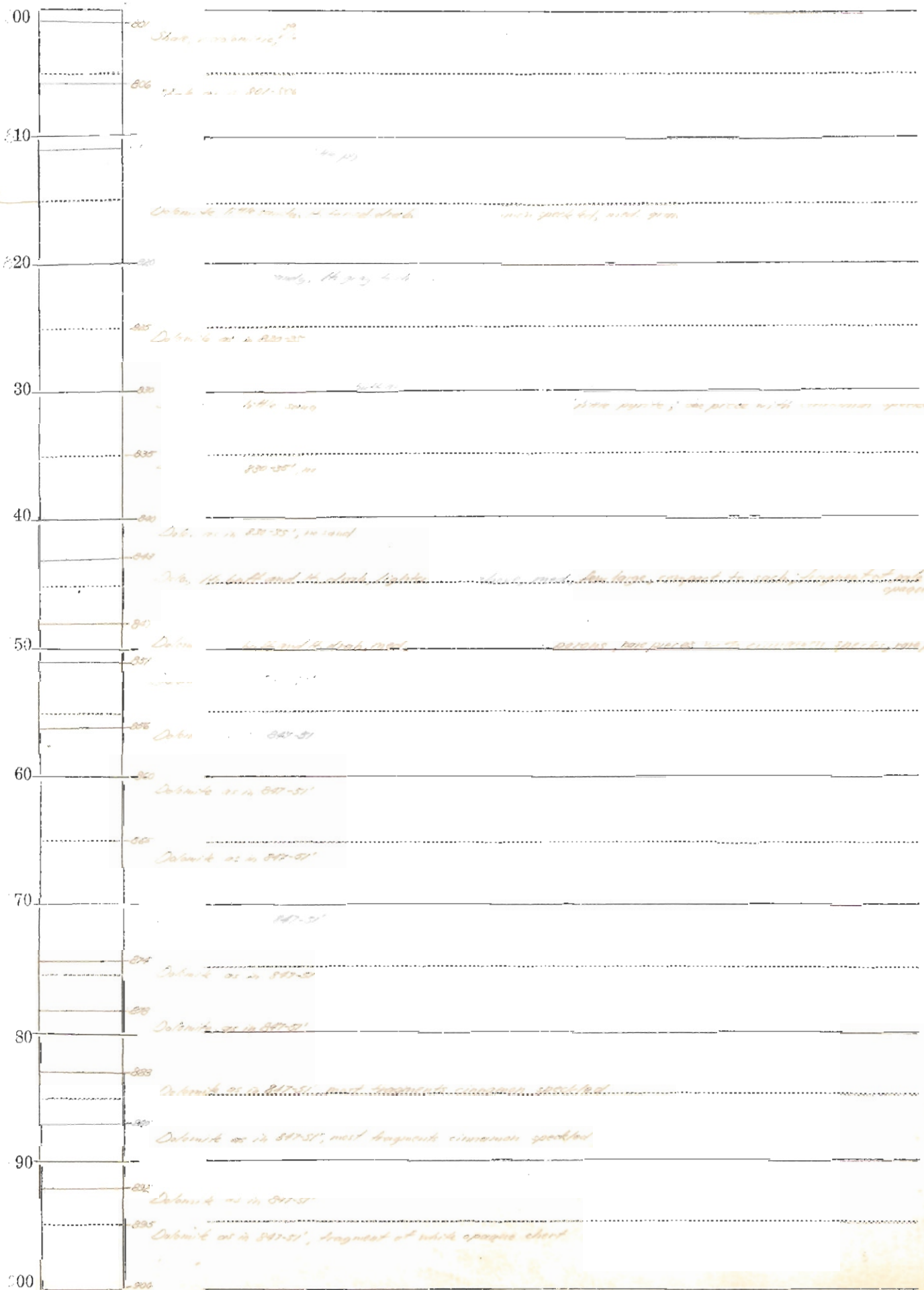
Sheet No. ..... Name of Well Mt. Pleasant City Well Survey No. W-0052

Location Henry Co. Date Drilled Oct 30 - July 31 Analyst M. Ellis



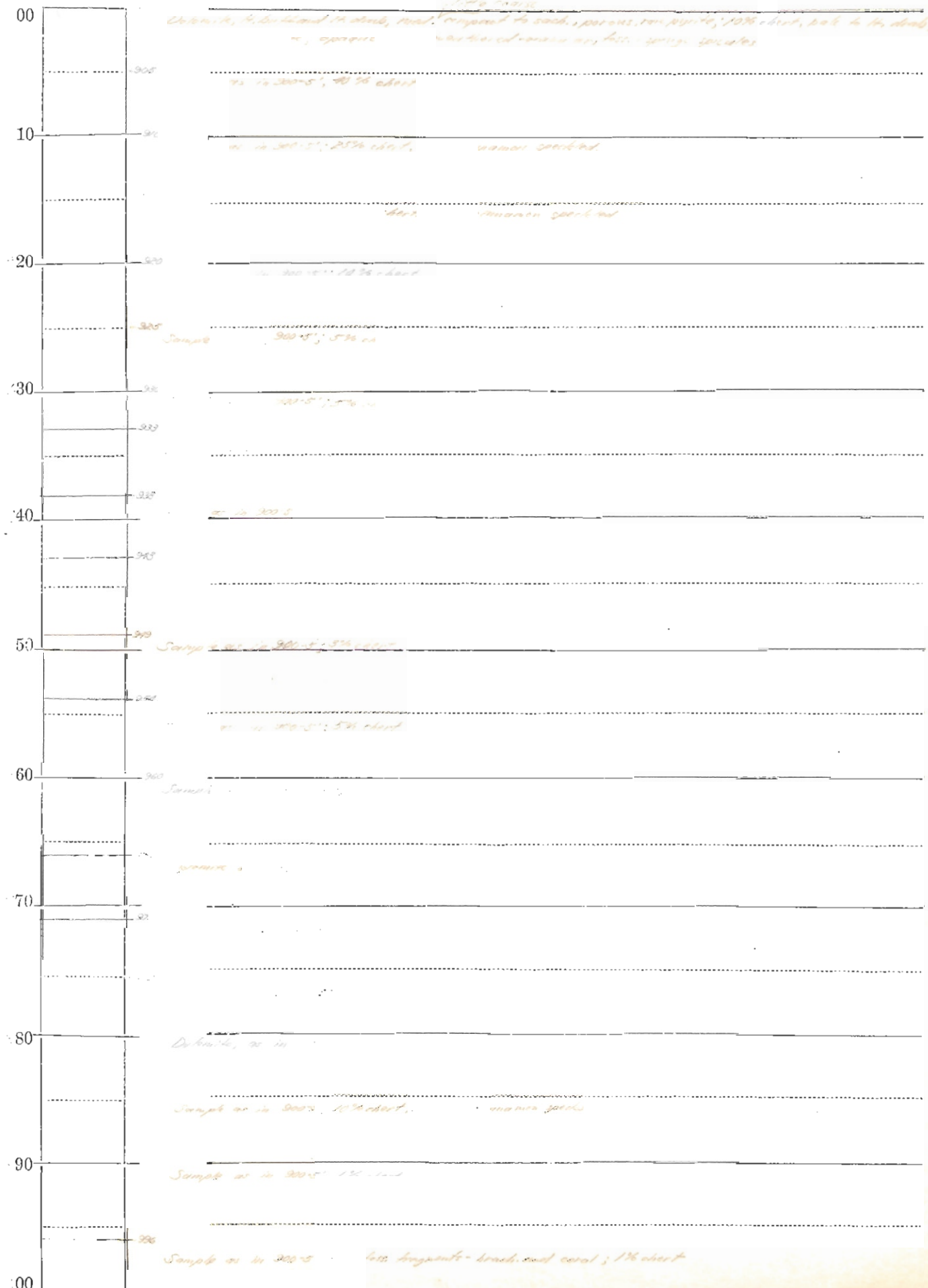
Sheet No. 9 Name of Well Mt. Pleasant C. Well No. 3 Survey No. W-0056

Location Mercy Date Drilled Oct '34 - July '35 Analyst M. F. Elias



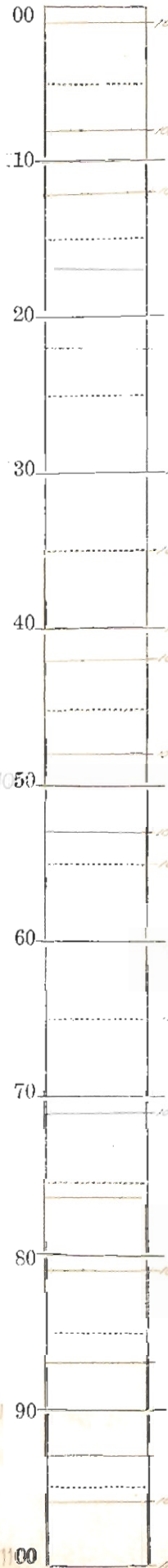
Sheet No. 10 Name of Well ..... Survey No. W-9052

Location Henry ..... Date Drilled ..... Analyst M. Elias



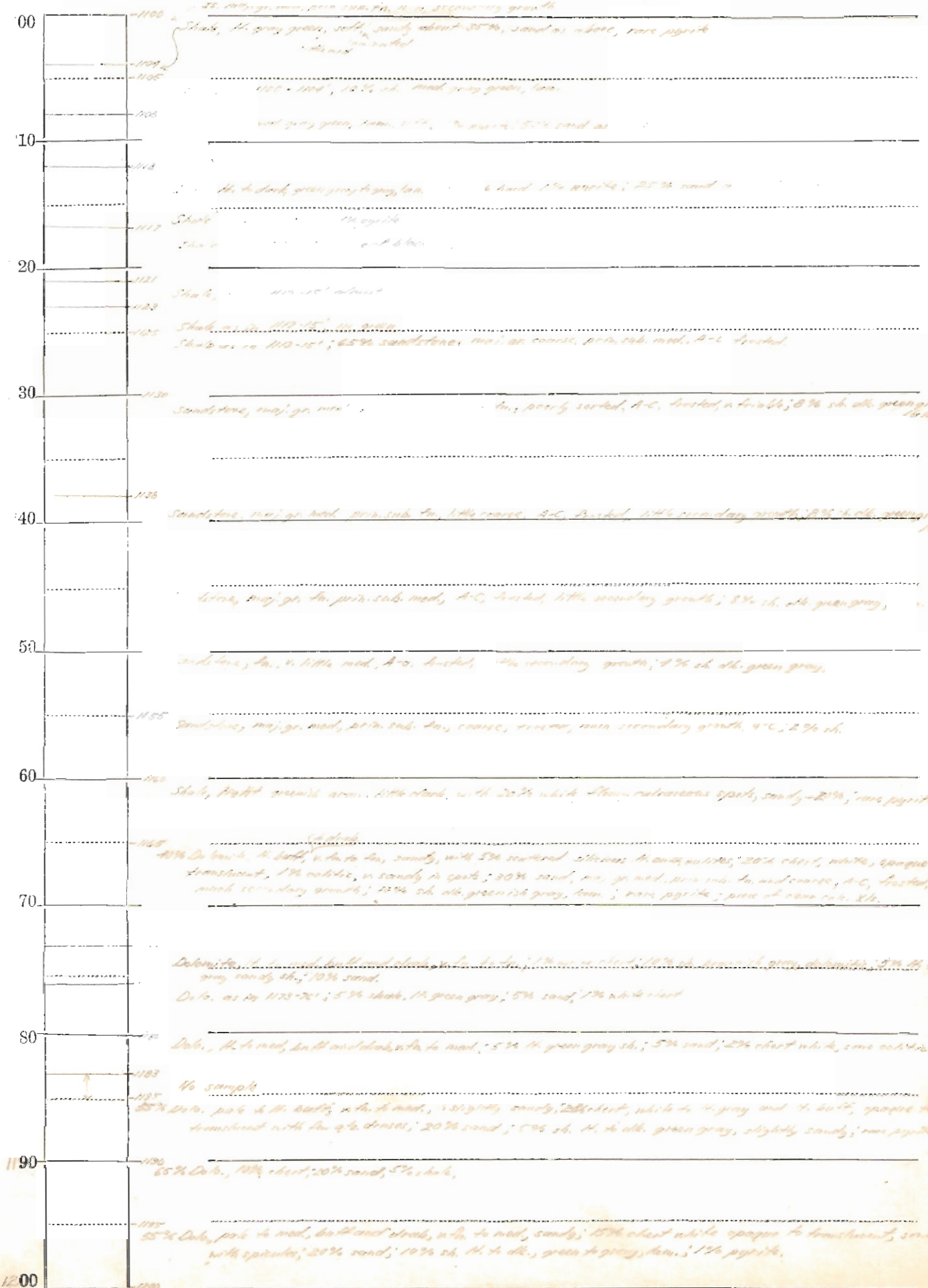
Sheet No. ..... Name of Well ..... Survey No. .....

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



Sheet No. ..... Name of Well Mt. Pleasant City Well #2 Survey No. W-0052

Location Henry Co. Date Drilled Oct. 34 - July 35 Analyst M. Elias



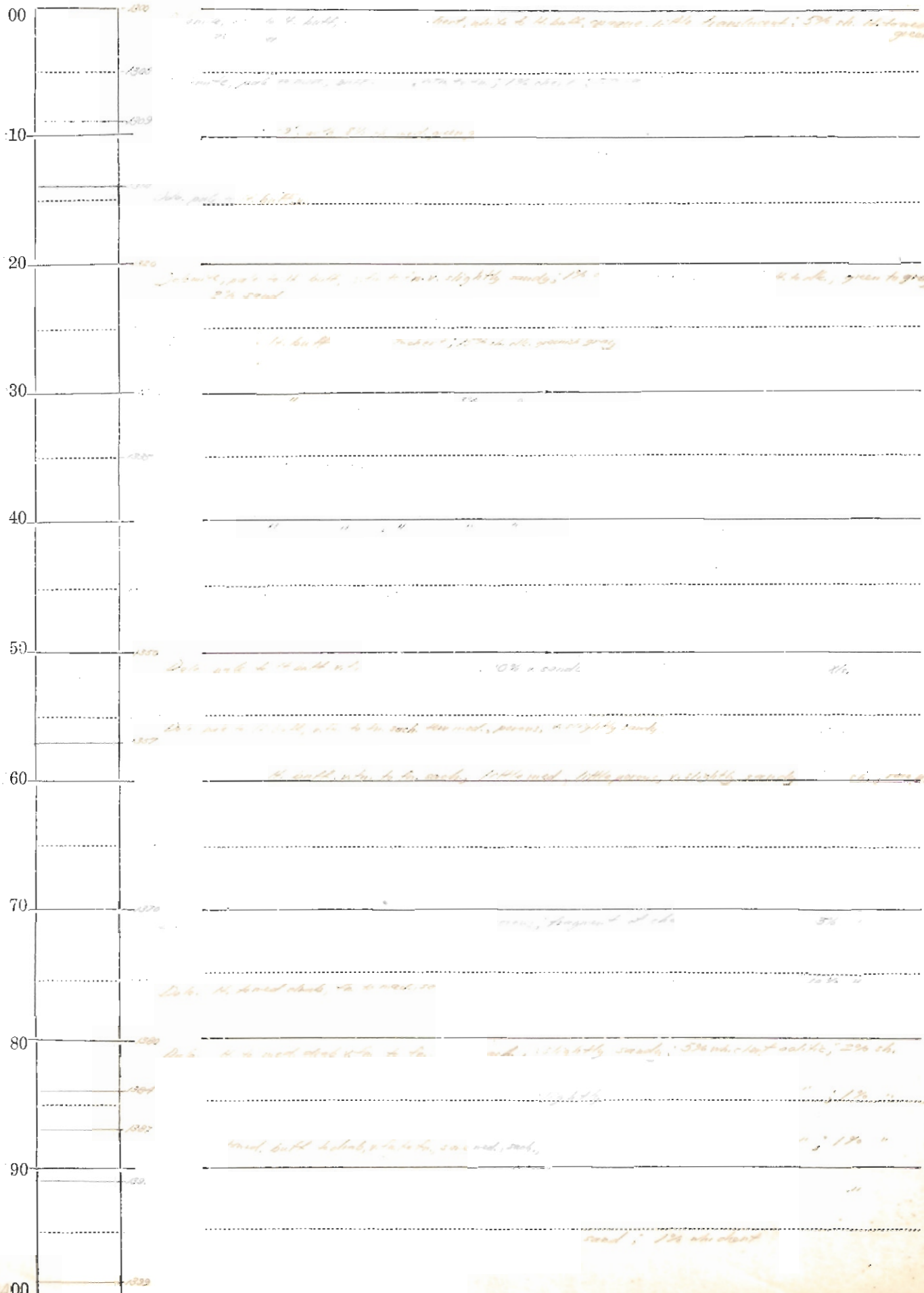
Sheet No. ..... Name of Well ..... Survey No. .....

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



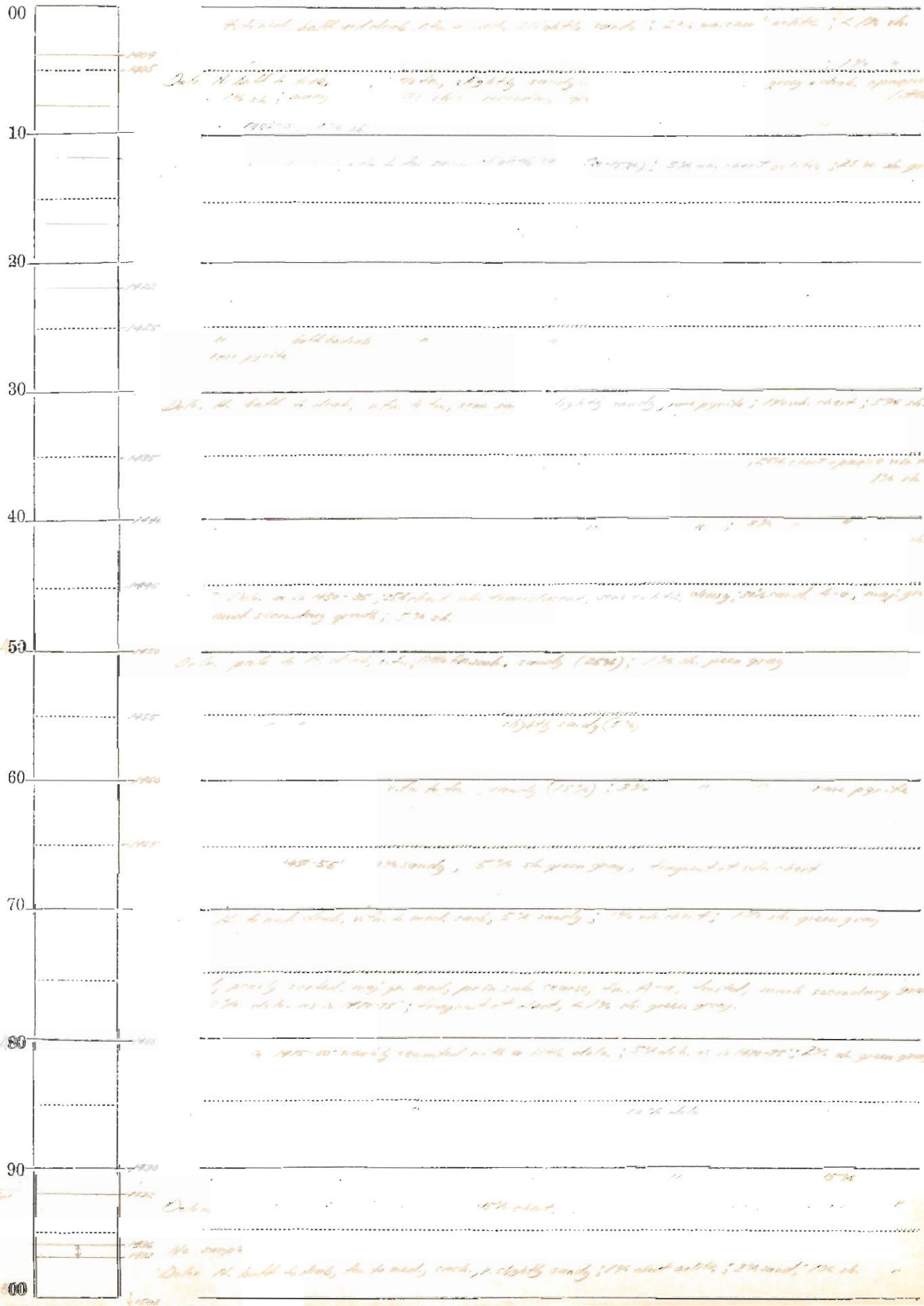
Sheet No. ..... Name of Well. Mt Pleasant ..... Survey No. W-6052

Location Henry Co. ..... Date Drilled ..... Analyst M.E. Lias



Sheet No..... Name of Well..... Survey No.....

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



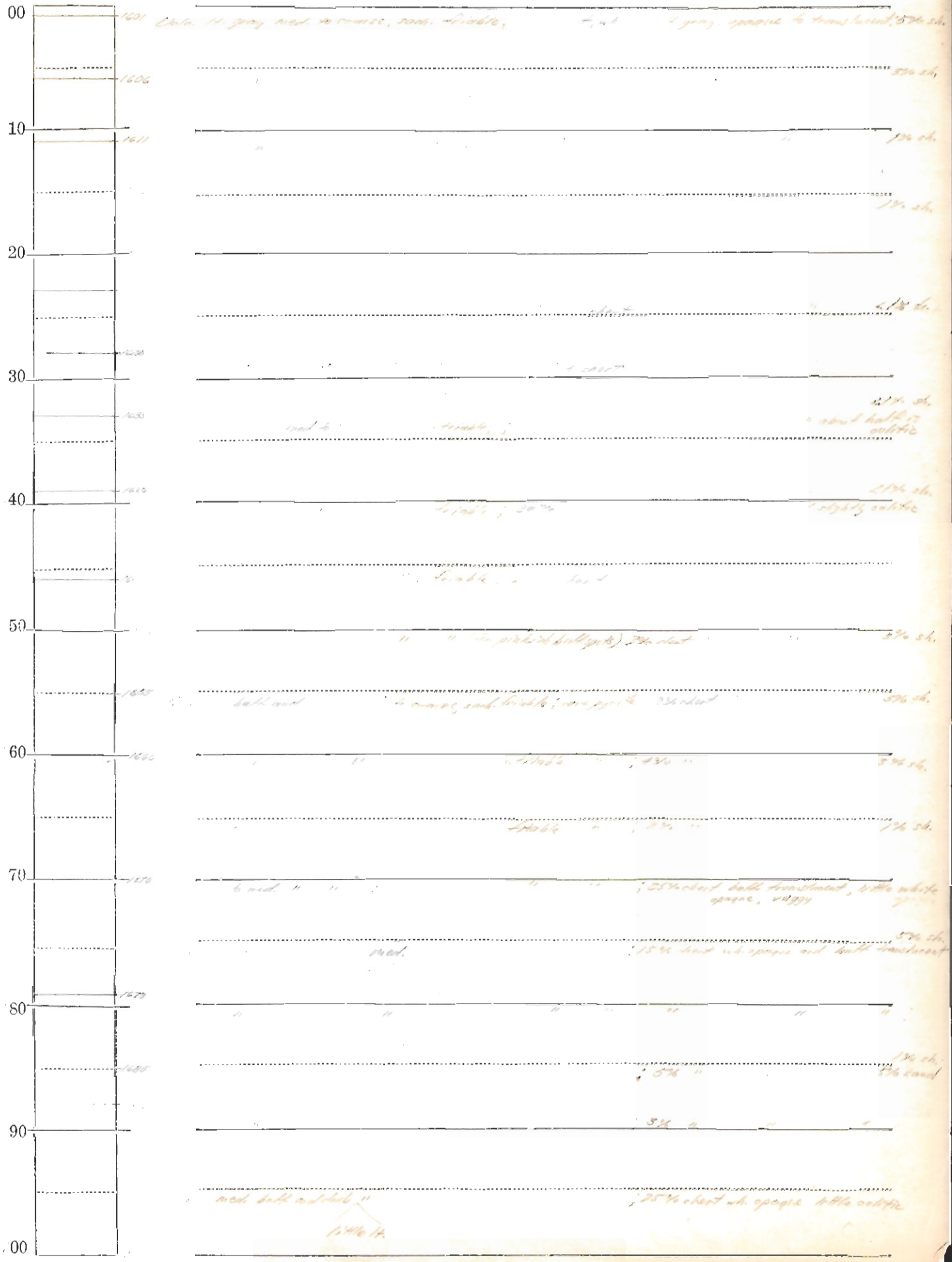
Sheet No. ..... Name of Well ..... Survey No. .....

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



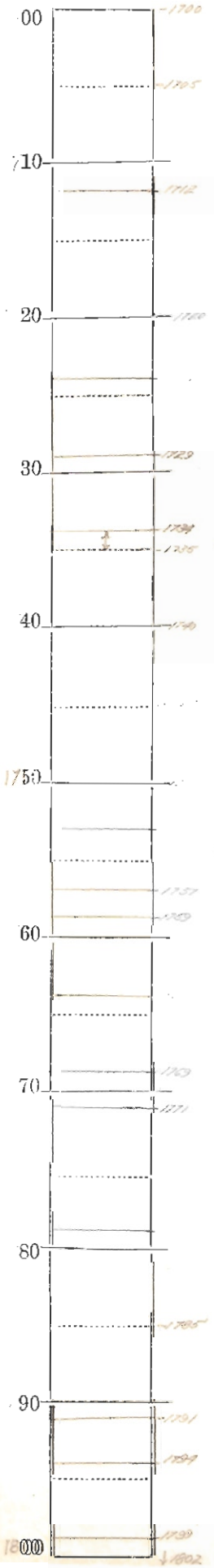
Sheet No. 17 Name of Well Vincennes City Well #2 Survey No. W-9052

Location Henry Co. Date Drilled Analyst M. E. Elias



Sheet No. ..... Name of Well Mt. Pleasant City Well #2 ..... Survey No. W-2052

Location Henry Co. ..... Date Drilled ..... Analyst M. Elias



Dol. med. drab to buff, med. sach. friable; 10% chert wh. gangue, little translucent; 2% sh.

5% sh.

1% sh.

lime pyrite; <1% chert; 5% rnd, med A-a, stain authigenic 2%.

15%

2% sh.

Sand, maj. gr. med, pr. rnd [illegible] A ~ rare C large mostfrosted, ol secondary growth, 2% lt. green,

No sample

1% sh.

Sand as in 1725-34', with 20% coarse.

Sand, maj. gr. med, pr. rnd gray dolo. fn. to med

fn, A a, dolo C, secondary growth, 20% cemented with pale

1740-45', 15% dolo. cemented

Sand as in 1740-45', 10% dolo. cemented.

Sand as in 5% dolo. cemented, 2% chert, white gangue, witherite and dolo. [illegible]?

2% sh.

30% cemented by lt gray to drab fn. dolo; 15% sh. med to dk. green gray, v.s.e. sandy, rare pyrite,

4% sh.

5% sh.

Sand fn., pr. rnd sub rnd rare secondary growth 25% cemented by lt. gray fine to med. dolo,

8% sh.

80 %

7% sh.

30% dolo. sandy, lt gray, med to fn. sach. 10% sh. green gray

Sand maj gr. fn, pr. rnd. sub. rnd, coarse, A-a 30% dolo

10% sh.

30% dolo. V. sandy

50% [illegible]

Henry Co.
(4)

Mt. Pleasant

Owner: City of Mt. Pleasant, Well No. 2 — (Pauls well No 3 grc)

Location: S½ NW¼ NE¼ sec. 9, T. 71 N., R. 6 W., Center Twp.

Curb elevation: 671 feet

Total depth: 1802 feet

Contractor: Thorpe Well Company, Des Moines

Driller: Orville Yaney

Date Drilled: October, 1934 to March, 1935

Size of hole and casing: 16-inch C.I. casing from +2 feet to 210 feet, grouted from 0-210 ft. 10-inch C.I. casing from 203 to 213 ft. with lead seal between 16 and 10-inch casings. 8-inch C.I. casing from 213 to 1689 ft, cemented at base. Finished with 8-inch open hole from 1689 to 1794 ft. with cement plug from 1794 to 1802 ft. to shut out harder water which was entering the well at the bottom.

Water Data: When completed, the well produced 390 g.p.m. with 135.7 feet of drawdown from a static level of 55 feet below curb to a pumping level of 190.7 feet below curb. Temperature of the water was 67° F. During the drilling of the St. Peter sandstone, the water level stood at 90 feet below curb, and the well was bailed at a rate of about 10 gpm with no noticeable drawdown. The water level rose to 70 feet at a depth of 1183 feet, dropped to 78 feet at a depth of 1309 feet, and rose again when the Jordan sandstone was entered to the final static level.

Generalized Log

Samples studied by: M.M. Elias

Log by: M.M. Elias and S.E. Harris Jr.

IOWA GEOLOGICAL SURVEY
Generalized Log Based on Detailed
Description of Drill Cuttings

Name of Well: Mt. Pleasant City Well #2 Survey No. W- 0052

Drilled by: _____ Date _____, 193__

Total Depth: 1902 ft; Curb Elevation: 671 ft; Static Level: _____ ft.

Casing Data: _____

Pump and Screen Data: _____

Pumping Test: ____ Hours ____ Min; Gal. Per Min. _____; Drawdown ____ ft. in ____ min.

Description of Formations

No.	Rock Unit	Thick. (Feet)	From	To
	PLEISTOCENE system			
	Kansan stage			
	Clay, calcareous, pale to light yellow brown, scattered gravel.	8	0	8
	MISSISSIPPIAN system			
	Meramec group			
	St. Louis formation			
2.	Limestone, dolomitic, light slightly drabish gray, sub-lithographic, large clear calcite crystals.	4.5	8	12.5
	Warsaw (?) formation			
3.	Dolomite, calcareous, argillaceous, light buffish and pinkish gray, very fine-grained, streaks of large clear crystals; 15% chalcedony and clear quartz geode fragments.	2.5	12.5	15
4.	Dolomite, calcareous, very sandy, light gray, very fine-grained, sand grains are very fine to coarse, sub-angular, rare glauconite.	10	15	25
5.	Shale, light bluish gray, well laminated, with up to 30% chert, pale gray and pale buff, opaque to translucent	10	25	35
6.	Shale, silty, calcareous, light gray, laminated; 15% chert yellowish brown to light buff, opaque little translucent, from 35-40'	15	35	50
7.	Limestone, very dolomitic, argillaceous, light to medium gray, 5% chalcedony, geode fragments.	5	50	55
8.	Shale, calcareous, silty, light gray, little medium gray mottling	5	55	60

Notes:

Mt Pleasant #2

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Keokuk formation

9.	Limestone, pale gray with dark mottling, medium- to coarse-grained, black fossil fragments	4	60-64
10	Siltstone, calcareous, light to medium gray	4	64-68
11	Limestone, pale gray and dark gray mottled, medium- to coarse-grained, black bryozoans, rare glauconite, 1% chert pale gray opaque with black fossil fragment.	5	68-73
12	Limestone, dolomitic, pale gray with few black steaks, very fine- to fine-grained.	4	73-77
13	Limestone, very silty and argillaceous, pale to light gray, very fine- to fine-grained	5	77-82
14	Limestone, pale gray with dark gray mottling, medium- to very coarse-grained, black bryozoans; siltstone, light to medium gray, 10-20% up to 60% from 87.5-90'; ~~chert~~ up to 15% chert, pale to medium gray, translucent, little opaque, with black fossil fragments.	13	82-95
15	Siltstone, very calcareous, light to medium gray.	5	95-100
	Limestone, silty and argillaceous light gray, very fine-grained, with medium- and coarse-grained translucent, slightly buff crystals, few black bryozoans (10%) chert, medium gray, brown specks translucent, black bryozoans	5	100-105

Mt Pleasant #2

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16. Limestone, 70% pale to light gray, slightly buff, very fine-to coarse-grained, fossiliferous, (30%) chert, light to medium gray with brown mottling, opaque to translucent, fossils as black fragments and clear spots, 10% (light gray) shale, from 25-30'. 30 105-135

17 Limestone, 80% pale gray, very fine-to coarse-grained, Chert 20% as from 105 to 135 feet 5 135-140

Burlington formation

18 Limestone, pale gray with light gray spots, coarse-grained, some large crystals, buff, translucent, glauconitic, fossiliferous. Chert 3-10%, pale to light gray with dark spots, translucent to opaque 20 140 160

19 Dolomite, 60% pale gray and light buff, very fine-to fine-grained, dense and saccharoidal, fossiliferous. Chert 40%, white to light gray, opaque to translucent, quartzose, some quartz oölite 10 160 170

20 Limestone, 65% light gray to drab, fine-grained, saccharoidal, slightly glauconitic slightly dolomitic. Chert 35%, white to light gray, opaque, some sponge spicules, some weathered 10 170 180

21 Dolomite, 50-80% light gray, very fine-to fine-grained, granular, very slightly shaly, very calcareous rare glauconite. Chert 20-50%, light gray, opaque, some finely crystalline, sponge spicules 10 180 190

22 Limestone, 45% pale gray, fine-grained. Dolomite, 45% crinoids and spines as from 180 to 190 feet. Chert 10% 6 190 196

Mt. Pleasant #2

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Kinderhook group

Hampton formation

Wassonville member

23	Limestone, pale to light gray, fine-grained, saccharoidal, to very coarse-grained, fossiliferous, small vugs.	4	196	200
24	Limestone, light gray, very fine-grained, very dolomitic, fossiliferous	10	200	210

North Hill member

25	Limestone, light gray and buff, fine- to very coarse-grained, slightly dolomitic, very fossiliferous. Limestone at base, light buff, oolitic	12	210	222

English River formation

26	Shale greenish gray, silty, laminated, some limonite	13	222	235
27	Siltstone, light gray, some very fine-grained sand, massive, dolomitic cement	35	235	270

Maple Mill formation

28	Shale, light greenish gray, silty, dolomitic, laminated, pyritic; somebrown from 305 to 310 feet. (No sample 325 to 330 feet)	100	270	370

Mt Pleasant
p5

	Shale, medium to dark gray, slightly dolomitic, laminated	45	370	415
30	Shale, light pinkish brown to light gray, very slightly dolomitic, poorly laminated	120	415	535
31	Shale, light greenish gray, calcareous	10	535	545
	Devonian system			
	Upper Devonian series			
	Cedar Valley formation			
32	Limestone, pale to light gray, very fine-grained to flowry, shaly, fossiliferous	10	545	555
33	Limestone light drab to light gray, fine-grained to flowry, fossiliferous	35	555	590
34	Limestone, light drab and pale gray, very fine-grained, dolomitic fossiliferous	10	590	600
35	Limestone, light gray, ~~very fine-grained~~ black fossil fragments,	18	600	618
36	Limestone, pale to light gray with black spots, flowry, soft; black bryozoans and brachiopods, 20% sand from 645 to 650 feet	32	618	650
37	Limestone, light drab, black spots due to fossils, flowry to fine-grained	15	655	665

Mt. Pleasant

38	Limestone, pale to light buff and drab, flinty. Gypsum trace to 5% increasing downward; 40% from 675 to 680 feet	15	665	680
39	Sand 60% coarse- to medium-grained, angular and sub-angular. Limestone, 20%, as from 665 to 680. Gypsum 20%	5	680	685
	Middle Devonian series			
	Wapsipinicon formation			
	~~Davenport member~~			
40	Limestone, light buff to brown, sublithographic to lithographic containing large, clear calcite crystals. Sand 15% from 685 to 695 feet. Anhydrite 10%	15	685	700
41	Limestone, light gray and brown, very fine-grained, anhydrite 2%	13	700	713
42	Limestone, light to medium brown, sublithographic. Anhydrite 20 to 90% increasing downward	17	713	730
43	Limestone, light brown and grayish brown, sublithographic to lithographic, some large crystals. Anhydrite 10%	5	730	735
44	Dolomite, light brownish gray, fine-grained, saccharoidal. porous. Anhydrite trace	10	735	745
45	Chert, white with few dark gray spots, translucent. Dolomite as from 735 to 745 feet. Anhydrite 3%	5	745	750
46	Dolomite, light gray, flinty to very fine-grained. anhydrite - 5%. Gypsum 60% from 762 to 766	16	750	766

Mt. Pleasant

P?

47	Chert 40%, white translucent. Gypsum 40%. Dolomite 20% as from 750 to 766 feet	4	766	770
48	Dolomite, light gray, very fine-grained, very shaly, sandy. Shale 5%, medium gray, micaceous, laminated	15	770	785
	Ordovician system			
	Cincinnatian series			
	Richmond group			
	Maquoketa formation			
49	Shale, light gray to slightly greenish gray, sandy, very dolomitic, some micaceous	30	785	815
	Mohawkian series			
	Trenton group			
	Galena formation			
	Dubuque-Stewartville members			
50	Dolomite, light drab, little cinnamon speckled near top, medium-grained, granular, slightly sandy from 815 to 835 feet	28	815	843
51	Dolomite, light buff and light drab, medium- to coarse-grained, saccharoidal. cinnamon speckled from 883 to 892 feet	52	843	895
	Prosser member			

Mt. Pleasant

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52	Dolomite 90 to 99%, light buff and light drab, medium- to coarse-grained, compact to saccharoidal, porous. Chert 1 to 10%, pale to light drab, opaque, some weathered granular, sponge spicules	10	895	905
53	Dolomite 60 to 99%, similar to that from 895 to 905 feet. Chert 1 to 40% concentrated in uppermost 15 feet	117	905	1022
	Decorah formation			
54	Dolomite 60%, medium drab to dark brown, fine-grained. Shale 40%, dark cinnamon and reddish brown, laminated. Chert 1%, dark grayish brown, translucent.	8	1022	1030
55	Dolomite, light to medium drab and brown, fine- to medium-grained	5	1030	1035
	Black River group			
	Platteville formation			
56	Dolomite 65-75%, light to medium drab with dark gray ~~and~~ with dark brown spots, pale- to medium-grained, saccharoidal. Limestone 25-35% pale buff very fine-grained, full of fine-grained dolomite rhombs, buff- drab,	18	1035	1053
57	Limestone 50-80% pale buff with dolomite rhombs, fine-grained 20-50% increasing downward Dolomite, light to medium drab and gray, fine- to medium-grained, saccharoidal	23	1053	1076

Mt. Pleasant

P 9

→	Glenwood member			
58	Sandstone, medium- to fine-grained, finer in the middle, mostly angular and subangular, some frosted, much secondary enlargement, cemented by dolomite in upper 10 feet.	28	1076	1104
59	Shale, light grayish green, soft, laminated, very slightly sandy	1	1104	1105
60	Shale, light to medium grayish green, laminated, soft to hard. Sand decreasing from 50% at 1108 to 1112 to 0% at 1115. Pyrite 1%	20	1105	1125
	Chazyan series			
	St. Peter formation			
61	Sandstone, coarse- to medium-grained, poorly sorted, angular to curvilinear, frosted, little secondary growth. Shale cave	20	1125	1145
62	Sandstone, fine- to medium-grained as from 1125 to 1145 feet	15	1145	1160
63	Shale, light greenish gray, with white calcareous spots, sandy	5	1160	1165
	Beekmantownian series			
	Prairie du Chien ~~group~~ formation			
	Willow River ~~formation~~ member			

Mt Pleasant

P 10

64	Dolomite, light buff to drab, very fine- to fine-grained with scattered siliceous oölites, light buff. Sand 30%, medium- to coarse-grained, angular to curvilinear, frosted, much secondary growth. Chert 20%, white opaque to translucent, some oölitic, sandy in spots	8	1165	1173
65	Dolomite, light to medium buff and drab, very fine- to fine-grained. Sand 5%. Chert 1%, white, No =	10	1173	1183
66	No sample. (similar to that from 1173)	2	1183	1185
67	Dolomite 55-75% light buff and drab, very fine- to medium-grained, sandy, slightly oölitic 1229 to 1238 feet. Sand loose 10 to 25%. Chert 5-20%, white, some slightly oölitic opaque to translucent, some with spicules,	53	1185	1238
68	Dolomite, pale buffish gray, very fine- to fine-grained, chert 5%	17	1238	1255
69	Dolomite 50-75% pale gray to light drab, very fine- to fine-grained, slightly sandy. Chert 5-25%, white, opaque. Shale 15-30%, light to medium greenish gray, slightly sandy	20	1255	1275
70	Sand 75%, medium, angular, much secondary growth. Dolomite 25%, light buff, very fine- to fine-grained	5	1275	1280
71	Dolomite, pale buff, very fine-grained. Chert 0-5%, as from 1255 to 1275. Sand 5% from 1280 to 1300 feet. Shale cave.	70	1280	1350
72	Dolomite pale to light buff, very fine- to fine-grained, saccharoidal, sandy to very sandy embedded, some porous. Pyrite rare, chert 0-5%. shale cave.	20	1350	1370

Mt. Pleasant

P 11

	very fine- to fine-grained			
73	Dolomite light drab to light medium buff, saccharoidal, ~5% slightly to very sandy, some porous, chert, white, some oölitic; chert 20% from 1435 to 1450 feet. Shale cave	105	1370	1475
	Root Valley (New Richmond) ~~formation~~ member			
74	Sandstone, poorly sorted, medium- to coarse-grained, angular to subangular, much secondary growth, weakly cemented by dolomite	17	1475	1492
	Oneota ~~formation~~ member			
75	85-100% Dolomite, light to medium drab, fine- to medium-grained, saccharoidal, slightly sandy. Chert trace to 15%, white to light gray, opaque and translucent, slightly oölitic	31	1492	1523
76	25-45% Dolomite, light gray, slightly buff, fine- to medium-grained, (25% from 1542 to 1547 feet) some saccharoidal. Chert 55 to 75%, white to buff, opaque to translucent, slightly oölitic 1523 to 1529 feet.	24	1523	1547
77	Dolomite as from 1523 to 1547 feet, chert 2% as from 1523 to 1547 feet	5	1547	1552
78	Dolomite and chert as from 1523 to 1547 feet but 30 + 15% chert	18	1552	1570
79	Dolomite, light gray to light drab, medium-grained, saccharoidal chert ~5%	25	1570	1595

Mt. Pleasant

P 12

80.	Dolomite, light gray, medium- to coarse-grained, saccharoidal, friable. Chert 5-35%, white to light gray, opaque to translucent, some oölitic	60.	1595	1655
81	Dolomite, light buff and drab, medium- to coarse-grained, saccharoidal, friable. Chert -5% (20% from 1670 to 1680 feet) white to buff, opaque to translucent, some vuggy. Pyrite trace	40.	1655	1695
82.	Dolomite medium drab to buff, medium-grained, saccharoidal, friable. Chert -5% to 25% at top.	17.	1695	1712.
83.	Dolomite, drab, medium-grained, saccharoidal, friable. Sand 5-15%, medium-grained, angular to subangular, some quartz crystals	17	1712	1729

Cambrian system

St. Croixan series

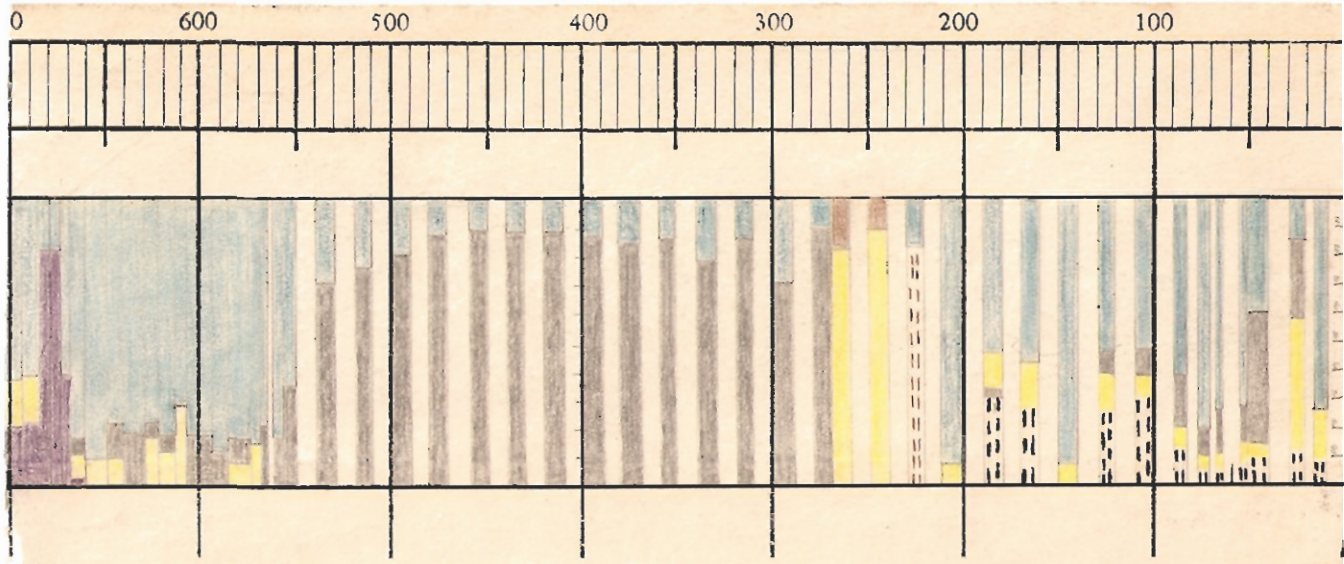
Trempealeau formation

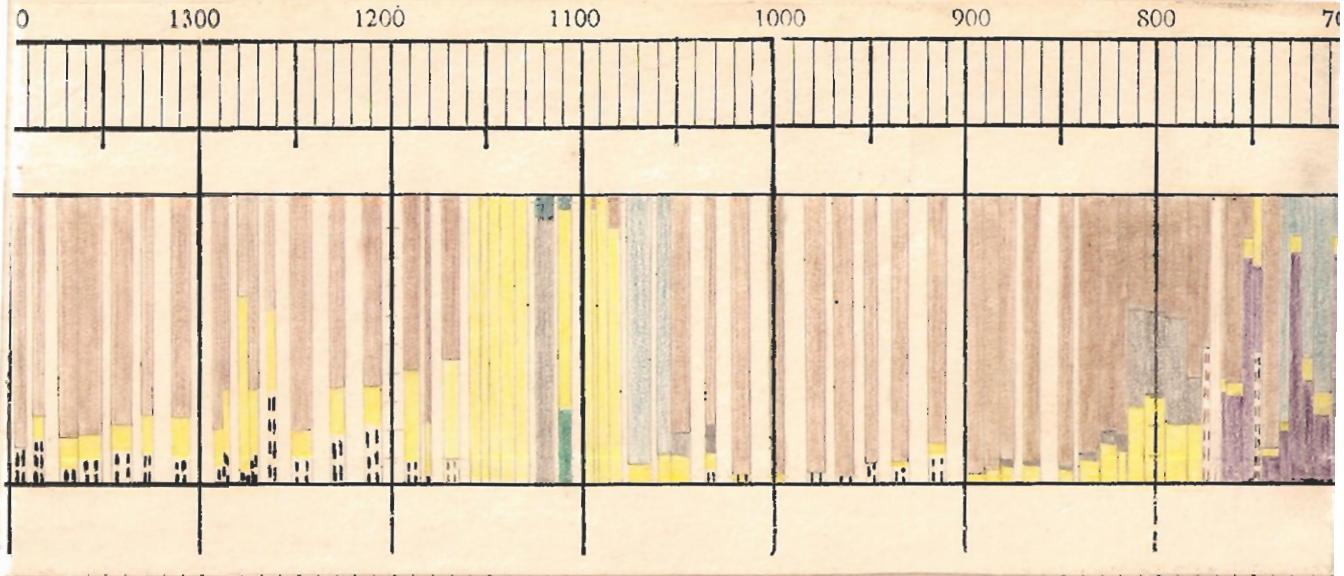
Madison-Jordan member

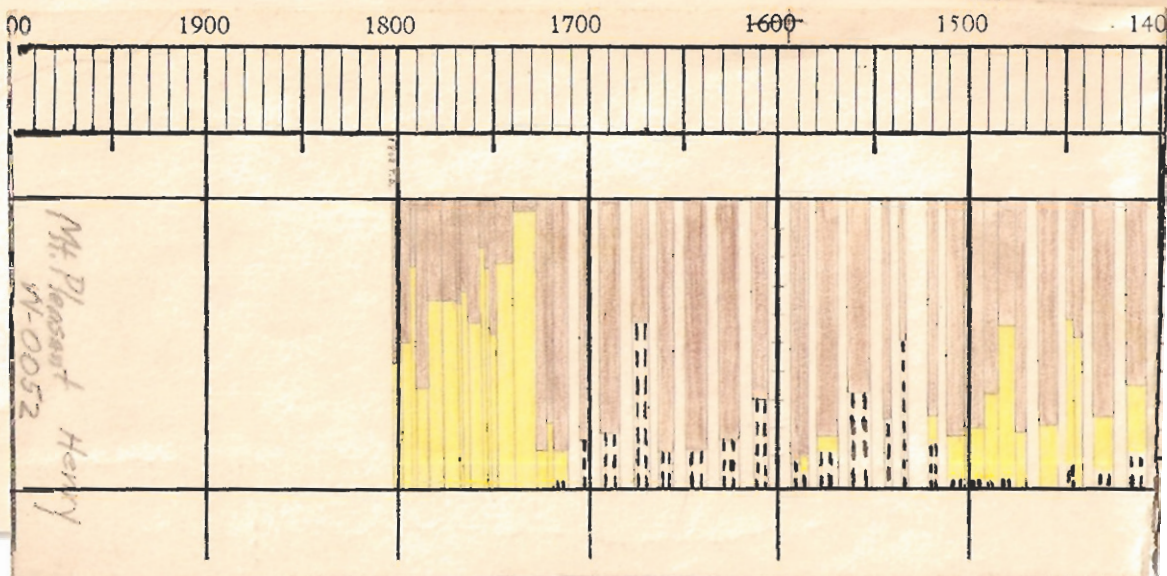
84	Sandstone, medium- to fine-grained, angular to subangular, little curvilinear, larger grains frosted, much secondary growth, cemented by dolomite	43	1729	1772
85	Sandstone fine- to medium-grained, angular to subangular, some secondary growth, strongly cemented by dolomite	30	1772	1802

T.D. 1802 feet

[redacted]


0
600
500
400
300
200
100


0
1300
1200
1100
1000
900
800


00
1900
1800
1700
1600
1500
140
Mt. Pleasant Henry
W-0052

MT. PLEASANT
ELECTRIC LIGHT AND WATER WORKS
WELL NO. 2
South Park

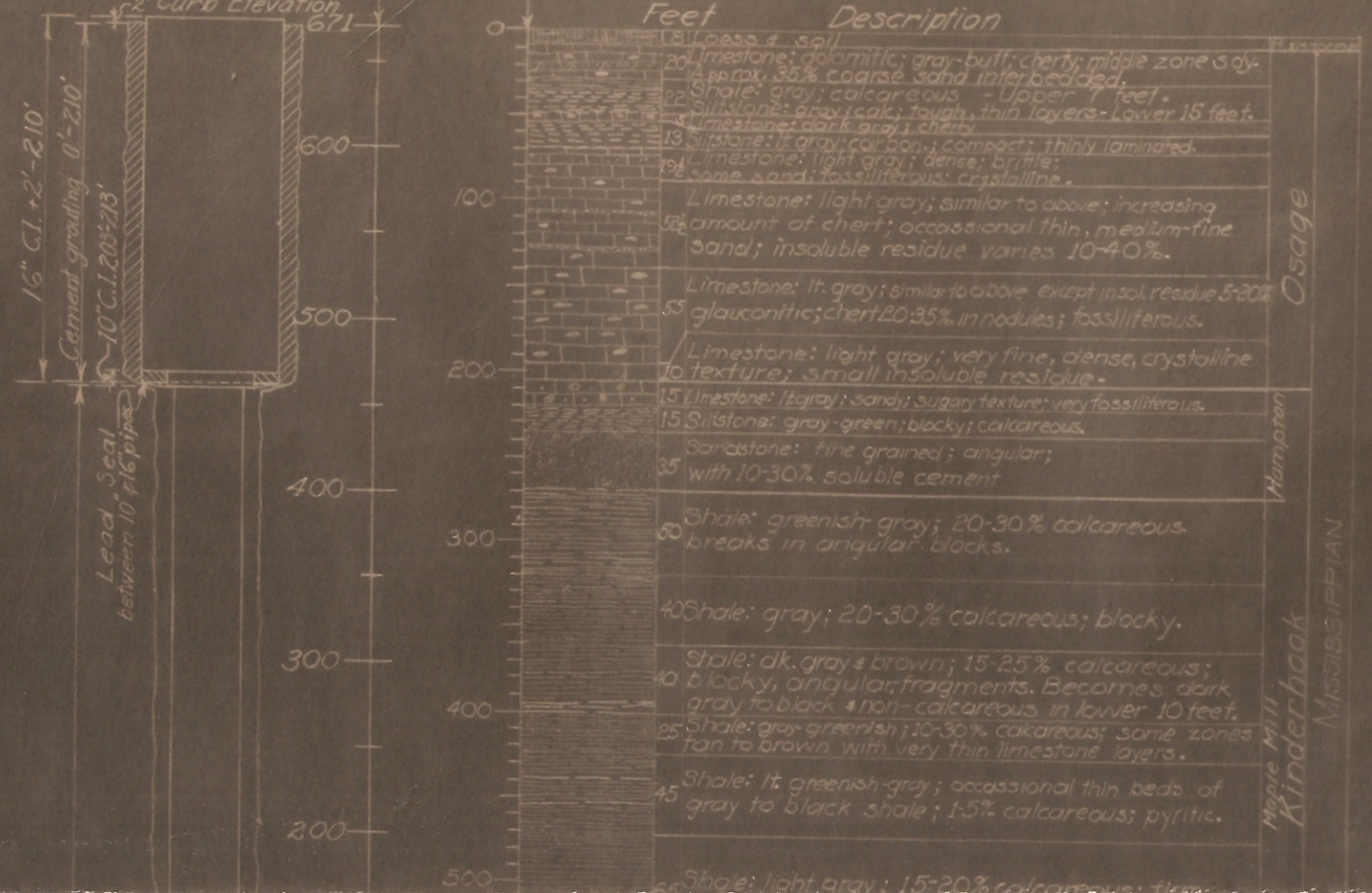
Construction Started October, 1934
Construction Completed July, 1935

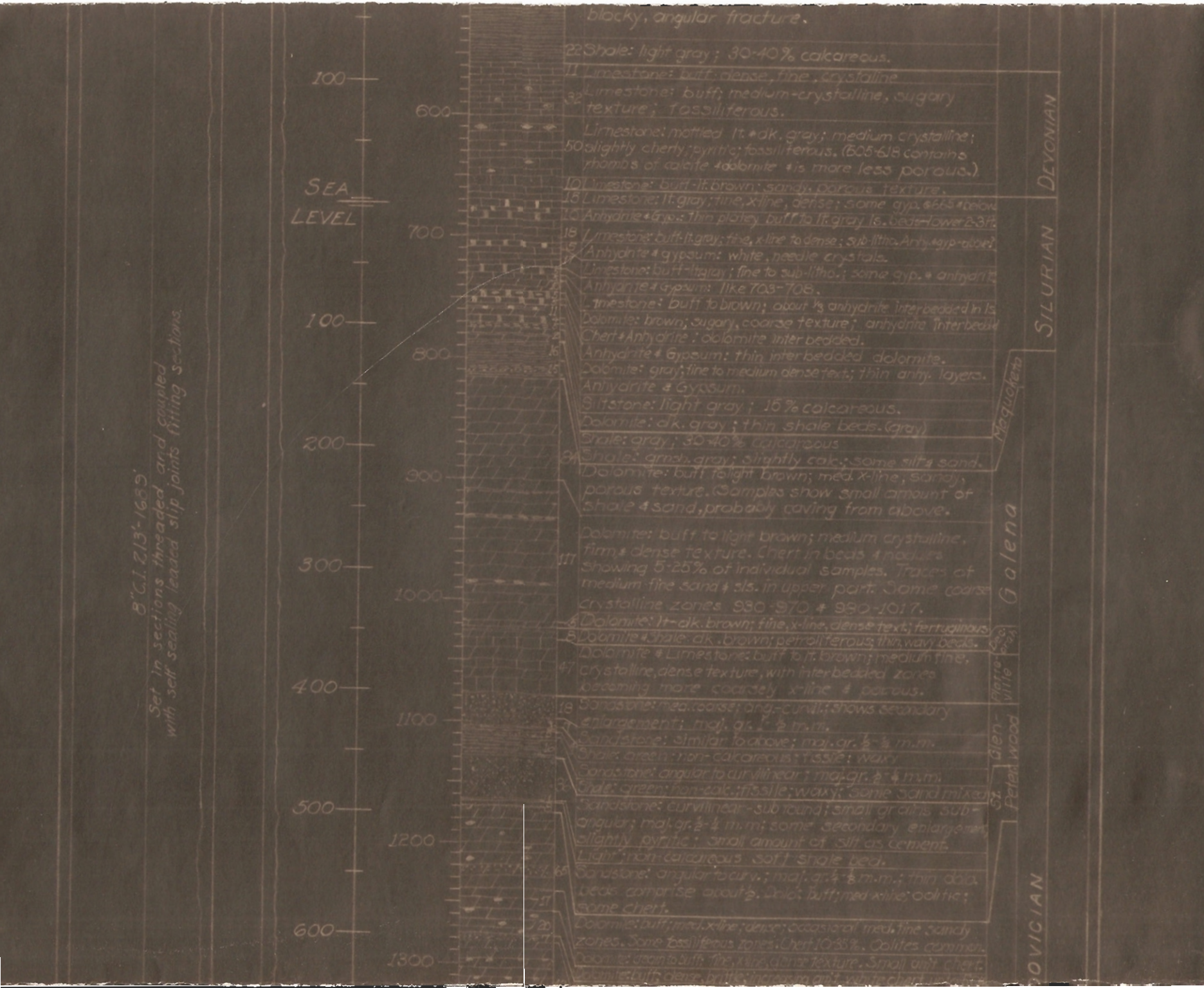
T. W. McMillan, Supt.
& City Manager
Mount Pleasant, Iowa

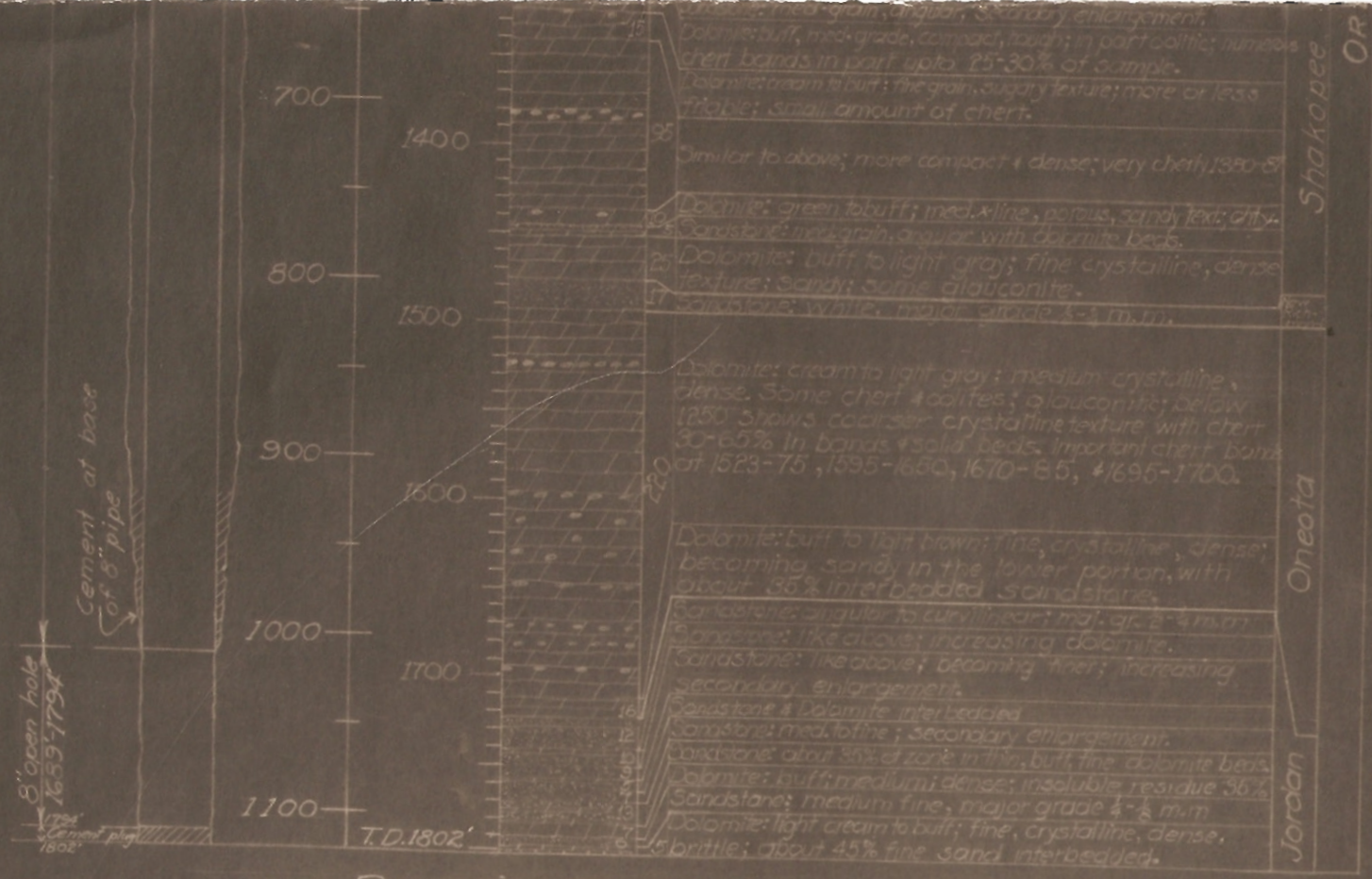
Vertical Scale: 1" = 100'

Elevations referred to sea level.

Depth, in feet, below surface.




8"C.I. 2¼3'-16⅝9'
Set in sections threaded and coupled with self sealing leaded slip joints fitting sections.
100
600
SEA LEVEL
700
100
800
200
300
300
1000
400
1100
500
1200
600
1300
blocky, angular fracture.
22 Shale: light gray; 30-40% calcareous.
11 Limestone: buff; dense, fine, crystalline
32 Limestone: buff; medium-crystalline, sugary texture; fossiliferous.
Limestone: mottled lt. & dk. gray; medium crystaline;
50 slightly cherty; pyritic; fossiliferous. (605-618 contains rhombs of calcite & dolomite & is more less porous.)
10 Limestone: buff-lt. brown; sandy, porous texture.
15 Limestone: lt. gray; fine, x-line, dense; some gyp. & 665 & below
16 Anhydrite & Gyp.: thin platey, buff to lt. gray, 16. beds-lower 2-3 ft.
18 Limestone: buff-lt. gray; fine, x-line to dense; sub-litho. Anhy. & gyp. above?
5 Anhydrite & gypsum: white, needle crystals.
Limestone: buff-lt. gray; fine to sub-litho.; some gyp. & anhydrite
Anhydrite & Gypsum: like 703-708.
Limestone: buff to brown; about ⅓ anhydrite interbedded in ls.
Dolomite: brown; sugary, coarse texture; anhydrite interbedded
Chert & Anhydrite: dolomite interbedded.
Anhydrite & Gypsum: thin interbedded dolomite.
Dolomite: gray; fine to medium dense text; thin anhy. layers.
Anhydrite & Gypsum.
Siltstone: light gray; 15% calcareous.
Dolomite: dk. gray; thin shale beds. (gray)
Shale: gray; 30-40% calcareous
Shale: grnsh. gray; slightly calc.; some silt & sand.
Dolomite: buff to light brown; med. x-line, sandy, porous texture. (Samples show small amount of shale & sand, probably caving from above.
Dolomite: buff to light brown; medium crystalline, firm & dense texture. Chert in beds & nodules
117 showing 5-25% of individual samples. Traces of medium-fine sand & sls. in upper part. Some coarse crystalline zones 930-970 & 980-1017.
6 Dolomite: lt-dk. brown; fine, x-line, dense text; ferruginous
5 Dolomite & Shale: dk. brown; petrolliferous; thin, wavy beds.
Dolomite & Limestone: buff to lt. brown; medium fine,
47 crystalline, dense texture, with interbedded zones becoming more coarsely x-line & porous.
18 Sandstone: med.-coarse; ang.-curvil.; shows secondary enlargement; maj. gr. ½ m.m.
Sandstone: similar to above; maj. gr. ½-⅜ m.m.
Shale: green; non-calcareous; fissile; waxy
Sandstone: angular to curvilinear; maj. gr. ½-¼ m.m.
Shale: green; non-calc.; fissile; waxy; some sand mixed
Sandstone: curvilinear-sub round; small grains sub-angular; maj. gr. ½-¼ m.m.; some secondary enlargement
slightly pyritic; small amount of silt as cement.
Light: non-calcareous soft shale bed.
65 Sandstone: angular to curv.; maj. gr. ¼-⅜ m.m.; thin dolo. beds comprise accutg. Dolo.: buff; med. x-line; oolitic; some chert.
Dolomite: buff; med. x-line; dense; occasional med. fine sandy zones. Some fossiliferous zones. Chert 10-35%. Oolites common.
Dolomite: cream to buff, fine, x-line, dense texture. Small unit chert.
Dolomite: buff; dense, brittle, fine-x-line grain; white chert
SILURIAN
DEVONIAN
OVICIAN
Maquoketa
Galena
Platteville
Glenwood
St. Peter



PUMPING TEST and DRAWDOWN DATA

Static Level of water after completion of casing 53 feet below curb; drawdown 110 feet to 163 feet below curb pumping at 225 g.p.m.

Drilled by:
THORPE WELL CO.
DES MOINES, IOWA

Samples interpreted by and Correlations by:
IOWA GEOLOGICAL SURVEY
IOWA CITY, IOWA
September, 1935

W-0052

MT. PLEASANT
ELECTRIC LIGHT AND WATER WORKS
WELL NO. 4 (City Well #3)
South Park

#43

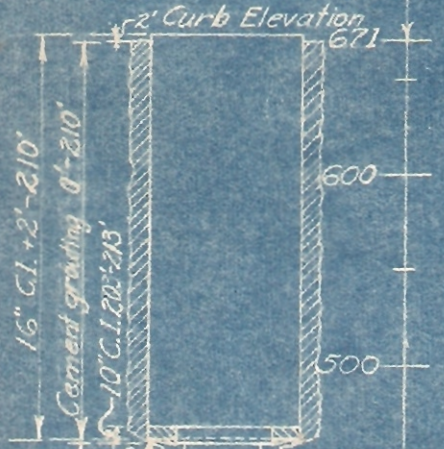
Construction Started October, 1934
Construction Completed July, 1935

T. W. McMillan, Supt.
& City Manager
Mount Pleasant, Iowa

Vertical Scale: 1"=100'

Elevations referred to sea level.

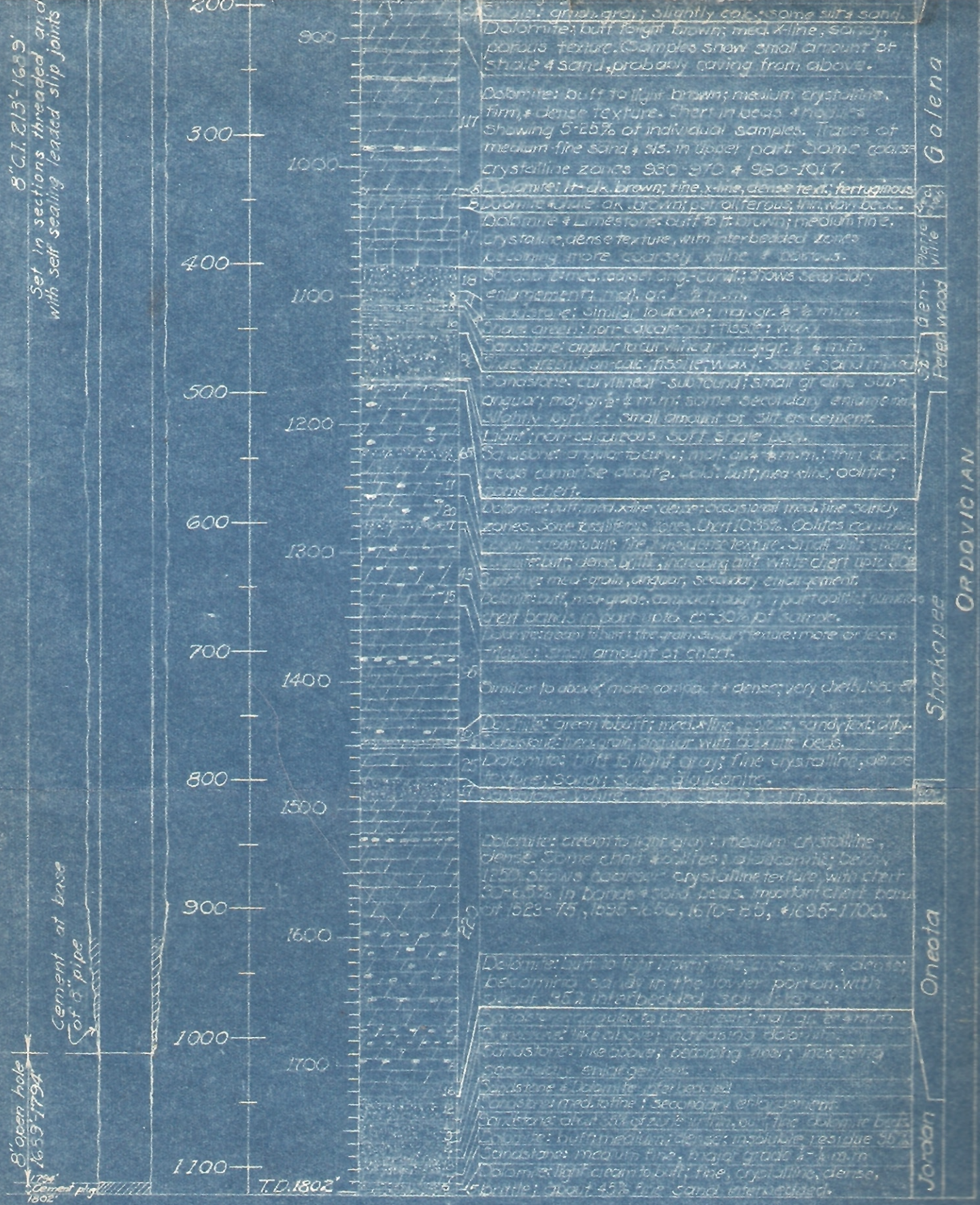
Depth, in feet, below surface.



Feet	Description
0	
18	Loess & soil
20	Limestone: dolomitic; gray-buff; cherty; middle zone is approx. 35% coarse sand interbedded.
22	Shale: gray; calcareous - Upper 7 feet.
	Siltstone: gray; calc; tough, thin layers - Lower 15 feet.
5	Limestone: dark gray; cherty
13	Siltstone: lt. gray; carbon.; compact; thinly laminated.
19½	Limestone: light gray; dense; brittle;
	Some sand; fossiliferous; crystalline.
100	
51½	Limestone: light gray; similar to above; increasing amount of chert; occasional thin, medium-fine sand; insoluble residue varies 10-40%.
55	Limestone: lt. gray; similar to above except insol. residue 5-20%; glauconitic; chert 20-35% in nodules; fossiliferous.
200	
70	Limestone: light gray; very fine, dense, crystaline texture; small insoluble residue.
75	Limestone: lt. gray; sandy; sugary texture; very fossiliferous.
1.5	Siltstone: gray-green; blocky; calcareous.
85	Sandstone: fine grained; angular; with 10-30% soluble cement.
300	
60	Shale: greenish-gray; 20-30% calcareous breaks in angular blocks.
400	
40	Shale: gray; 20-30% calcareous; blocky.
300	
40	Shale: dk. gray & brown; 15-25% calcareous; blocky, angular fragments. Becomes dark gray to black & non-calcareous in lower 10 feet.
400	
25	Shale: gray-greenish; 10-30% calcareous; Some zones tan to brown with very thin limestone layers.
45	Shale: lt. greenish-gray; occasional thin beds of gray to black shale; 1-5% calcareous; pyritic.
200	
500	
65	Shale: light gray; 15-20% calcareous; firm; blocky, angular fracture.
22	Shale: light gray; 30-40% calcareous.
11	Limestone: buff; dense, fine crystaline.
33	Limestone: buff; medium-crystalline, sugary texture; fossiliferous.
100	
600	
50	Limestone: mottled lt. & dk. gray; medium crystaline; slightly cherty; partly fossiliferous. (605-618 contains rhombs of calcite & dolomite & is more less porous.)
10	Limestone: buff-lt. brown; sandy; porous texture.
15	Limestone: lt. gray; fine, x-line, dense; some gyp. #660-4 below
10	Anhydrite & Gyp.: thin platey buff to lt. gray ls. beds-lower 2-3ft.
18	Limestone: buff-lt. gray; fine, x-line to dense; sub-litho. Anhy. & gyp. above
5	Anhydrite & gypsum: white, needle crystals.
11	Limestone: buff-light gray; fine to sub-litho.; some gyp. & anhydrite
	Anhydrite & Gypsum: like 703-706.
	Limestone: buff to brown; about ⅓ anhydrite interbedded in ls.
	Dolomite: brown; sugary, coarse texture; anhydrite interbedded
	Chert & Anhydrite: dolomite interbedded.
16	Anhydrite & gypsum: thin interbedded dolomite.
15	Dolomite: gray; fine to medium dense text.; thin anhy. layers.
	Anhydrite & Gypsum.
	Siltstone: light gray; 15% calcareous.
	Dolomite: dk. gray; thin shale beds. (cra)
100	
800	

Maple Mill
Kindderhook
Osage
Hamilton
Missis-sippian
Devonian
Silurian

coupled
fitting sections.



PUMPING TEST and DRAWDOWN DATA

Static Level of water after completion of casing 53 feet below curb; drawdown 110 feet to 163 feet below curb pumping at 225 g.p.m.

Drilled by:
THORPE WELL CO.
DES MOINES, IOWA

Samples interpreted by and Correlations by:
IOWA GEOLOGICAL SURVEY
IOWA CITY, IOWA
September, 1935

W-2052

S-230

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington 1
District .....

Mt. Pleasant Well #3 March 21, 1955

Time	Time (Min)	Depth to water (ft)		G.P.M.		Temp.				Remarks		
12:15		96.65										
1:30		92.13										
2:18		92.18										
2:58		91.94										
	1	99.65		130				Water Black				
	2	99.77										
		100.00										
	4	100.36										
	5	100.12										
	6	100.14		130				Pump stopped				
	9½	91.85										
	11	91.64										
		91.58						Pump started				
		110.48		314				Water Black				
		112.85										
	15	117.00										
	16	118.08										
	17	118.67		314								
	18	119.00										
	19	119.29										
	20	119.58										
	21	119.88										
	22	120.05		314				Water very dirty				
	24	120.32										
	26	120.50										
	28	120.75		314								
	30	120.89										
	32	120.71										
	34	120.19										
	42	120.11		314				Water dirty				
	50	119.81		314		69°						

U. S. GOVERNMENT PRINTING OFFICE 16—48721-1

9-230

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

File No. { Washington ..... / District ..... }

2

Mt. Pleasant Well # 3 March 24, 1955

Time	Time (Min.)	Depth to water (Ft.)		G.P.M.		Temp.			Remarks			
	60	119.76										
	70	119.59						water	clearing			
4:30	90	119.55		314		70°						
	100			314		70°		Sample	taken			
	110	119.50		314				Pump	off			
	111	90.80										
	112	92.55										
	113	92.35										
	114	92.37										
	115	92.38										
	116	92.31										
	[illegible]	92.29										
	118	92.10										
	119	91.96										
	120	91.86										
	122	91.65										
	124	91.50										
	126	91.41										
	128	91.29										
	130	91.26										
	132	91.22										
	136	91.18										
	140	91.10										
	145	91.08										
	150	91.06										

U. S. GOVERNMENT PRINTING OFFICE 16—43721-1

Mt. Pleasant, Iowa
Well No. 3
March 21, 1955

Time (Min)	Depth to water (ft.)	Gallons per minute	Temperature	Remarks
12:15	91.65			
1:30	92.13			
2:18	92.18			
2:58	91.94			
1	99.65	130		Water black
2	99.77			
3	100.00			
4	100.06			
5	100.12			
6	100.14	130		Pump stopped
9½	91.85			
11	91.64			
12	91.58			Pump started
13	110.48	314		Water black
14	114.85			
15	117.00			
16	118.08			
17	118.67	314		
18	119.00			
19	119.29			
20	119.58			
21	119.88			
22	120.05	314		Water very dirty
24	120.53			
26	120.80			
28	120.98	314		
30	120.89			
32	120.71			
36	120.19			
42	120.11	314		Water dirty
50	119.81	314	69°	

Time	Depth to water (ft.)	Gallons per minute	Temperature	Remarks
60	119.76			
70	119.59			Water clearing
90	119.55	314	70°	
100		314	70°	sample taken
110	119.50	314		Pump off
111	90.80			
112	92.55			
113	92.35			
114	92.37			
115	92.38			
116	92.31			
117	92.24			
118	92.10			
119	91.96			
120	91.86			
122	91.65			
124	91.50			
126	91.41			
128	91.29			
130	91.26			
132	91.22			
136	91.18			
140	91.10			
145	91.08			
150	91.06			

City of Mt. Pleasant
Well No. 3
(Sanders Park)

Location: NW¼NE¼ sec. 9, T. 71 N., R. 6 W. Center Township
Curb Elevation: 671 feet
Total Depth: 1896 (Deepened from 1802)
Contractor: C. L. Jennings
Date Drilled: March 4 to March 21, 1955
Hole Size: 6" from 1802 to 1896
Water level data: Reported depth to water before drilling was 100.75' below temporary platform over well pit. Measured water level after deepening and pumping was 94.81' below the same M. P. (Temporary platform was approximately at land surface datum.)
Test Pump Data: Electric turbine. 200 feet. of 6" column, 8 ft. of 6" bowls, 30 ft. of 5" perforated tail pipe.
Measurements: Water level measurements (see attached tables) were made with an electric line. M. P. was top of 6 x 6 which was at same elevation as M. P. used for regular quarterly measurements, and was 3.75 ft. below temporary platform mentioned above. Discharge measurements were made by use of a 4" orifice meter in a 6" pipe.
Observers: O. Van Eck and G. McMurtrey.

Henry

MEMORANDUM March 23, 1955

To: H. G. Hershey

From: R. Gale McMurtrey

Subject: Mt. Pleasant well No. 3 (Saunders Park)

On our return trip from Keosauqua March 4, Walter Steinhilber and I stopped at Mt. Pleasant to see if C. L. Jennings had started to deepen city well No. 3. The rig was set up and the 8" casing had been reamed out to allow a 6" guide casing to be installed. The driller reported that he was at 1802 feet and had not found a cement plug that our records showed to be from 1794 to 1802.

On March 10 I drove to Mt. Pleasant to check on the drilling. C. L. Jennings and Jim Sampson (Green Engineering Company) reported that a creosoted wooden block had been encountered at 1825 and that a steel object had been encountered at 1828. No progress had been made in 24 hours. C. L. Jennings thought he could probably drill around the object in a day.

The driller reported that the drilling didn't seem to be typical Jordan drilling between 1802 and 1825. The samples were so full of iron that had been reamed off the 8" casing that it was hard to tell whether the material between 1802 and 1825 was cave or not.

On the 11th drilling had progressed to 1833. All bailer samples were black and smelled of creosote.

On March 14 the hole was down to 1870. I picked up the samples and a water sample that I had asked to be taken at 1855. The driller reported that the water had cleared up at 1855. The samples indicated that the top of the St. Lawrence was at 1845.

On March 16 the hole was down to 1887 and was ended at 1896 on March 18.

A pumping test made on March 21 indicated that the specific capacity had been increased from about 3 g.p.m./ft. (mainly Jordan water) to about 10 g.p.m./ft. by drilling 51 feet into the St. Lawrence.

The city of Mt. Pleasant seemed well satisfied with the results. They planned to reinstall the old pump for the present and purchase a larger one when their water need increased sufficiently to warrent it.

Gale

Report of insoluable residue analysis
Mt. Pleasant Well No. 2, W-0052
John Frye

No. 1 45' to 50' depth 48.1 % insoluable
large quantities of dark brown clay
a few silicous oölites
Angular small pieces of chert, clear, milkey and red.
Quartz in irregular pieces, white and red.

No. 2 50' to 55' depth 23.6 % insoluable
a large portion of the sample is tan clay
scattered pieces of chert, milky white, tinted and clear.

No. 3 55' to 60' depth 51.7% insoluable
dominently brown clay
an abundance of fine quartz grains

No. 4 60' to 65' depth 38.4 insoluable
dominently clay of brown particles and colorless crystals
minute crystal grains of pyrite
minute scattered mica grains

No. 5 65' - 70' depth 15.1 % insoluable
large amount of clay, contains colorless bladed crystals.
large angular, white to colorless, banded and
sometimes oölitic chert, with pink streaks.
Pyrite, in indefinate cubes of various sizes, and
flakes.

No. 6 70' to 73' depth 24.8% insoluable
abundent clay
large angular fragments, dark gray, tan and
white speckled chert.
Small fragments white chert
Small quartz grains
Small fragments and anhedral crystals pyrite
Scattered oölites.

No. 7 73' to 77' depth 33.0% insoluable
abundent clay
occasional pyrite cubes and flakes
large angular fragments dark gray, tan chert
Smaller fragments, angular chert.
Numerous silicified spines of various sizes

No. 8 77' to 82' depth 47.1% insoluable
abundent clay (tan)
Small grains of pyrite
Numerous small fragments pink and white chert.
large angular fragments gray and white chert.
occasional silicified spine fragments

No. 9 82' to 87½' depth 24.4% insoluable
Clay (tan)
abundent large angular white, streaked with gray, chert fragments, drusy structure
silicified oölites
Crinoid stem segments, fragmental
Segments of silicified spines
very small scattered grains of pyrite
Small fragments of quartz
Silt

No. 10 87½' to 95' depth 37.5% insoluable
abundent clay
various sizes angular dark gray, black and tan mottled chert
drusy quartz, white and colorless
occasional spines
a few very fine particles of pyrite

SEDIMENTATION

LABORATORY

Description of the insoluble residues from the Mount Pleasant Well #2, No. W-0052

90- 95 Solubility 62.4%
Clay - gray, containing some organic material
Chert - dark to light gray in color, transparent to opaque.
Dense to porous texture
Angular fragments with included sand grains.
Glauconite - very little present
Pyrite - a small amount
Fossils - a few silicified ooloids, and brachiapod spines.

95-100 Solubility 51.3%
Clay - gray
Chert - Dark gray to transparent, some milky pieces.
Dense to porous texture
Angular fragments with included sand grains
Quartz - a few angular pieces
Pyrite - small amount
Fossils - Brachiapod spines

100-105 Solubility 56.8%
Clay - Gray to light tan color
Flakey texture
Chert - Milky to translucent
Porous to dense texture
Some botryoidal structure
Quartz - In aggregates, drusy and some emaciated grains
Pyrite - little

105-110 Solubility 35.6%
Clay - Tan color
Flakey texture
Chert - Gray color, translucent to opaque
Fossiliferous - like siliceous coquina
Content - spines, crinoid molds, silicified bryzoans (black in color)
Quartz - aggragates, drusy and emaciated forms.
Some small angular grains

110-115 Solubility 44.4%
Clay - Tan to brown color
Flakey texture
Chert - Dark gray to white color, translucent to opaque
Concretionary structure, some banding
Fossiliferous - siliceous coquina
Content - crinoid molds, bryozoans, etc.
Quartz - both drusy and emaciated type
Glauconite - trace
Pyrite - trace

115-20 Solubility 39.2%
Clay - Tan color
Flakey texture
Chert - Milky to translucent in color
Included sand grains
Fossiliferous - like siliceous coquina
Contents - bryozoans,and corals
Quartz - emaciated or sponge-like of secondary origin
and some drusy quartz and aggregates

120-125 Solubility 54.8%
Clay - Tan color
Flakey texture
Chert - Milky to translucent in color
Fossiliferous - like siliceous coquina
Contents - many bryozoans, crinoid molds,
trace of corals, and spines
Pyrite molds
Quartz - emaciated (sponge-like) of secondary origin and
some drusy quartz

125-130 Solubility 58.9%
Clay - Tan color
Flakey texture
Chert - Milkey to translucent in color, with black bands
Included sand grains
Fossils - bryozoans and spines
Pyrite in the chert
Quartz - emaciated or sponge-like
Glauconite - little

130-135 Solubility 56.1%
Clay - Tan color
Flakey Texture
Organic matter
Chert - Milky to translucent in color
Weathered to fresh
Fossiliferous - siliceous coquina, spines
Included sand grains
Quartz - emaciated
Glauconite - considerable
Pyrite - considerable

135-40 Solubility 76.74%
Clay - Dark tan in color
Slightly flakey to granular texture
Chert - White or milky and translucent to opaque in color
Fossils - trace of bryozoans
Included sand grains
Glauconite - trace

Well #2 Mt. Pleasant, Iowa
W-0052

Depth of sample

140-145 - Large sharp, angular, milky-white chert fragments, seemed to average 4 mm x 1 mm to 2 mm x 1 mm
Minutely crystalline with clear small quartz grains
Gray clay material of fine texture + 1/120 mm diameter
Glauconite aggregates (brilliant green color)
Chert exhibits a definite botyroidal structure on one fragment
No further acid reaction.

145-150
Gray clay, very fine grains about 1/120 mm diameter
Large angular milky white chert fragments, showing botyroidal structure
Glauconite aggregates abundant
Sub-round milky and clear quartz grains about 1/10 mm diameter resemble tiny geodes in form
Some opaque brown flat aggregates, evidently tiny pyrite particles
Three reddish-pink aggregates
Small metallic fragments, striated, 1/10 mm diameter, pyrite fragments.

150-155
Gray clay very fine grained 1/120 mm diameter
More large angular milky white chert fragments, some showing botyroidal structure
Eight small crinoid stem discs, av. 3 mm diameter, evidently chert replacements
Glauconite aggregates abundant
Angular quartz grains 1/4 mm diameter
One sub-round quartz fragment observed which appeared to enclose a tiny geode 1/4 mm diameter
Clay mineral particle aggregates that are quite large and flat
No further response to acid.

155-160
Large conchoidal angular milky white chert fragments
Clay much whiter, more chalk-like, but in generally larger aggregates; grain size 1/120 mm diameter
Glauconite aggregates much smaller and very scarce
Two small pyrite aggregates, angular in outline, 1/10 mm diameter
Angular quartz fragments
Iron aggregards, probably Hematite or limonite, brittle
Drusy quartz aggregates
Dolocastic chert?

160-165
Composed primarily of milky white angular chert fragments
One crinoid stem fragment 4 mm diameter
Large angular aggregates 1/2 mm diameter made up of tiny individual sub-round particles of quartz 1/20 - 1/40 mm diameter
Smaller seemingly agglutinated quartz aggregates coarser than the first group. These two types of quartz make up most of the residue with the chert
No clay particles observed
Fine-grained pyrite aggregate that broke up readily
One glauconite aggregate 1/2 - 1/4 mm diameter observed
Large crystalline angular quartz fragments
Coarsely spongy dolocastic chert and drusy quartz very common.

165-170
Coarsely spongy dolocastic chert and drusy quartz
Large aggregate of pyrite 1/2 mm diameter
Large quartz angular fragments
No clay particles observed
All material quite small, less than 5 mm diameter.

170-175
All material generally greater than 5 mm diameter
Dolocastic chert, the casts being generally smaller in diameter, about 1/20 - 1/40 mm diameter
Drusy quartz and some relatively coarse-grained quartz
Milky white clay particles observed, 1/120 mm diameter
Crinoid stem disc observed
Glauconite aggregates
Limonite aggregates 1/10 mm diameter
Light brownish yellow aggregates, limonite? - ocher?

175-180
Large dolocastic chert, fragments 10-15 mm diameter; few dolocasts
Chert fragments both massive and botryoidal in nature
Glauconite aggregates scarce
Milky white clay particles 1/80-1/120 mm diameter
No drusy quartz observed
Minute angular quartz fragments 1/50 mm diameter
Two minute pyrite fragments, 1/40 mm diameter; one of the fragments imbedded in the chert.

180-185
Large angular dolocastic chert, fragments av. 8-10 mm diameter
Many fragments of spongy chert
Milky white clay particles, 1/80-1/120 mm diameter
Glauconite particles, smaller and scarcer
Minute angular quartz fragments, 1/50 mm diameter
One fragment of yellowish brown angular chert, 1/2 - 3/4 mm diameter.

185-190
Large angular dolocastic chert, fragments 5 mm diameter
Fewer chert fragments; ex., less than 50% chert
Glauconite particles scarce
Milky white clay particles, 1/80-1/120 mm diameter
Minute quartz fragments
Small pyrite fragments
Larger angular quartz fragments, 1/4 mm diameter.

Well #2 Mt. Pleasant, Iowa W-0052

Depth sample	140-145	145-150	150-155	155-160	160-165	165-170	170-175	175-180	180-185	185-190
Sample number	31	32	33	34	35	36	37	38	39	40
Beaker number	1	2	3	4	5	6	7	8	9	10
Ognl. wt. sample	20.3g	20.2g	20.5g	25.0g	10.1g	10.6g	24.2g	20.8g	21.4g	23.2g
Wt. filter paper	2.32g	2.28g	2.22g	2.35g	2.25g	2.25g	2.20g	2.27g	2.34g	2.21g
Wt. filter paper + residue	4.48g	3.65g	4.31g	12.39g	7.46g	7.57g	16.85g	16.00g	13.60g	11.37g
Wt. insoluble residue	2.2g	1.4g	2.1g	10.0g	5.2g	5.3g	14.7g	13.7g	11.3g	9.2g
% insoluble residue	10.3%	6.7%	10.2%	41.6%	51.6%	50.0%	60.5%	66.1%	52.6%	39.2%
Wt. soluble material	18.7g	18.4g	18.4g	15.0g	4.3g	5.3g	9.5g	7.1g	10.1g	14.0g
% soluble material	89.7%	93.3%	89.8%	58.4%	48.4%	50.0%	39.5%	33.9%	47.4%	60.8%

Carl A. Moore, analysist,
November 10, 1936..

Insoluble Risidues

Mt. Pleasant no. 2 , W.0052 200 to 250 feet.

Depth.	Weight of filter paper and residue	Weight of paper	Weight of residue	% of residue	% of soluble material
200-205	5.32	2.34	2.98	11.8%	88.2%
205-210	3.71	2.35	1.36	5.7%	94.3%
210-215	3.45	2.34	1.11	5.4%	94.6%
215-220	3.81	2.52	1.29	6.3%	93.7%
220-225	17.60	2.31	15.29	76.0%	24.0%
225-230	20.88	2.37	18.51	92.7%	7.3%
230-235	20.58	2.40	18.18	91.0%	9.0%
235-240	20.58	2.60	17.98	88.7%	11.3%
240-245	19.83	2.36	17.47	85.7%	14.3%
245-250	19.83	2.36	17.47	85.2%	14.8%

The original weights of the samples are as follows:

200-205	25.11 grams
205-210	24.14 -
210-215	20.42 -
215-220	20.56 -
220-225	20.12 -
225-230	20:00 -
230-235	20.00 -
235-240	20.30 -
240-245	20.38 -
245-250	20.43 -

Description of the Insoluble Residues of the Iola ls., Greenhorn ls., and the Mt. Pleasant Well Number 2.

2

Iola ls.,,Clay; 85% tan,transparent, -1-64mm. in size. 5% shining flakes that resemble Mica . 10% black,angular clay grains.

Greenhorn ls;. Clay, -1-64 mm., 95% round shape, yellow, transparent, quartz grains. 5% black ferro-magnesium minerals. Fish scales, red and fragmental.

Mt. pleasant well no. 2, W-0052.

245-250; 85.2% insolubility, Silt and sand;round shape,frosted quartz grains, apoear gray in aggregates, colorless, 1 to -1-64 mm., 95% quartz and 5% black ferro-magnesium minerals. Small particals of clay may be discolored by iron stains.
May contain rose and milky quartz impurities, 2-8 mm. round shape and abraded.

240-245; 85.7% insolubility. Silt, 95% usb-round shape,frosted,colorless, 1-32 mm., gray cement. 5% black ferro-magnesium clay .
2-4 mm. quartz impurities.

235-240; 88.7% insolubile, Same as 240-245 except silt particles are cemented by iron in some cases.
2-8 mm. brown chert and rose to white quartz impur ities.

230-235; 91.0% insolubility, Silt, colorless, round shape,-1-32 mm. to 1 mm. in size,quartz grains. 25% black ferro-magnesium minerals.
Chert and quartz impurities.

225-230; 92.7% insolubility. Silt, 50% 1-64 mm.,gray,quartz particles, 5% black ferro- magnesium silt. 40% Clay with the same characteristics as the silt. Pyrite cubes and tetrahedrons are common. - 2%
2-4 mm. chert impurities. 3%

220-225; 76.0% insolubility, Same as 225-230 ,but has a reddish-brown product, probably part of the casing,and the pyrite cubes are twinned occasionaly.

215-220; 6.3% insolubility. Clay, quartz and chert,colorless to rose, Coagulated while filtering to soft aggregates with a soapy lustre, many pyrite cubes.
5% angular milky quartz impurities, 2-4mm in size.

210-215; 5.4% insolubility.Same as 215-220 except the particles a agglutinated into red andwhite lumps.
5% irregular colorless,round quartz impurities.

205-210; 5.7% insolubility. Same as 210-215 but there is 5o% round, colorless,quartz grains.

200-205; 11.8% insolubility. Clay,95%, gray,1-64 mm.,quartz grains.
5% milky ,drusy quartz grains up to 8 mm. in size.

III. Well cuttings from well no. W-0052 (Mt. Pleasant no. 2), Mt. Pleasant, Iowa. Depths between which analysis was made: 718' to 762' inclusive.

Data Table

Interval	Weight of Sample	Weight of Filter Paper	Weight of Insoluble Residue	Percentage Insoluble
Ft.	Gm.	Gm.	Gm.	%
718 - 720	25.31	2.41	9.26	36.6
720 - 725	25.10	2.55	14.40	57.4
725 - 730	25.77	2.42	17.36	67.4
730 - 735	25.98	2.33	4.47	17.2
735 - 740	25.68	2.39	4.21	16.4
740 - 745	25.70	2.49	5.24	20.4
745 - 750	25.56	2.43	18.76	73.4
750 - 755	20.91	2.30	8.43	40.4
755 - 760	25.60	2.28	8.40	32.8
760 - 762	25.11	2.48	8.91	35.5
			Average -	39.75%

Description of Residues.

718-720. Gray silt and clay. Nearly Uniform grain size. A few larger fragments of chert. Pyrite grains present. Drilling sand prominent, with large grains of quartz, feldspar, and miscellaneous rock material.

720-725. Brown silt with large grains of white anhydrite. The latter have a poor cleavage or parting in one direction, giving the fragments the form of flakes. A large piece when left dry and studied thru the binocular can be seen to have a medium crystalline texture, with needle-like or acicular cleavages. In water, the white grains can be easily crushed down to fine cleavage fragments, which are colorless and have plane surfaces. A few grains of pyrite are present. Drilling sand consists of quartz and miscellaneous rock material. Anhydrite makes up perhaps 85% of the residue exclusive of the drilling sand.

725-730. White anhydrite, making up nearly all of the residue. Large grains deeply pitted and corroded, probably by the HCl used in digesting the sample. There are dark bands or seams thru some of the grains, probably being dirt. Cleavage is distinctly seen on large grain surfaces under the binocular. Drilling sand is present but not prominent. This residue indicates that a fairly pure bed of anhydrite was encountered in drilling.

730-735. Dark chocolate-brown clay and white anhydrite. There are many cleavage fragments of quite clear selenite which can be readily distinguished with the naked eye. These fargments show two excellent cleavages at approximately right angles. At least one grain of the anhydrite has green shale intermixed with it, giving a mottled appearance. Drilling sand as above, containing much clear quartz. About half of the residue is anhydrite, half the dark clay.

735-740. Dark chocolate-brown clay and white anhydrite. Residue resembles that just above. However, grains of anhydrite are pitted and honeycombed as a result of the action of HCl. In fact, some of the large anhydrite grains effervesced slightly in dilute HCl. Pyrite is present, and at least one crinoid columnal. The drilling sand contains much clear quartz. The anhydrite makes up about half the residue, the dark clay the other half.

740-745. Dark gray-brown clay and light-colored anhydrite. Much resembles the residues just above. Altho the dark clay is much in evidence, especially megascopically, it does not appear to make up a very large per cent of the residue. About 75% of the residue is anhydrite. A few of the anhydrite grains are pitted. Pyrite is present in small amount. There are a few dense angular chert grains. Drilling sand consists of sub-rounded quartz grains and miscellaneous rock material.

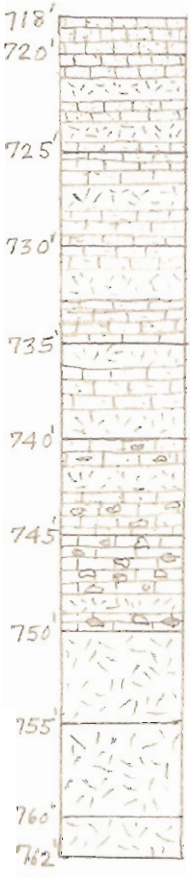
745-750. Light-colored chert and anhydrite. The chert is in large dense angular grains, comprising perhaps 70% of the residue, while the anhydrite is mostly in fine powder or mud and makes up about 15%. The latter may represent a holdover from above, altho it appears again in large quantities below. Drilling sand as usual, with much foreign material besides quartz.

750-755. Light-gray anhydrite. Occurs both in large grains and in fine powder which forms a scale on the filter paper. The powder is quite pure anhydrite, altho a bit of it pressed between slides scratched the glass slightly. There are a very few grains of chert. Drilling sand is conspicuous, with cinders, rounded grains of clear quartz, &c. Anhydrite makes up at least 90% of the residue excluding the drilling sand.

755-760. Light-gray anhydrite. If the fine silt is nearly all anhydrite, which it appears to be, this residue is about 98% anhydrite. There are few grains of pyrite. A large part of the residue is in the clay- or silt-size grades; there are relatively few large grains. No chert was seen. Drilling sand as above. The residue appears as a fine scale or crust which has almost exactly the same color as the filter paper.

760-762. Light-gray to white anhydrite. Drilling sand is nearly absent; almost 100% of the entire material is anhydrite, about half of which is in the very fine size. There are a few grains of pyrite. The larger grains of anhydrite are not the pure white medium crystalline material of intervals 720'-725' ff., but are dirtier, more grayish, spongy material which readily crumbles. There are only a few grains of the pure white anhydrite.

ATTEMPTED INTERPRETATION OF SAMPLES FROM WELL # W-0052



718'–720' Impure* limestone

720'–725' Impure limestone and beds of anhydrite

725'–730' " " " " " "

730'–735' " " " " " "

735'–740' " " " " " "

740'–745' Impure cherty limestone; some beds of anhydrite

745'–750' Very cherty limestone; some beds of anhydrite

750'–755' Anhydrite

755'–760' "

760'–762' "

*"Impure" = containing clay

933-958	7.00 %	insoluble	Similar to 930-933
938-943	10.20%	insoluble	Similar to 930-933
943:947	6.25 %	insoluble	

No silt, River sand 30%, Chert 70%
White chert sugary and drusy
Dense gray chert.
Pyrite, Vug holes

Mt. Pleasent well W0052 No. 2 900-947'

900-905 14.00 % insoluble

River sand and brown silt 25%
White dense chert in angular fragments; and minute oölites of of clear silica in a chert network 75 %.

905-910 20.20 % insoluble

Brown sand 15%
White chert banded with chert containing silica oölites and pyrite 25%
Light gray quartzose, translusent, brown on thin edge, chert 50%
Isolated pyrite 10%

910-915 22.20 % insoluble

Brown river sand 20% Cherty residue 80%
Dark, translucent chert with conchoidal fracture and brown-yellow on thin edge
Silica oölite in network of white chert, has granular fracture.
Few vug holes and dolocasts in the chert.

915-920 15.20 % insoluble

Brown river sand 10 % Gray and white chert 90%
Light gray chert with conchoidal fracture, translusent and yellow brown on thin edge. Contains some pyrite.
Granular clear silica in white chert matrix.
Few fossils and vug holes

920-925 10.50 % insoluble

Silt 5 %, River sand 10 % , Gray and white chert 85 %
Drusy granular quartz.
Minute silica oölites in white chert network with some pyrite
Dense, translucent chert.
Vug holes with minute quartz crystals, pyrite and limonite.

925-930 13.00 % insoluble

Brown silt30%River sand 10% White and gray chert 60%
Chert similar to the two kinds above. With two kinds in bands
Pyrite, limonite and haemitite

930-933 7.25 % insoluble

Brown silt 30 %, River sand 10%, White and gray chert 60%.
Chert similar to the two types above

INSOLUBLE RESIDUES

MT. PLEASANT WELL #2, IOWA
W-0052
Top of Silurian

Mt. Pleasant #2
650-655'

Original sample	- 23.35g	
Filter paper	- 2.50g	
Insoluble Residue + Filter paper	- 6.50g	
Insoluble Residue	- 4.00g	- 17.1%
Soluble portion	- 19.35	- 82.9
	23.35g	- 100.0%

Mt. Pleasant #2
655-660'

Original sample	- 24.29g	
Filter paper	- 2.20g	
Insoluble residue + Filter paper	- 4.20g	
Insoluble residue	- 2.00g	- 8.3%
Soluble portion	- 22.29	- 91.7
	24.29g	- 100.0%

Mt. Pleasant #2
*660-665'

Original sample	- 26.95g	
Filter paper	- 2.25g	
Insoluble residue + Filter paper	- 3.60g	
Insoluble residue	- 1.35g	- 5.0%
Soluble portion	- 25.60	- 95.0
	26.95g	- 100.0%

Mt. Pleasant #2
665-670'

Original sample	- 23.40g	
Filter paper	- 2.35g	
Insoluble residue + Filter paper	- 8.05g	
Insoluble residue	- 5.70g	- 23.4%
Soluble portion	- 17.70	- 76.6
	23.40g	- 100.0%

Mt. Pleasant #2
670-675'
Original sample - 22.50g
Filter paper - 2.55g
Insoluble residue + Filter paper - 9.90g

Insoluble residue -	6.35g	- 28.1%
Soluble portion -	16.15	- 71.9
	22.50g	- 100.0%

Mt. Pleasant #2
685-690'
Original sample - 23.00g
Filter paper - 2.20g
Insoluble residue + Filter paper - 9.85g

Insoluble residue -	7.65g	- 31.2%
Soluble portion -	15.35	- 68.8
	23.00g	- 100.0%

Mt. Pleasant #2
*690-695'
Original sample - 24.85g
Filter paper - 2.35g
Insoluble residue + Filter paper - 12.85g

Insoluble residue -	10.50g	- 42.2%
Soluble portion -	14.35	- 57.8
	24.85g	- 100.0%

Mt. Pleasant #2
695-698'
Original sample - 25.70g
Filter paper - 2.35g
Insoluble residue + Filter paper - 11.20g

Insoluble residue -	8.85g	- 34.4%
Soluble portion -	16.85	- 65.6
	25.70g	- 100.0%

Mt. Pleasant #2
708-713'
Original sample - 24.70g
Filter paper - 2.50g
Insoluble residue + Filter paper - 13.00g

Insoluble residue -	10.50g	- 42.5%
Soluble portion -	14.20	- 57.5
	24.70g	- 100.0%

Mt. Pleasant #2 W-0052
713-718'

Original sample	-	25.85g
Filter paper	-	2.25g
Insoluble residue + Filter paper	-	4.45g

Insoluble residue	-	2.20g	- 7.8%
Soluble portion	-	23.65	- 92.2
		25.85g	- 100.0%

Binocular examination

650-655' Extraneous material of subangular to well rounded grains of quartz and feldspar. Some small geodal structures.
Few subangular pieces of quartz. 1/10 mm. probably extraneous.
Large percentage of subangular quartz grains. Less than 1/40 mm.
Pyrite particles. 1/40 mm.

655-660' Extraneous material as above.
Large percentage subrounded quartz. 1/4 to 1/2 mm. grading downward to less than 1/20 mm.
Chert granules less that 1/80 mm.
Pyrite. 1/40 mm. and less.
Crystalline quartz. Small percent. Probable source from small geodes.

660-665' Large percentage angular aggregates of chert as much as 7 mm long.
Large percentage tiny grains of agglutinated chert much less than 1/80 mm. Limonite stains in center.
Pyrite granules.
Some iron oxide. Hematite?
Non-agglutinated portion: Rounded quartz grains 1/4 to 1/10 mm. Pyrite. Large percentage or rounded quartz grains much less than 1/80 mm.

665-670' Extraneous material as above.
Agglutinated chert. Breakes into minute particles with some pyrite and some hematite.
Large percentage clay constituents.

Anhydrite aggregates

670-675' Extraneous material as above.
Large percentage of agglutinated chert.
Large percentage clay granules.

Anhydrite aggregates.

685-690' Extraneous material as above. Frosted, rounded, and beveled grains of quartz and feldspar ranging from coarse to fine grain sand.
Aggregates of chert resembling lumps of sugar.
Large percentage anhydride. Grains of 0.3mm.
Subordinate percentage silt. Sizes less than 1/80 mm.
Small percentage iron oxide.
Small percentage pyrite.

690-695' Extraneous material as above.
Few chert aggregates which upon breaking down show nucleus of anhedral quartz.
Aggregates of anhydride.
Large percentage anhudride subhedral crystals Some crystals as large as 1 mm.
Smaller percentage of silt.
Subsidiary pyrite and iron oxide.

695-698' Very large percentage of anhydride aggregates. Crystals subhedral
Smaller percentage silt grains.
Some subsidiary pyrite and iron oxide.

708-713' Extraneous material as above.
75% anhydride.
25% silt.

703-718' Agglutinated chert.
Aggregates of anhudride subhedral crystals.
Large percentage silt.

DESCRIPTIONS OF INSOLUBLE RESIDUES

Mt. Pleasant Well # 2 - W 0052

No. 1.- Depth 815-820 feet. 9.6 % insoluble residue; 90.4 % soluble material.

Abundance well-rounded, spherical and sub-spherical, partially frosted sand grains; many not frosted; all 1/4 to 1/2 mm. in diameter.

Very small (below 1/8 mm. across a surface) masses of spongy silica.

Clay-like material, which forms compact masses, incorporating quartz grains and mineral particles.

Metallic mineral fragments present, particles usually smaller than 1/8 mm. across a surface. Many of mineral fragments have rhomb-shaped molds on outer surface.

Aggregate of euhedral pyrite (iron) in small percentage.

Some quartz grains, sub-cylindrical, transparent.

No. 2.- Depth 820-825 feet. 18.32 % insoluble residue; 81.68 % soluble.

Approximately half of residue consists of transparent quartz grains, 1/8 to 1/2 mm. in diameter; well-rounded.

An occasional very small geode (1/4 mm. diameter.)

Approximately one-fourth of residue is clay-like material which forms compact aggregate when dry.

Many well-rounded, transparent sand grains, 1 to 2 mm. in diameter.

Abundance of opaque, angular quartz fragments, averaging 2 to 3 mm. in maximum length.

Small amount of aggregates of euhedral iron pyrite.
Some amber to rose-colored quartz fragments, small.

No. 3.- Depth 825-830 feet. 12.88 % insoluble residue; 87.12 % soluble.

Approximately one-fourth of residue consists of rounded, transparent quartz grains, about 1/8 mm. to 1 mm. diameter. There are some angular quartz fragments, as much as 3 mm.

across a surface, transparent to white, some pink in color.

Small amounts of aggregates of euhedral iron pyrite, most individual crystals smaller than 1/16 mm. across a face.

About one-half of residue is clay-like material which, when dry, binds much of quartz grains together.

Abundance of abraded, angular quartz fragments, 1 to 3 mm. across a surface.

Very small quartzite fragments, saccharoidal, about 1 mm. in diameter.

No. 4.- 830-835 feet. 10.63 % insoluble residue; 89.37 % soluble.

Rounded quartz grains negligible; abundance of angular, partially smoothed, abraded quartz fragments, averaging 3 mm. across a face or surface. Fragments are transparent, opaque in some instances, others milky.

Small amount of iron pyrite of aggregates of euhedrans. Are cubes and pyritohedrons; about 1/16 mm. across a face.

Small amount of clay present.

Some iron oxide (?) present.

No. 5.- Depth 835-840 feet. 16.47 % insoluble residue. 83.58 % soluble.

Abundance of quartzite fragments, saccharoidal, rounded, partially smoothed, white to pink in color.

Small amount of angular quartz fragments, less than 1 mm. in length; white and pink in color.

Small amount of aggregated euhedral iron pyrite.

Approximately 1/4 of residue is clay.

No. 6.- Depth 840-843 feet. 29.72 % insoluble residue; soluble, 70.28 %.

Abundance of saccharoidal quartzite fragments; tends towards a drusy textural type. Fragments are rounded, ellipsoidal, elongated, partially smooth. White predominates over colors.

There are some angular quartz fragments, 2 to 4 mm. in length. There is much transparent to pink and white quartz, fragmented.

Clay in minor quantities. Iron pyrite almost negligible.

No. 7.- Depth 843-847 feet. 14.11 % insoluble residue;
85.89 % soluble.

Angular and sub-angular quartz fragments in abundance---1 to 5 mm. in length. Much is transparent; some fragments are translucent, some white, others pink.

Some saccharoidal quartzite fragments, rounded and smoothed.

Few iron concretions about 2 mm. in diameter.

Some clay particles present.

--

No. 8.- Depth 847-851 feet. 4.28 % insoluble residue;
95.72 % soluble.

Abundance of angular, to rounded quartz fragments which are rarely transparent; translucent, and white and pink colors predominate. About 1 to 3 mm. in length.

There are a few grains of well-rounded, but opaque quartz fragments.

Iron pyrite very rare.

Clay in abundance.

--

No. 9.- Depth 851-856 feet. 8.04 % insoluble residue;
91.96 % soluble.

Saccharoidal quartz or quartzite fragments in great abundance. There are some angular to rounded and abraded quartz fragments, transparent to colored pink; some white.

Much clay, or clay-like material.

Pyrite crystals (very small) in aggregated masses, present, not abundant.

--

No. 10.- Depth 856-860. 11.11 % insoluble residue;
88.89 % soluble.

Well-abraded, sub-angular to round transparent quartz fragments, 1 to 3 mm. in diameter, in great abundance. Few fragments of white to pink, sub-angular and saccharoidal quartzite, present.

Few aggregates iron pyrite present.

Some clay, minor quantities.

Much opaque quartz, in angular to sub-angular fragments.

Geology 209 Nov. 10, 1936 H.J. Bissell

INSOLUBLE RESIDUES

Well # 2 (Duplicate W-0052) Mt. Pleasant

Original samples passed through 2 mm. caught on 1 mm. screen.

Depth in feet	Wt. original sample grams	No. of beaker	Wt. of Residue		% insol.	% sol.
			Total	- fil. pap.		
815-820	26.0	1	4.8	2.5	9.62	90.38
820-825	26.2	2	7.1	4.8	18.32	81.68
825-830	26.4	3	5.6	3.4	12.88	87.12
830-835	25.4	4	5.2	2.7	10.63	89.37
835-840	26.5	5	6.5	4.3	16.47	83.53
840-843	25.9	6	10.1	7.7	29.72	70.28
843-847	25.5	7	5.9	3.6	14.11	85.89
847-851	14.0	8	3.1	0.6	4.28	95.72
851-856	26.1	9	4.4	2.1	8.04	81.96
856-860	13.5	10	3.8	1.5	11.11	88.89

Curb 671'

Sheet No. 1 Name of Well City Well No 2 Survey No. W-0052

Location Mt Pleasant - South Park Date Drilled Started Oct. 1934 Comp. July 1935 Analyst Talley

00 0' Loess; gbr-bf; calcareous; appr 50% soluble; residue of silty material. Also fragments of chert, cinders etc.

8' Ls.-dolo.; gry to bf; consisting of clear xline calcite, ang to curv. frosted qtz sand maj. grd. ¼-⅛ mm; and very fine ang. qtz. in a calcitic and dolo. grdmass. Smallamt. pyrite.

10

AI

12½ → Ls. dolo. bf-gry; Chert 20%; very fine qtz sand + silt in dolo. + calcitic grdmass.

15 Ls. sandy; gry; containing 35-40% frosted curv. qtz grains; maj grd. 2-1 mm. p'rly sub. 1-½; 50-60% ls.

Omit

20

21 Ls. sandy; gry. Similar to 15'-21'.

AI

25 Ls. gry; a mixture of angular ls. and chert fragments in a calcareous, matrix, containing some silt. Ls. 70% - silt 20% chr. 10%

30 28'

Shale. gry. Slightly calcareous. Some frosted subang. qtz grains. Chr 10% ±. blocky, fine grained, breaks into ang. fragments

Omit

35 Sls. gry. slightly calcareous. Some A to a. qtz. grains; Chr. 5% ± blocky, breaks into ang. fragments.

40

Sls. gry. slightly calcareous. Hard, breaks into small chips. Residue after acid treatment contains shaly material

AI

45 Sls. gry. slightly calcareous. Hard, breaks into small chips. Residue after acid treatment contains small fragments of ls. and qtz. Small nodules of dk gray sls. included in lt. gray grdmass.

50

Ls. lt. to dk gry. Medium hard; some A frag. qtz (1mm) 5%; Chr. 10% ±. Small amount of pyrite, Fe stain, fossil fragments, xline calcite.

AI

55 Sls. lt. gry. Calcareous - 35-40% soluble; Blocky. breaks into ang. fragments. Small C fragments of ls. included in sls. matrix.

Omit

60

Sls and ls lt. gry. Sls hard, blocky slightly calcareous, containing C fragments of ls. - 60-70%. Ls: contains small fragments of qtz. and 10% ± silt residue - 30-40%.

65

AI

Sls. lt. gry. Carbonaceous Sls. hard, compact, thin laminae - micac. slightly calc. Ls (20%) in small C fragments in sls) probably thin beds

68

Omit

70 → Ls. lt gry; xline calcite, pyrite present. Residue 10% ± silt. Smallamt (10%±) Sls present

70 Ls lt gry Soluble with 30-40% silt residue. Some silty ls. (20% ±). Ls. hard, blocky

AI

73 Ls. lt. gry Soluble with 30-40% silt residue. Hard blocky, breaks into angular fragments. Small amounts pyrite + xline calcite present (2-3%)

77

Ls. lt. gry - soluble with 30-40% silt residue. Similar to 73-77.

Omit

80

82 Ls. lt. gry. 70-80% soluble with 20-30% silt residue. Some sls. (15-20%). xline calcite and pyrite present (2-3%). Fossil fragments (brachs) present. Sls. (10% ±) present.

AI

87½ → Ls. lt. gry soluble with 40% silt residue. Chr. 20% ±. Pyrite and xline calcite present (2-3%).

90 90 Ls. lt gry Soluble with 30-40% silt residue. Chr 15% ±.

Omit

95 Ls lt. gry. Soluble with 30-40% silt residue. Chr 10% ±

100

Sheet No. 2 Name of Well City Well No. 2 Survey No. W-0052

Location Mt. Pleasant - South Park Date Drilled Started Oct. 1934 Analyst Talley

100		Ls.	lt. gry. Soluble with a 10-20% residue of fine (1/8-1/16) sand. Chr. 15%. Pyrite and xline calcite (3-5%). A few fossil fragments (bracks) present.
AI	105	Ls.	lt. gry. Soluble with a 20-30% residue of fine (1/8-1/16) sand. Chr. gry. to wh., iron stained 30%±.
110		Ls.	lt. gry. Soluble with a 20-30% residue of fine (1/8-1/16) sand. Chr., gry to wh., iron stained 30%±. Small amount of xline calcite and pyrite. Pyrite, lovely weathered to limonite.
Omit		Ls.	lt. gry. Soluble with a 5-10% residue of fine (1/8-1/16) sand. Chr., gry. to wh., iron stained. 15-20%.
120		Ls.	H. gry. Soluble with a 10-20% residue of fine (1/8-1/16) sand. Chr., gry. to wh. iron stained. 20-30%
AI	125	Ls.	lt. gry. Soluble with a 20-30% residue of fine (1/8-1/16) sand. Chr. 15%±.
130		Ls.	lt. gry. Soluble with 30-40% residue of fine (1/8-1/16) sand. Chr. 10-15%.
Omit	135	Ls.	lt. gry. Soluble with 20-30% residue of fine (1/8-1/16) sand. xline calcite 10-20%. Chr. 5%±. Small amount limonite.
140		Ls.	lt. gry. Soluble with 5-10% residue of fine (1/8-1/16) sand. Coarse xlin Chr. 3-5%. Glauconite, 1-2%.
AI	145	Ls.	lt. gry. Soluble with residue of glauconite and fine sand (1/8-1/16). Chr. 5-10%. Glauconite 3-4%.
150		Ls.	lt. gry. Coarsely xline (up to 2 mm.) with 10% residue of glauconite and fine (1/8-1/16) sand. Glauconite 3-4% Chr. 5%± Limonite, tr. Few fossil crinoid stems.
Omit	155	Ls.	lt. gry. Coarsely xline (up to 2 mm.) with 25% residue of fine (1/8-1/16) sand. Chr. 20%±. Limonite, tr.
160		Ls.	lt. gry. Coarsely xline (up to 2 mm.) with 30-40% residue of fine (1/8-1/16) sand. Chr. 25-35%. Limonite 1-2%.
AI	165	Ls.	lt. gry. Finely xline with 10-20% fine (1/8-1/16) sand. Chr. 25%±. Limonite tr.
Burlington formation 170		Ls.	lt. gry. Similar to 165-170.
Omit	175	Ls.	lt. gry. finely xline with 20-30% fine sand (1/8-1/16). Chr. 25-35%. Limonite + pyrite 2-3%. Small cylindrical masses of pyrite probably replacing fossil spines.
180		Ls.	lt. gry. finely xline with 20-30% fine sand (1/8-1/16). Chr 10-20% Limonite, tr.
AI	185	Ls.	lt. gry. finely xline with 20-30% ~~Lime~~ (1/8-1/16) ~~Sand~~ silt. Chr. 10-20% Limonite, tr. glauconite fine grns.
190		Ls.	lt. gry. finely xline with 10-20% of fine (1/8-1/16) sand. Chr 5-10% Glauconite 3-4%. Fossil crinoid stems.
Omit	195	Ls.	lt. gry. very finely xline with a 10%± res. of fine sand. Glauconite 2-3%. Limonite tr.
Top Kinderhook @ 196. to SST	196	Ls.	lt. gry. finely xline with a 5-10% res. of fine sand.
200			

Keokuk Mortrose chert zone formation

Sheet No. 3 Name of Well City Well No. 2 Survey No. W-0052

Location Mt Pleasant - South Park Date Drilled Started Oct. 1934 Analyst Torrey

00

AI 205

Ls. lt. gry. dolo. with an IR of 10%± of fine (1/8-1/16) sand. Hard, compact.

Ls. lt. gry. sdy. with an IR of 20-25%± of fine (1/8-1/16) sand. Chr. tr. Hard compact.

210

Ls 95-100% gry sdy. med. xline saccharoidal; Sand 1-5% A to C, maj. gr. 4-2. Flfs crinoid stems, branchs Sand added to aid drilling

Omit 215

Ls. 98-100% gry. sdy med. xline, saccharoidal; Sand 1-5% A to C, maj gr. 2-1

220

Sls. 98-100% gry. grnh. blocky, calc, 20-30% sol; IR contains Sand used as aid in drilling

AI 225

Sls 98-100% gry. grnh. blocky, calc 20-30% sol; IR contains Sand used as aid in drilling.

Hampton formation

230

Sls. 98-100% gry grnh blocky, calc. 20-25% sol; Sand and gravel used as aid in drilling.

Omit 235

Sls. 70-90% qtz ~~grns~~ A to a maj. gr. ~~M-fine~~, Dol. 20-30% as cementing material; [Sand and gravel present] - omit from graphic log

240

Sls: 70-80% ~~sand~~, A to a, maj. gr. ~~1/16 1/32~~ Dol. 20-30% as cementing material. [Sand and gravel present]

AI 245

Dolo. 70-80% ~~Sand~~ silty A to a, maj. gr ~~M-fine~~; Dol. 20-30% as cementing material. [Sand and gravel present.]

250

Dolo. 90-90% ~~very fine grained, gry-bf to grnh; appears silty - very slowly soluble~~ 10% silty ~~Sand A to a maj. gr 1/8-1/16~~; Dol. 10-20% as cementing material [Sand and gravel present]

Omit 255

Dolo 80-90% ~~gry-grn with grains clear ang. qtz cemented with dolo. Rock looks like very fine SS.~~ ~~Sand~~ A to a maj gr 1/8-1/16; Dol. 10-20% as cementing material. [Sand and gravel present]

260

Dolo 80-90% [Sand similar to 255-260] like 245-260 - slightly silty - gry-bf color very slowly soluble

AI 265

Dolo. - Like 255-260 30-40% sand. A to a. maj. gr. 1/8-1/16; Dol. 10-20% as cementing material.

Sh 50-60% gry. calc 20-30% sol. friable [Sand and gravel present]

Top @ 267 Maple Mill 270

Sh. 97-100% gry; grnh. calc. 20-30% sol. friable; pyrite 1-3%, in xline masses Sand and gravel present.

AI 275

Sh. 97-100% gry grnh calc 20-30% sol, friable; pyrite 1-3% in xline masses; Sand and gravel present.

280

Sh 97-100% gry. grnh. calc 20-30% sol. friable; pyrite 1-3% in xline masses; Sand and gravel present.

Omit 285

Sh 97-100% gry grnh calc 20-30% sol. blocky; Sand and gravel present.

290

Sh. 97-100% gry. grnh calc 20-30% sol., blocky; Sand and gravel present.

AI 295

Sh. 97-100% gry grnh. calc. 20-30% sol blocky; Sand and gravel present.

300

Sheet No. 4 Name of Well City Well No. 2 Survey No. W-00 52

Location Mt. Pleasant, Iowa- South Park Date Drilled Started Oct. 1939 Analyst Talley

300		
Omit 305	Sh	97-100% gry. grnh. calc. 20-30% sol, blocky. Sand and gravel present.
	Sh.	97-100% gry. grnh. calc. 20-30% sol. blocky; Sand and glass fragments present.
310		
AI 315	Sh.	97-100% gry. grnh. similar to 305-310.
	Sh.	97-100% gry-grnh. calc 20-30% sol, blocky; Sand and glass fragments present.
320		
omit 325	Sh.	97-100% gry. calc. 20-30% sol. friable; Sand, gravel and glass fragments present.
N.S.		No Sample
330		
AI 335	Sh.	97-100% gry calc 20-30% sol blocky; Sand, gravel and glass fragments present
	Sh.	97-100% similar to 330-335
340		
Omit 345	Sh.	97-100% gry. calc. 20-30% sol. blocky; Pyrite 1-3% in vine masses Sand and gravel present
	Sh.	97-100% gry calc. 20-30% sol. blocky, firm; Sand and gravel present.
350		
AI 355	Sh.	97-100% gry. calc. 20-30% sol. blocky. Sand and gravel present Pyrite 1-3%
	Sh.	97-100% gry. calc 20-30% sol blocky; Sand and gravel
360		
Omit 365	Sh	97-100% dK. gry. and brwn. calc 15-25% sol. blocky firm, angular fracture; Sand and gravel present.
	Sh	97-100% d.K. gry. calc 20-25% sol; blocky; sand and gravel present.
370		
AI 375	Sh	97-100% dK. gry calc. 20-30% sol. blocky, Sand, gravel and wire present.
	Sh.	97-100% similar to 370-375
380		
Omit 385	Sh.	97-100% gry calc 20-30% sol. blocky; Sand, gravel and wire present.
	Sh.	97-100% dK gry to blK cal. 15-25% sol; blocky, in part carbonaceous; Sand, gravel and wire present
390		
AI 395	Sh.	97-100% blK. non-calc. carbonaceous, blocky; Sand, gravel and wire present.
	Sh	97-100% gry calc. 25-35% sol. blocky; Sand gravel and wire present.
400		

Sheet No. 5 Name of Well City Well #6 Survey No. W-0052

Location Mt. Pleasant South Park Date Drilled ____ Analyst Pope & Talley (400-470) (470-500)

400
Sh. - gry. to greenish; 20-30% sol. ± 1% pyrite; sand & wire present.

Omit 405

410
Sh - gray green; 10-15% sol; slightly fissile; sand, wire & limestone frags from above;

Sh - gray-green; 10-15% sol ±1% pyrite, sand & wire present;

AI 415
gray to gray-green, 20-25% sol; sand & wire present;

420
Sh - gray-green to tan; 10-15% sol; sand, wire and limestone frags from above;

Omit 425

Sh - lt. gray-green with some frags of darker shale; ±5% soluble; very smooth feeling; <1% pyrite; wire, sand & ls. frags from above;

430
Sh - lt. gray-green; 5-10% soluble; smooth; <1% pyrite; wire, sand & ls. frags from above;

AI 435
Sh - lt. gray-green, ±5% soluble; smooth; sand & ls. frags. from above;

440
Sh - lt. gray; ±5% soluble; smooth; sand, wire, & ls, frags. from above.

Omit 445
Sh - medium gray; blocky; smooth; ±5% soluble; ±1% pyrite; a few frags of wire, quartz & ls. from above;

450
Sh - lt. gray to greenish gray; smooth; ±5% soluble; <1% pyrite; a few frags of wire, quartz & ls. from above;

AI 455
Sh - lt. gray; smooth; ±5% soluble; <1% pyrite; a few frags of wire qtz, & ls. from above;

460
Sh - lt. gray; smooth; ±5% soluble; a few frags of qtz. & ls. from above

Omit 465
Sh - lt. to med. gray; blocky; ±5% soluble; foreign frags. not observed.

470
Sh. 97-100% lt. gry. calc. 15-20% sol. firm. blocky;

AI 475
Sh. 97-100% lt. gry. calc. 5-10% sol. firm. blocky; few frags of qtz. and wire.

480
Sh. 97-100% lt. gry. calc. 5-10% sol. firm. blocky;

Omit 485
Sh. 97-100% lt. to med. gry calc 5-10% sol. thinly laminated, firm; pyrite 1%±.

490
Sh. 97-100% lt. to med. gry calc. 5-10% sol. firm. blocky;

AI 495
Sh. 97-100% med. gry calc. 5-10% sol. firm. blocky;

497
Sh. 97-100% lt. to med. gry. calc. 5-10% sol. firm. blocky; pyrite 1%±.

500

Sheet No. 6 Name of Well City Well No. 2 Survey No. W-0052

Location Mt. Pleasant, Iowa, South Park Date Drilled started Oct. 1934 Analyst Talley

500		
	Sh	97-100% lt. gry. calc. 5-10% sol. smooth, massive; micac.
Omit 505		
	Sh.	97-100% similar to 500-505
510		
2 samples A 510-513 B 510-515	Sh.	97-100% lt. gry. and med. brwn calc. 5-10% sol. smooth, massive;
	Sh	97-100% lt gry and med. brwn. calc. 5-10% sol smooth, massive
515 Ron AI	Sh.	97-100% lt. to med. gry. calc 5-10% sol, smooth, massive, pyrite 1% ±
520	Sh.	97-100% lt. gry. calc 10-15% sol. smooth, massive, micac pyrite 2-3% ±
Omit 525		
	Sh.	97-100% lt. gry. and med brwn. calc 5-10% sol. smooth, massive, micac; pyrite 1% ±
530	Sh	97-100% lt. gry calc. 10-15% sol. micac; pyrite 1% ±.
AI 535	Sh	97-100% lt. gry calc 30-40% sol. micac; blocky pyrite 1-2% ±
537	Sh.	97-100% lt. gry calc 30-40% sol. micac; blocky
540	Sh	97-100% lt. gry calc. 25-35% sol. micac. blocky;
Omit 545		
		45-100% lt. gry. calc. 30-40% sol. blocky, micac; pyrite 1-3% in xline masses; ls. 1-20% gry. fine xline dense, in small frags.
550		95-100% lt. gry calc 30-40% sol. blocky; micac. pyrite 1-3% in minute xtals and xline masses.
AI 555 Miss (Kinder) Dev. @ 557	Sh	50-60% lt. gry calc. 20-30% sol. friable micac; ls. 40-50% bf. fine xline dense.
560	Ls.	90-100% cream to bf. fine xline, dense; Sh. 1-10% gry calc. 20-30% sol. thinly laminated.
AI 564	Ls	60-70% cream to bf. fine xline dense; Sh. 30-40% lt gry. calc 25-35% sol. friable
Omit 566		
AI 570	Ls	95-100% bf. med. xline, saccharoidal, sandy; Sh 1-5% lt. gry. calc. 10-15% sol. firm. Thinly laminated; qtz frags. A to C present maj. gr. 4-2, prin. sub. 2-1; pyrite, tr.
AI 575	Ls.	97-100% bf. to lt. brwn. med. xline, saccharoidal; qtz frags present, A to C, maj. gr. 2-1. prin. sub. 4-2; pyrite, tr; casing scale, common.
	Ls.	80-90% bf. to lt. brwn. med. xline, saccharoidal; sand. 10-20% A to C, maj. gr. 2-1, prin. sub. 4-2; pyrite tr.
AI 580	Ls.	80-90% lt. gry med. xline firm saccharoidal; Sh. 10-20% gry calc. 20-30% sol friable;
585	Ls.	95-100% bf. to lt. brwn med. xline saccharoidal; Sh 1-5% lt gry calc 20-30% sol. friable. qtz frags present.
AI 590	Ls.	97-100% bf. to lt. brwn. med. xline, saccharoidal; sand and gravel present. Flks. crinoid stems.
595		
AI	Ls.	97-100% similar to 590-595
600		

Sheet No. 7 Name of Well City Well #2 Survey No. W-0052

Location Mt Pleasant Ia, South Park Date Drilled Oct '39 Analyst Pyre - Talley (600-635) (635-700)

AI 600 Ls. mottled lt. to dk. gry.; fossiliferous; fine to med. grained; ± 5% chert; 10-20% qtz. sand a-e up to 3 m.m. (probably from above). < 1% pyrite;

605 Ls. lt. gry. mottled with dk. gray; fine grained but containing rhombs up to 2 m.m; ± 1% pyrite; 10-15% qtz. sand a-e (probably from above)

AI 610 Ls. similar to 605-610; ± 1% pyrite; 20-25% qtz. sand a-e (prob. from above)

613 Ls. light to med. gry. mottled with dk. gry. fossil frags.; fine grained, porous, poorly compacted; 3-5% sand (from above?); < 1% pyrite; ± 5% clay;

AI 618 Ls. similar to sample 613-618; Foreign igneous & metamorphic granules (up to 7 m.m.) are present; 3-5% qtz. sand; ± 5% clay;

20 623 Ls. lt. to med. gry. mottled with dk. gry. fossil frags.; fine grained; poorly compacted, ± 5% qtz. sand; 2-3% gray clay; < 1% pyrite.

AI 628 Ls. lt. to med. gry. mottled with dk. gry. fossil frags. & frags. of carbonaceous matter; ~~5-10% qtz. sand (from above), 2-3% gray clay; < 1% pyrite.~~

30 631 Ls - lt. to med. gry.; fine to med grained; ± 20% qtz. sand (from above?) < 1% Fe-concretions; < 1% pyrite; fossils present.

635 Ls. 97-100% lt. gry. med. xline, firm; Sand A to C, present (probably from above); limonite concretions 1-3%

AI 40 Ls. 97-100% lt. gry. med. to fine xline, dense; Sh. 1-3% lt gry calc. 15-25% sol. friable; Sand present probably from above

642 Ls. 97-100% lt. gry fine xline, dense; Sand A to C present - probably from above

AI 645 Ls. 97-100% lt. gry. med. to fine xline, dense; Sh. 1-3% lt. gry calc. 15-25% sol. friable; Sand and gravel present, probably from above; ~~cfs.~~ - brach frags.

D. C. 650 Ls. 97-100% bf to lt. brown. med. xline saccharoidal, porous; Sh. 1-3% lt. gry. calc. 15-25% sol. friable; Sand and gravel present, probably from above.

Sil. 650-816'

AI 655 Ls 97-100% bf to lt. gry. med. xline saccharoidal; porous. Sh. 1-3% lt. gry. calc. 15-20% sol.; Sand and gravel A to C, present.

660 Ls 95-100% lt. gry med. to fine xline, dense; Sh. 1-5% lt gry. calc. 15-20% sol; Qtz frags. A to C. present.

AI 665 Ls 97-100% bf. fine xline dense; gypsum, tr; Sand, gravel and cinders present

670 Ls. 90-100% lt. gry fine xline. dense; gypsum and anhydrite, 1-10% wh. fine xline; sand and gravel present.

AI 675 Anhydrite and Gypsum, 70-80% wh. fine xline, soft; ls. 20-30% bf. to lt. gry. fine xline dense, in Thin platy beds;

WS 680 Ss. 60-70% qtz. sand A to C, maj. gr. 2-1 mm. prin. sub. 4-2; ls. 10-20% bf. to lt. gry. fine xline, dense; Anhydrite and gypsum 10-20% wh. fine xline soft. (Sand used as said in drilling ???)

Shown as above - Gyp & Anh

WS 685 Ls. 70-80% bf. fine xline to sub-lithographic, dense; anhydrite and gypsum 10-20%, wh. fine xline, soft; sand, 1-10% A to C, maj. gr. 2-1, prin. sub. 4-2.

AI 690 Ls. 70-80% bf to lt. gry. fine xline to sub-lithographic, dense; anhydrite and gypsum 10-20%, in part wh. soft. fine xline, in part brown xtals, intergrown in ls; Sand 1-10% A to C, maj. gr. 2-1, prin. Sub 4-2.

695 Ls 70-80% bf to lt. gry. fine xline to sub-lithographic, dense; anhydrite and gypsum, 10-20% in part wh. soft, fine xline, in part brown xtals, intergrowning ls; Sand, 1-10% A to C, maj. gr. 2-1, prin Sub 4-2.

AI 698 Ls. Similar to 695-698

700 103

Sheet No. 8 Name of Well City Well No. 2 Survey No. W-0052

Location Mt. Pleasant, Iowa; South Park Date Drilled '34 Analyst Talley & Pyre (700-775)' (775-801)

698

AI 700 — 703

Gypsum and Anhydrite; 70-80% in part wh. fine acicular xtals. soft. in part brown xtals. ls. 10-20% bf. fine xline dense. Sand 1-10% A to C, maj. gr. 2-1. prin. sub. 1-1/2.

WS — 708

ls. 70-80% bf. to lt. gry fine xline to sub-lithographic. dense; gypsum and anhydrite, 10-30% in part wh. soft, fine xline, in part brown xtals; Sand, 1-10% A to C. maj. gr. 2-1, prin. sub. 4-2

10

AI 713

Ls. 60-70% bf. to brown. fine xline to sub-lithographic. dense; gypsum and anhydrite, 20-30%, soft, wh. fine xline; Sand, 1-10% A to C, maj. gr. 2-1, prin sub. 4-2.

718

Ls 70-80% bf. similar to 713-718.

720

AI

Ls 60-70% bf. to lt. gry. fine xline to sub-lithographic, dense; gypsum, and anhydrite 20-30% wh. fine xline, soft; Sand 1-10% A to C, maj. gr. 2-1 prin. sub 4-2; fls. - crinoid stems, frags of gry shale, probably from above

725

Anhydrite and gypsum - 70-80% wh. to lt. gry fine acicular xtals; and xline masses; ls. 10-20% bf. fine xline. dense; sand, 1-10% A to C, maj. gr. 2-1. prin. sub 4-2

WS — 730

Ls. 60-70% bf to lt brown fine xline to sub-lithographic. dense; Anhydrite and gypsum, 30-35% in part wh fine xline, soft, in part in brown xtals intergrown in ls; Sand 1-5% maj. gr. 2-1, prin. sub. 4-2. A to a.

AI

735

Dol 70-80% lt. to med brown, med. xline saccharoidal, porous; Anhydrite and gypsum 10-20% wh. soft, fine xline; ls. 1-5 bf fine xline dense; Sand, 1-5% A to C, maj. gr. 2-1, prin. sub 4-2

AI

740

Dol 80%± lt. to med. brown, med. xline, saccharoidal, porous; Anhydrite and gypsum 1-5% wh. fine xline, soft; Sand 10-15% A to C, maj. gr. 2-1, prin. sub. 4-2

745

Chert, 40-45% wh to lt. gry. glassy; anhydrite and gypsum 30-40% wh. soft, fine xline; Sand 20-30% A to C, maj. gr. 2-1. prin. sub 4-2; dol. 1-5% lt gry. fine xline, dense

WS

750

×

Gypsum and anhydrite - 70-80% wh. to lt. gry. fine xline, soft; dol. 10-20% lt. gry. fine xline, dense; Sand 1-10% A to C. maj. gr. 2-1, prin. sub 4-2

WS

735

×

Dol. 80%± lt. gry. fine xline, dense; anhydrite and gypsum, 10%± wh. to lt. gry. soft, fine xline; Sand, 10%±

AI

760

Dol. 80-85% gry; med xline, firm; anhydrite and gypsum 1-10%, wh. soft, fine xline; Sand 1-5% A, maj. gr. 2-1, prin. sub 1-1/2.

762

Dol. 50-60% gry. med. xline. firm; anhydrite and gypsum, 40-45%, wh. soft, fine xline; Sand 1-5% A to C. maj. gr. 2-1, prin. sub 1-1/2, Chr. 1%±

AI

766

×

Anhydrite and Gypsum - 80-85% wh. to lt. gry. soft, fine xline; dol. 1-10% gry, med. xline, firm; Sand. 1-5% A to C, maj. gr. 2-1.

WS

770

Sls. 80-90% lt. gry. calc. 10-15% sol. friable; Dol. 1-10% gry med. xline. dense.

AI

775

Dolomite - lt. to dk. gry. mottled; 75-80%; 15-20% qtz. sand C; 5-10% clay minerals; <1% pyrite; <1% casing scale. (part of rock is $CaCO_3$)

AI

780

Dolomite - ± 50%; lt. to dk. gry; 20-30% gry. shale; 20-30% fine to coarse a-c sand (From above ?)

785

Shale - 50-60%; gry; 30-35% soluble; 5-10% dolomite frags; 5-10% qtz sand, C;

AI

90

791

Shale - 50-60%; gry; 30-40% soluble; 5-10% dolomite frags; ± 5% qtz. sand; a-c;

797

AI

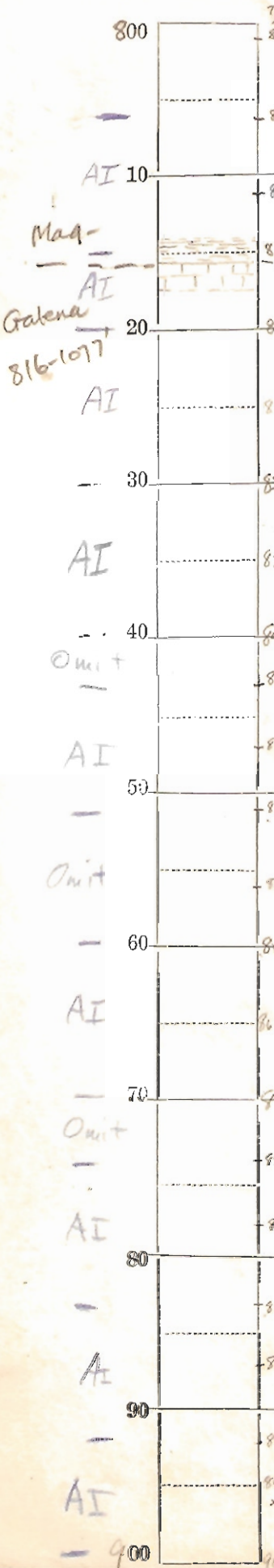
Shale - 40-50%; gray; ± 40% soluble; 15-20% C sand; 1/2 - 1/4 m.m.

800

801

Sheet No. 9 Name of Well City Well No. 2 Survey No. W-a-052

Location Mt. Pleasant Iowa - South Park Date Drilled Started Oct. 1971 Analyst Talley



Sh. 70-80% lt. gry. grnh calc. 15-20% sol. friable Sand 20-30% A to C, maj. gr. 2-1, prin. sub 4-2.

Sh. 70-80% lt gry. grnh. calc. 3-5% sol, friable silt content 20-30% Sand 20-30% A to C. maj. gr. 2-1. prin. sub. 4 [illegible]

[illegible] 806 - 811

Dol. 80-90% bf to lt brwn med. xline. saccharoidal, sandy; Sand 10-15% A to C, maj. gr. 2-1. prin. sub. 1-1/2; Sh. 1-5% lt. gry grnh calc 3-5% sol.

Dol + ls. 80-90% bf. to lt. brown. med xline saccharoidal. Sandy; Sand A to C, maj. gr. 2-1. prin sub 1-1/2; pyrite. tr.

Dol + L.s. 80-85 % bf to lt brown med xline. saccharoidal. sandy; Sand, 10% A to C, maj. gr. 2-1. prin. sub. 1-1/2; Sh. 1-3% brown. firm slightly calc.; pyrite 1-2%

Dol + ls. 80-85% bf. to lt brwn. med. xline saccharoidal. sandy; Sand 1-10% A to C, maj. gr 2-1, prin. sub. 1-1/2; Sh. 1-3%

Dol. + ls 80-90% bf to lt. brwn med. xline saccharoidal; Sand. 10-15% maj. gr. 1-1/2 prin. sub. 1/2-1/4. A to C; Sh. gra 1-3% mod. calc. firm; pyrite 1-2%; chr brwn. tr.

Dol. + ls 80-90% lt. brwn. med dline, saccharoidal, porous; Sand 1-10% A to C, maj. gr. 1-1/2, prin. sub. 1/2-1/4; Sh. 1-10% lt gry calc. 10-15% sol. friable.

Dol + ls. 80-90% lt brwn. med. xline. saccharoidal. porous; Sand 10-15% A to C. maj. gr 1-1/2, prin. sub. 2-1; Sh. 1-2% grn. calc. 3-5% sol. firm massive.

Dol. and ls. 90-100% bf. to lt. brwn. med. to coarse xline. saccharoidal. porous; Sand 1-8% A to C, maj. gr. 1-1/2 prin. sub 1/2-1/4; Sh. 1-2% gry grnh. calc. 5-10% sol. soft, friable

Dol and ls. 80-90% bf. to lt brwn. med. to coarse xline. saccharoidal. porous; Sand. A to C. maj grd 2-1, prin sub 4-2, 1-10%; Sh. 1-10% gry grnh. calc. 15-20% sol. friable.

Dol. and ls. 80-90% bf. to lt. brwn med to coarse dline saccharoidal. porous; Sand, 10-15% A to C, maj. gr. 1-1/2 prin. sub. 1/2-1/4; Sh. 1-5% lt. gry. grnh. calc 10-15% sol. soft. friable.

Dol. 80-90% bf. to lt. brwn med to coarse dline saccharoidal, porous; Sand, 10-15% A to C, maj. gr. 1-1/2 prin. sub. 1/2-1/4; Sh. 1-5% lt. gry. grnh. calc. 5-10% sol. soft. friable.

Dol. Similar to 860-865; chr. 1-2%

Dol. 80-90% bf. to lt. brwn. med. to coarse xline. saccharoidal, porous; Sand, 10-17 calc. A to C, maj. gr. 1-1/2, prin. sub. 1/2-1/4; Sh. 1-3% gry. grnh

Dol. ~~80-90% bf. to lt. brwn med. to coarse xline saccharoidal, porous~~ Sand 5-10% A to C, maj. gr. 1-1/2, prin. sub 1/2-1/4; Sh 5-10% grn. grnh. calc 5-10% sol.

Dol 80-90% bf. to lt brwn med. to coarse xline Sh. 10-15% gry. grnh. calc

Dol. 95-100% bf. to light brwn med. dline firm; Sand 1-5% A to C maj. gr. 1-1/2" often frags. of grn. sh. and pyrite; Sample labeled 882-887

Dol. 95-100% bf. to lt. brwn similar to 883-887

Dol. 95-100% bf. to lt brwn med. xline, firm; Sand A to a, maj. gr. 2-1, prin. sub. 1-1/2; pyrite tr.

Dol. 90-100% bf. to lt. brwn med. xline, firm; Sand. A to a, maj. gr. 1-1/2 prin. sub. 2-1. Chert, 1-3% wh. to lt. gry.

Sheet No. 1 Name of Well City Well No. 2 Survey No. W-0052

Location Mt. Pleasant, Iowa, South Park Date Drilled 1935 Analyst Talley

900	Dol.	90-85% bf. to lt brwn. med. xline, firm; Sand, 1-5% A to C, maj gr 2-1, prin. sub 1-½; Chert, wh. to lt. gry 1-10%; pyrite, tr.
905	Dol.	75-80% bf. to lt. brwn. med xline, firm; Chert, 10-20% Wh. to lt. gry. Sand 1-5% A to C, maj gr. ½-¼, prin sub. 1-½
910	Dol.	80%± bf. to lt. brwn. med. xline, firm; Chert 15%± wh. to lt. gry., Sand 5%± A to C, maj gr. 1-½, prin. sub. 2-1.
915	Dol.	75%± bf to lt. brwn. med. xline, firm; Chert, 20%± Wh. to lt gry. dense and pulverulent; Sand 5%± A to C, maj. gr. 1-½ prin. sub. 2-1
920	Dol.	75%, bf to lt brwn med. xline, firm, Chert 20%± wh. to lt. gry. dense and pulverulent; Sand 5%%± maj. gr. 1-½, prin sub 2-1,
925	Dol.	70%± bf to lt. brwn. med xline, firm, Chert 20%± wh. to lt gry. Sand 5%± A to a, maj. gr. 1-½. prin. sub 2-1, Sh and Sls. frags 5%± grn. lt. gr. and brwn, probably caving from above.
930	Dol.	70%± bf to lt. brwn. med to coarse xline, firm; Chert. 20% wh. to lt gry. Sand, 5%± A to a, maj. gr 1-½ prin sub 2-1; Pyrite 1%±; Sh frags 4%± from above.
935	Dol	75%± bf. to lt. brwn. med to coarse xline, firm; Chert 15%± wh. to lt. gry; Sand, 5%±, A to a, maj. gr. 1-½. prin sub 2-1.
940	Dol.	75%± bf to lt. brwn med to coarse xline firm. Chert 20%± wh. to lt. Gry; Sand, 5%± A to a, maj. gr 1-½. prin 2-1;
943	Dol.	75%± bf to lt. brwn, med coarse xline, firm; Chert 20%± wh. to lt. gry; Sand 5%± maj gr 1-½ prin. sub 2-1
949	Dol.	similar to 943-949
954	Dol.	75%± bf to lt. brwn. med to coarse xline. firm; Chert 25%± wh. to lgt. gry; Sand 5%± A to a. maj. gr 1-½ prin sub. 2-1; iron concretions Tr/A (may be drill frags or casing scale)
960	Dol.	70%± bf. to lt. brwn. med to coarse xline, firm; Chert, 25%± wh. to lgt. gry.; Sand, 5%± A to a, maj. gr. 1-½. prin sub. 2-1; few frags. of lgt. gry. sls. probably from above.
966	Dol.	Similar to 960-966 with o'ten frags. of blk sh. caving.
971	Dol.	75%± bf to lt. brwn. med. xline, firm (finely comminuted by drill); Chert 20% wh to lt. gry; Sand. 5%± A to C. maj. gr. 1-½ prin. sub. 2-1
975	Dol.	70%± bf to lt. brwn med. to coarse xline; Sand, 20%± A to C, maj gr. 1-½. prin. sub. 2-1 Chert, 10%± wh. to lgt. gry.
980	Dol.	70%± bf. to lt. brwn. med to coarse xline; Sand, 25% A to C, maj. gr. 1-½, prin. sub 2-1; Chert. 5%± wh. to lgt. gry.
985	Dol	70%± bf to lt. brwn med to coarse xline; Sand, 25% A to C, maj gr 1-½ prin sub 2-1. Chert, 5%± wh. to lt. gry.
990	Dol.	Similar to 985-990
996	Dol.	70% bf. to lt. brwn med. to coarse xline; Sand 20% A to C, maj. gr. 1-½. prin. sub. 2-1.
1000		

Sheet No. 11 Name of Well City Well No. Survey No. W-0052

Location Mt. Pleasant, Iowa Date Drilled Feb. 1935 Analyst Talley

1000 — Omit

1001 Dol. 70%± cream to bf. med xline firm; Sand. 15%± A to C. maj gr. 1-1/2, prin. sub. 2-1; Chert. 15%± wh to H grey

1008 Dol. 70%± bf. to H. brwn., med. to coarse xline, firm, Sand 15% A to a maj gr 1-1/2 prin. sub. 2-1; Chert 10% wh to lt. grey Sls and sh frags 5%, probably from above

10

1012 Dol. 90% bf to lt. brwn. med to coarse xline; firm, Sand 5% A to C, maj. gr. 1-1/2 prin. sub 1/2-1/4; Chert 5%± wh to lt. grey

AI

1017 Dol. 90% lt to dk brwn. med to fine xline dense, ferruginous; Chert 5%± H grey to dk brwn Sand 5%± A to C maj. gr. 1-1/2 prin. sub 2-1

20

1022 Dol. 90%± H. to dk. brwn., med to fine xline dense ferruginous; Sand 5% A to C, maj. gr. 1-1/2 prin sub 2-1. Chert, 15%± lt. grey to dk brwn. Sh-bit petroliferous - Decorah Sh Zone

26.3 T.R. 73.7 sol. 100.0

Omit

See petrol. r insol. res. analy

1025 Dol. similar to 1022-1025.

Decorah 1022-30'

30

1030 Dol. and ls. 80%± bf to lt brwn. med to fine xline, dense; Sh. 10% grn., gryh. calc 5-10% sol., soft friable; Sand. 5%± A to C maj gr. 1-1/2, prin. sub 2-1; Chert 5%± lt. grey

AI

1035 Dol. and ls 90%± bf. to lt brwn. med. to coarse xline. firm; Sand 5%± A to a, maj. gr. 2-1, prin. sub 1-1/2; Chert, 5% lt grey to dk brwn.

Omit

40

1040

1042 Dol. and ls. 90% ± bf. to lt. brwn. med. to coarse xline; Sand, 5% A to C, maj. gr. 1-1/2, prin. sub 2-1 Chert, 30%± lt. grey; Pyrite 20%±

Dol. and ls. 90% bf. to lt. brwn. Similar to 1040-1042

AI

1048 Ls. and dol 90%± bf. to lt. brwn. med to coarse xline. firm; Sand 5% A to C, maj. gr 2-1, prin. sub 1-1/2 Sh 5% grn. gryh. calc 5-10% sol soft. friable a few fossil frags (brachiopods).

50

1053

1055 Ls. 90%± cream to bf med xline firm, Sand 10%± A to a, maj. gr. 2-1 prin. sub 1-1/2.

AI

Ls and dol 90%± bf. to lt. brwn. med. to coarse xline, firm; Sand 10%± A to C, maj. gr. 1-1/2, prin. sub 2-1

60

1060 Ls. and dol. 90%± bf to lt. brwn. med to coarse xline; Sand, 10%± A to C. maj. gr. 1-1/2, prin. sub. 2-1.

Omit

1065 Ls. and dol 90%± bf to lt. brwn. med xline, firm (finely comminuted by drill); Sand. 10%± A to C, maj gr. 2-1, prin. sub. 1-1/2.

AI

70

1071 Dol and ls 90%± bf to lt. brwn. med to coarse xline, firm; Sand, 10% A to C, maj. gr. 1-1/2 prin. sub 2-1

Glauc.

1076 Ss. 80% · A to C. maj. gr. 1-1/2. prin sub 2-1, Some secondary enlargement; Dol. 20%± bf to lt. brwn coarse grained, firm.

80

1081 Ss. 90%± A to C, maj. gr. 1-1/2, prin. sub. 2-1; Dol. 10%± lt. brwn. med xline. firm; secondary enlargement common in sand.

27 ss + sd + sh. ± sh. S

1087 Ss 100%± A to C. maj. gr 1-1/2 prin. sub. 1/2-1/4; a few frags of dol and casing scale; secondary enlargement common.

90

1077 to 1128 Glauc SS S

1093 Ss 95%± A to C maj. gr. 1-1/2, prin. sub. 1/2-1/4; Some secondary enlargement, Dol. frags. 3%± Sls. 2% bf to lt. grey calc. soft.

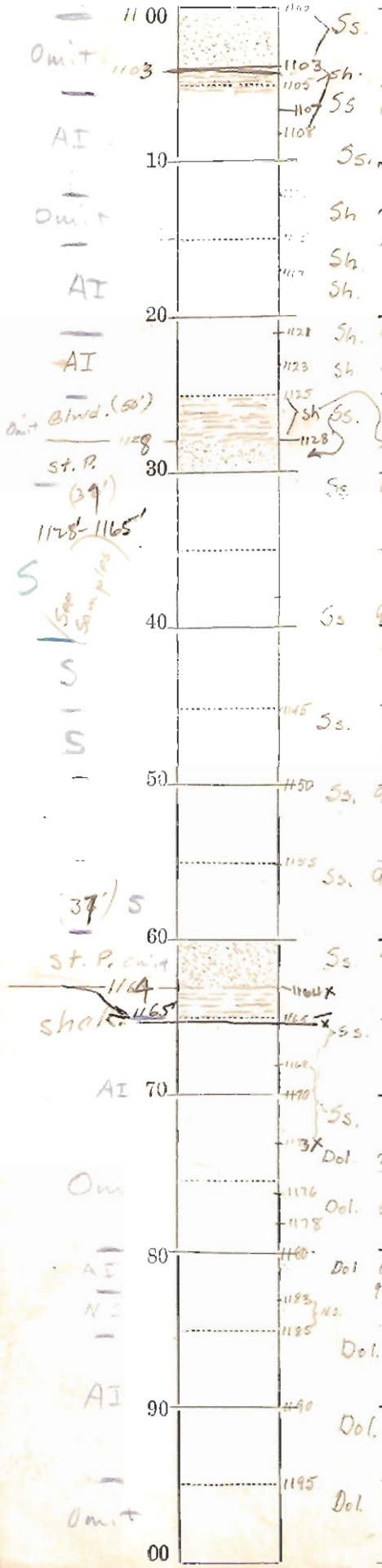
S

1096 Ss. 97%± A to C. maj. gr. 1/2-1/4 prin. sub 1/4-1/8; Some secondary enlargement; Dol. frags 3%±;

1100 — 1100

Sheet No. 12 Name of Well City Well No. 2 Survey No. W-00 52

Location Mt Pleasant Iowa - South Park Date Drilled 1935 Analyst Talley



Ss. 70% ± maj. gr. ½-¼, prin. sub. ¼-⅛ A to C; Sh. 25% grn. non-calc fissile unctuous; Pyrite 5% ± in xline masses.

Ss. 60% ± Maj. gr. ½-¼. prin. sub. 1-½, A to C; Sh. 35% ±. grn non-calc. fissile. unctuous; Pyrite 5% ± in xline masses.

Ss. 60% ± A to C, maj. gr ½-¼ prin. sub 1-½, Sh 35% ± grn non-calc fissile, unctuous. Pyrite 3% ± in xline masses; Dolomite 2% ± probably caving.

Sh 70% ± grn. non-calc fissile soft; Sand A to C, 25% ± maj. gr. ½-¼ prin. sub 1-½; Pyrite 5% ±

Sh 95% ± grn. grysh. non-calc soft. fissile; Pyrite 5% ± in xline masses.

Sh. Similar to 1115-1117

Sh. 97% ± lgt. gry. non-calc Soft. friable;

Sh 97% ± lgt. gry non-calc Soft friable;

Ss. 70% ± a to r, maj gr ½-¼ prin. sub 1-½; Sh. 30% ± lt gry grnh. non-calc. Soft. friable

Ss 97% ± a to r. maj. gr. ½-¼ prin sub 1-½; some secondary enlargement; pyrite, tr; Green sh. caving from above

Ss 97% ± a to r, maj. gr ½-¼, prin sub 1-½; Some sec enlargement, pyrite, tr, Grn sh caving from above

Ss. 97% ± a to C, maj. gr. ¼-⅛ prin. sub. ½-¼; Sil. 1-2% acting as cement; Green sh caving from above.

Ss. 97% ± a to C. maj. gr ¼-⅛ prin. sub ½-¼; Green sh caving from above

Ss. 97% - A to r, maj gr. ½-¼ prin. sub 1-½; Secondary enlargement common; Green sh caving from above.

Ss 70% A to r, maj. gr ½-¼, prin sub 1-½; Sh. 27% ± lgt grn non-calc. Soft. friable; Chr 3% ± Wh to H. gry. (caving?)

Ss. 50% ± A to C, maj. gr ¼-⅛ prin sub. ½-¼; Dol. 90% bf. med xline. oolitic; Chr and secondary quartz 10% ±; grn sh. caving from above

Ss. 50% ± A to C, maj. gr. ¼-⅛. prin sub. ½-¼; Dol 40% ± bf med xline oolite; Chr 10% ± wh. to H grey; grn sh caving

Dol 70% ± bf med xline. firm; Ss 25% ± A to C, maj. gr. ¼-⅛ prin sub ½-¼, Chr. wh. to lgt grey; grn sh. caving

Ool. Similar to 1173-1176

Dol 65% ± bf to lf brn., med. xline, firm; Sand 30% A to C, maj. gr. ¼-⅛. prin sub ½-¼ Chert 5% ± wh. to lt. gry; Grn. sh. caving.

Dol. 60% cream to bf med. xline. Firm; Sand 30% A to C, maj. gr ¼-⅛, prin. sub ½-¼, secondary enlargement common; Chr. 10% ± wh to lgt. grey; Grn sh caving

Dol. Similar to 1185-1190, pyrite, tr.

Dol. 70% ± cream to bf. med. xline, firm; Sand, 20% ± A to C, maj. gr. ¼-⅛, prin. sub. ½-¼; secondary enlargement common; Chr. 10% ± wh. to lgt grey. Grn sh caving; Flts. Trilobite (??) see capsule

Sheet No. 13 Name of Well // Pleasant - City Well #2 Survey No. Woo 52

Location // Pleasant, Iowa, South Park Date Drilled ____ Analyst Talley & Pyre

1200-1205 1205-1300

1200

Dol. 70%± cream to bf. med. xline firm; Ss. 20% A to C. maj. gr. ¼-⅛ prin. sub. ½-1; Chert 10% Wh. to lgt. gry. Grn. sh. caving

1205

Dol. 50% cream to bf med xline firm; Chert 30%± wh. to lgt gry. Sand, 20%± A to C, maj. gr ½-⅛ prin. sub. 1-½ Grn shale caving from above

10

1210

Dol. Similar to 1205-1210

1215

Dol. 70%± cream to bf. med. xline, firm; Chert, 20% wh. to lgt. gry. Sand, 10% A to C. maj. gr. ¼-⅛ prin. sub ½-¼ grn sh. caving from above

20

1219

Dol 80%± cream to bf. med xline, firm; in part oolitic; Chert 15%± wh. to lt gry; Sand 5%± A to C, maj. gr ½-¼ prin. sub. ¼-⅛ Grn. sh caving

1223

Dol 80% cream to bf. med xline firm, in part oolitic; Chert 10%± wh to lt gry. Sand, 10%± A to C, maj gr ½-¼, prin. sub. 1-½ Grn. sh. caving from above

30

1229

Dol. 80%± cream to bf med xline, firm; Chert 10%± wh. to lt gry. in part oolitic; Sand A to C, maj. gr. ½-¼ prin. sub 1-½; Grn. sh. caving

1232

Dol. 80% cream [illegible] xline, firm; Chert 10% wh. to lt gry.; Sand 10%± A to C [illegible] prin. sub ½-¼; Grn sh caving

1237

40

Dol. 95%± cream fine xline dense; Sand, 5%± A to C, maj gr ¼-⅛ prin. sub ½-¼; Grn sh caving from above

1247

Dol. 90% cream to bf fine xline dense; Chert, 5% wh. to lt gry; Sand, 5% A to C, maj. gr. ¼-⅛ prin. sub ½-¼; Grn. sh. caving from above.

1248

50

Dol. 90%± cream to bf. fine xline, dense; Chert, 5% wh. to lt gry. Sand, 5%± A to C, maj. gr. ¼-⅛ prin sub ½-¼; Grn. sh. caving

1252

Dol. 90% bf to lgt. brwn med xline firm; Chert, 5% wh. to lt. gry. Sand 5%± A to C maj. gr. ¼-⅛ prin. sub. ½-¼; Grn. sh. caving

1255

Dolo. - 55-65%; buff; compact; fine grained; 40-50% white, unmottled chert, ±5% qtz. sand; maj. grade 1-¼ m.m.; ±1% pyrite [30-40% of the sample is green shale caved from above]

60

1261

Dolo - 40-50%; buff; compact; fine to med. grained; ±30% chert, white, unmottled; ±30% qtz. sand a-c; maj. grade ½-¼; ±1% pyrite; [±30% of sample is green shale from above]

1266

Dolo - 65-75%, buff; compact; fine to med. grained; ±15% white chert; 15-20% qtz. sand, a-c; maj. grade ½-¼ m.m. some sand cemented by dolo.; ±1% pyrite; [15-20% green shale from above]

70

1270

Dolo - 75-80% buff; compact; fine to med. grained; 15-20% qtz. sand, a-c, maj. grade ½-¼ m.m.; ±5% white chert; ±1% pyrite; [10-15% green shale from above]

1275

S.S. - 80-85%; maj. grade ½-¼; prin. subrd ¼-½; A-C; some secondary growth; 10-15% buff dolomite; 2-3% white chert; <1% pyrite; [±15% green shale from above]

80

1280

Dolo - 50-60%; buff; compact; med. grained; tough; S.S. ±40%; maj. grade ½-¼ m.m, A-C 5-10% white chert; ±1% pyrite; [10-15% green shale]

1282

1285

Dolo ÷ 50-60%; buff; compact; med. grained; tough; oölitic; 10-15% white chert, oolitic, 30-40% sand A-C; maj. grade ½-¼; ±1% pyrite, a sphalerite frag. 5 m.m. across; [10% green shale from above]

90

1290

Dolo: 70-75%; buff, gray; compact; med. grained; tough; ±5% white chert, oolitic, 20-25% sand, a-c; maj grade ½-¼; ±1% pyrite; [10-15% green shale from above]

1295

Dolo; 70-80%; buff-gray; compact; med. grained, tough; 5-10% white chert, oolitic; ±20% qtz. sand; a-c; maj. grade ½-¼; ±1% pyrite [±10% green shale from above]

1300

Sheet No. 14 Name of Well Mt. Pleasant - City Well #2 Survey No. W0052

Location Mt. Pleasant Iowa South Park Date Drilled Analyst Pyre + Tallon (1300/1330) (1350-1400)

00		Dolo: ±70%; buff-gray; fine to med. grained; tough; compact; 20-25% chert; white to gray; some mottled; 5-10% qtz. sand, ½-⅓ maj. grade: ±1% pyrite; [10-15% green shale]
Omit	1305	
	1309	Dolo; 70-80%, buff-gray; fine to med. grained; tough; compact; 15-20% chert, white to gray; 5-10% qtz. sand [some at least, cemented by dolo] ±1% pyrite; [±10% green shale From above]
AI 10		Dolo: ±70%; buff-gray; fine to med. grained; tough; compact; 15-20% chert white to gray; ±15% qtz. sand; maj. grade ½-¼; cemented by buff dolo. + chert; <1% pyrite; [10-15% gr. shale from above]
—		Dolo; 75-80%; light gray to buff; fine grained; tough; compact; 10-15% chert, white to gray; 5-10% qtz. sand; maj. grade 1-½ m.m.; <1% pyrite, [10-15% green shale from above]
Omit 20	1320	Dolo; 70-80%; cream to buff, fine grained; tough; compact, 5-10% chert, white; ±15% qtz. sand; maj. grade ½-¼ m.m. <1% pyrite; [20-25% green shale From above]
—	1325	Dolo: 85-90%; cream to buff; fine grained; granular; ±5% chert, white; ±5% qtz. sand; maj. grade ½-¼ m.m. a-e; <1% pyrite; [10-15% green shale from above]
AI — 30	1330	Dolo; ±90%; cream + buff; fine grained; granular; friable; ±5% qtz. sand; maj. grade ½-¼; ±1% white chert; <1% pyrite, [±10% green shale from above]
Omit	1335	Dolo; 80-90%; cream + gray buff fragments (which are fine + med. grained, granular + compact respectively); 5-10% chert, white; ±5% qtz. sand, a-e, maj. grade ½-¼; ±1% pyrite; [10-15% green shale from above]
AI 40	1340	Dolo; 80-90%; gray buff; fine to med. grained; compact; 5-10% chert, white, ; 5-10% qtz. sand, a-e. ½-¼; some cemented by dolo.; ±1% pyrite; [±10% gr. shale From above]
	1345	Dolo; 80-90%; cream to buff; Fine to med. grained; compact; 5-10% cheit, white; ±5% qtz. sand; a-e; ±1% pyrite [±10% green shale From above]
50	1350	Dol. 90%± cream to bf. med. xline. firm; Chert. 5% wh. to lgt. gry; Sand 5%± A to C. maj. gr. ¼-⅛ prin Sub. ½-¼; Grn. sh. caving from above
AI (1350-1360??) See Samples	1355	
	1357	Dol. 90% cream to bf. med. xline. firm; Chert, 5%± wh. to lgt. gry Sand 5% ± A to C, maj. gr ¼-⅛ prin sub. ½-¼, Grn sh. caving
		Dol. 90%± cream to bf med. xline, firm; Chert, 5%± wh. to lgt. gry Sand 5% A to C maj. gr. ¼-⅛ prin Sub ½-¼; Green sh. caving from above, pyrite, tr.
60		
	1365	Dol. 90%± cream to bf med. xline, firm, Chert 5%± wh to lgt gry; Sand 5% A to C, maj. gr. ¼-⅛ prin sub ½-¼; Grn. sh. caving from above; pyrite, tr.
AI 70	1370	Dol 90%± cream to bf. med. xline, firm; Chert, 3%± wh. to lt gry.; Sand 7%± A to C. maj gr. ¼-⅛ prin sub. ½-¼; Grn. sh. caving pyrite, tr.
	1375	Dol. 90% cream to bf. med. xline. Chert, 2%; Sand 8%± maj. gr ¼-⅛ prin sub ½-¼; Grn. sh caving
Omit 80	1380	Dol. 90% cream to bf. med. xline firm; Chert 25% wh. to lt. gry.; oolitic; Sand 5%± A to C, maj. gr. ¼-⅛, prin. sub ½-¼; Grn. sh. caving from above
AI	1384	Dol. similar to 1380-1384
	1387	Dol. 90% bf to lt. brwn. med. xline. firm; Chert 10%± wh to lgt. gry. pyrite, tr. Grn sh. caving.
Omit 90	1391	Dol. 90% cream to bf med. xline, firm; Chert, 10%± wh. to lt. gry. in part oolitic; Grn. sh. caving.
AI	1395	Dol. 90% bf. to lt. brown, med. xline, firm; Chert, 10% wh. to lgt gry; Grn. sh cavings.
1400	1399	

Sheet No. 15 Name of Well City Well No. Survey No. W-0052

Location Mt. Pleasant Iowa South Park Date Drilled 1935 Analyst Talley & Payne 1399-1466 1466-1500

1399

1400

Dol. 85% ± cream to bf. med xline. firm; Sand. 10% A to C, [illegible] sh. caving maj. gr. ½-¼, prin. sub ¼-⅛; Chert. 5% ± wh. to lgt. gray, in part oolitic

1404 1405 Dol. similar to 1399-1404

Dol. 85% ± cream to bf. med xline. firm; Sand, 10% A to C, maj. gr. ½-¼ prin. sub. ¼-⅛; Chert. 5% ± wh., in part oolitic; Grn. sh caving.

1408

1410 Dol. 80% ± cream to bf. med. xline. firm; Sand 15% ± A to C, maj. gr. ½-¼ prin. sub 1-1½, Chert 5% ± wh. in part oolitic; Green sh caving

A.

1412 Dol. 80% ± cream to bf. med to fine xline. dense; Sand. 15% ± A to C, maj. gr. ½-¼ prin. sub ¼-⅛ Chert 5% wh. oolitic, Grn. sh. caving abundant.

1419 Dol. 80% ± cream to bf. med. xline. firm; Sand 15% ± A to C, maj. gr. ½-¼ prin. sub 1-1½; Chert 5% ± wh., in part oolitic; Grn sh caving

1420

Ou.

1422 Dol. 80% cream to bf. med xline firm; Sand 15% ± A to C, maj. gr. ½-¼ prin. sub 1-1½; Chert 5% ± wh., in part oolitic; Grn sh caving.

1425 Dol. 90% ± cream to bf med xline. firm, Sand, 20% ± A to C, maj. gr. ½-¼ prin. sub 1-1½. Chert, 5% ± wh. in part, oolitic; pyrite, tr. Grn. sh caving.

AI

1430 Dol. Similar to 1425-1430

1435*

Dol. 60% ± cream to bf. med. xline, porous, saccharoidal; Chert, 35% ± wh., with some agate; Sand 5% ± A to C, maj. gr. ½-¼, prin. sub ¼-⅛; pyrite, tr; Grn sh. caving.

Ou. +

1440

AI

1445* Ss. 50% ± A to C. maj. gr. ½-¼, prin. sub 1-1½; some secondary enlargement, Dol. 40% ± bf. med xline firm; Chert 10% ± wh., in part oolitic; Grn sh caving

AI

1450* Dol. 70% bf. to lgt. gray fine xline. dense; Sand 30% ± A to C, maj. gr. ½-¼, prin. sub. 1-1½; Pyrite. tr.; Grn. sh. caving

Ou

1455 Dol. 70% Cream to bf. med. to fine xline, firm; Sand. 30% A to C, maj. gr. ¼-⅛, prin sub ½-¼; Grn. sh caving.

AI

1460

Dol. 70-80%; gray to creamy buff; fine to med. grained; compact; dense; 20-30% qtz. sand, a-c; maj grade ½-¼ m.m.; 10-15% green shale from above. <1% pyrite

1465 1466 Dol. ± 80%; cream to buff; Fine grained; dense; ± 20% qtz. sand, A-C; maj. grade ¼-⅛; some sand included by dolomite; 20-30% green shale from above; <1% pyrite.

Dol. 70-80%; gray to creamy buff, fine to med. grained, compact, 20-30% qtz. sand, A-C; maj. grade ¼-⅛; <1% pyrite; ±25% green shale from above.

1470

Dol. 70% gray; fine to med. grained; compact; 20-30% qtz. sand, A-C, maj. grade ¼-⅛; 1-2% fine glauconite; <1% pyrite; 1-2% white chert; dol. cements some sand; shale from above.

AI

Sh

1475* S.S. white; maj. grade ½-¼; prin. sub. 1-½ & ¼-⅛; A-C; 5-10% gray dolomite; <1% white chert; <1% pyrite, ± 5% green shale from above.

AI

1480

S.S. white; maj. grade ½-¼; prin. subsid 1-½ & ¼-⅛; A-C; 10-15% gray dolomite, <1% white chert; 10-15% green shale from above;

TR 10 ft.

1485

S.S. white; maj. grade ½-¼; prin. subsid. 1-½; A-C; ±25% cream dol. fine to med. grained; <1% chert; <1% pyrite, ±10% green shale from above.

AI

1490

S.S. white; maj. gr. ½-¼; prin. subsid. 1-½ & ¼-⅛; A-C; ±35% cream dol. med. grained; <1% white chert; <1% pyrite, 20-30% green shale from above.

1494

1496* Dol. 70-80%; cream to light gray; med. grained; 20-30% sand; a-c; maj. grade ½-¼ m.m.; ±3% mottled chert, oolitic; <1% pyrite;

Interval between two groups of samples.

1497 Dol. 80%; cream; fine to med. grained; ±20% sand; a-c; ±2% mottled chert, oolitic, <1% pyrite;

AI

1500

Sheet No. 16 Name of Well City Well, No 2 Survey No. W-0052

Location Mt. Pleasant, South Park Date Drilled ____ Analyst Talley

1497

1500

1502 Dol. 80%± cream to bf. med. to fine xline. firm; Sand. 15%± A to C. maj. gr. ½-¼ prin. sub. ¼-⅛; Chert 5%± wh to gry. in part oolitic; Grn. sh. caving.

1507 Dol. 80%± cream to bf med. xline firm; Sand 15% A to C, maj. gr. ½-¼ prin. sub. 1-½; Chert 5%± wh to lgt grey. in part oolitic; Grn sh. caving; Glauconite. tr. in dol.

1512 Dol. 80%± cream to bf. med. xline. firm; Sand 15% A to C. maj. gr. ¼-⅛ prin. sub. ½-¼; Chert 5%± wh to lt grey. in part oolitic. Glauconite. tr. in dol.; Grn sh. caving.

1518 Dol. 70%± cream to bf. med. to coarse xline, firm. containing traces of glauconite; Chert 25%± wh. brnn and grey oolitic; Sand 5%± A to C. maj. gr. ¼-⅛ prin sub. ½-¼; Grn sh caving.

1523 Dol. 60% ± cream to bf med to coarse xline. firm.; Chert 37%± wh. to lgt grey, in part oolitic; Pyrite 3%±; Grn. sh. caving.

1529 Chert 60%± wh to lgt grey, in part oolitic. Dol 40%± cream to bf med to coarse xline, firm; Grn. shale caving.

1534 Dol. 60% cream to bf med to coarse xline, Chert 40% wh. to lgt. grey; Grn. sh. caving;

1537 Dol. 50%± cream to bf med to coarse xline, firm; Chert, 50%± wh, bf. to lgt. grey in part oolitic; pyr. to. tr; Grn sh caving

1542 Dol. 60% cream to bf. med. to coarse xline, firm; Chert 40%± wh, bf and lgt. grey, in part oolitic; Grn sh caving

1547 Dol. 80%± cream to bf. med to coarse xline firm, Chert 20%± wh, to lgt grey, in part oolitic; Grn sh caving;

1552 Dol. 60% cream to bf med to coarse xline, firm, Chert 40% wh to lgt grey, in part oolitic; Grn sh caving.

1558 Dol. 60% similar to 1552-1558

1565 Dol. 50%± cream to bf. med xline firm; Chert 50%± wh, bf and lgt grey., in part oolitic; Grn. shale caving.

1570 Dol. 70% cream to bf. med. to coarse xline, firm; Chert 30%± wh to lgt. grey, in part oolitic; Grn. sh. caving

1575 Dol. 70%± cream to bf. med to coarse xline, firm; Chert, 20%± wh. to lgt. grey; Sand, 10%± A to C. maj gr. ½-¼. prin. sub 1-½. Grn. sh. caving abondant

1580 Dol. 70% cream to bf. med. to coarse xline, firm. Chert, 20%± wh to lgt grey. Sand. 10%± A to C. maj gr ½-¼ - prin sub 1-½ Grn Sh caving.

1585 Dol. 80% cream to bf med. to fine xline, firm; Sand. 10%± A to C. maj. gr. ½-¼ prin. sub 1-½; Chert. 10% ± wh to lgt grey. Grn sh caving.

1590 Dol. 90%± cream to bf med to coarse xline. firm; Chert 3%± wh. to lgt. grey; Grn sh. caving.

1595 Dol. 60% cream to bf. med to coarse xline, firm; Chert 40% wh. to lgt. grey, in part oolitic. Grn sh. caving.

1600

Sheet No. 17 Name of Well City Well No 2 Survey No. W-0052

Location Mt Pleasant, Iowa - South Park Date Drilled 1935 Analyst Talley

1600	1601	Dol. 60% ± cream to bf med to coarse xline, firm; Chert 40% white to lgt grey in part oolitic; pyrite, tr.; Grn sh. caving.
	1606	Dol. Similar to 1606-1611
10	1611	Dol. 60% cream to bf. med. to coarse xline, firm; Chert 40% wh. to lgt. grey., in part oolitic; pyrite, tr., Grn. sh. caving.
	1615	Dol. 60% cream to bf. med. to coarse xline, firm; Chert. 40% wh. to lgt. grey., in part oolitic; Grn. sh. caving
20	1623	Dol. 80% cream to bf. med. to coarse xline, firm; Chert 20% ± wh. to lgt grey; Grn sh. cavings.
30	1629	Dol. 80% cream to bf. med to coarse xline firm; Chert 20% wh. to lgt grey Grn. sh. caving.
	1633	Dol. 80% ± bf. med to coarse xline, firm; Chert 20% ± wh to lgt. grey. oolitic; Grn sh. caving.
40	1639	Dol. Similar to 1633-1639
50	1646	Dol. 80% cream to bf. med to coarse xline, firm; Chert 20% ± wh to lgt. grey oolitic; Grn. sh. caving.
	1650	Dol. 90% ± cream to bf. med. to coarse xline, firm; Chert, 10% ± wh. to lgt grey in part oolitic; Grn sh. caving.
60	1655	Dol. 90% ± cream, to bf med. to coarse xline, firm; Chert 10% wh. to lgt grey. in part oolitic. Grn. sh caving; pyrite, tr.
	1660	Dol. 90% ± cream to bf. similar to 1655-1660
70	1665	Dol. 90% ± cream to bf. med to coarse xline firm; Chert, 10% wh. to lgt grey; Grn. sh, caving.
	1670	Dol. 55% ± bf to lgt brwn. med. to fine xline, firm; Chert 45% wh. grey. and brown; euhedral qtz. xtals as cavity fillings; Grn. sh caving.
	1675	Dol. Similar to 1670-1675
80	1679	Dol. 80% ± bf to lgt. grey. med. to fine xline. firm; Chert 20% ± Wh. to lgt grey; Grn. sh. caving.
	1685	Dol. 90% ± cream to bf. med. to fine xline, firm; Chert, 5% ± wh. to lgt. grey. Sand, 5% ± maj. gr. 1-1½, prin. Sub ½-¼ (caving?)
	1689	Grn. sh. caving
90		Dol. ~~90% ± cream to bf. med. to fine xline, firm; Chert, 10% ±~~ wh. to lgt. grey. Grn sh caving
	1695	Dol. 70% bf to lgt brwn. med. to fine xline, firm; Chert, 30% ± wh. to lgt. grey; Grn. sh. caving.
1700	1700	

Sheet No. 17 Name of Well City Well No. 2 Survey No. W-00052

Location Mt. Pleasant, Iowa - South Park Date Drilled 1935 Analyst Talley

1700 Dol. 90%± bf. to lgt. brwn. med. to coarse xline; firm, Chert, 10%± wh. to lgt gray; Grn. sh caving.

1705 Dol. 90% ± cream to bf. med to coarse xline, firm; Chert, 10%± wh. to lgt gray; Grn sh caving abundant.

10

1712* Dol. 70%± bf to lgt brwn. med, to fine xline, firm; Chert, 5% wh to lgt. gray. Sand 25%, A to C. maj. gr. 1/2-1/4 prim. sub 1-1/2.

20

1720 Dol. 60%± bf to lgt brwn. med. to fine xline firm; Sand, 40%± A to C, maj. gr. 1/2-1/4, prim. sub 1-1/2; Chert, tr,

1724 Dol. 70% bf to lgt brwn med. to coarse xline, firm; Sand 30%± A to C, maj. gr. 1/2-1/4, prim sub 1/4-1/8; Grn. sh. caving.

Oneota → 1728' 1728'

Jordan 1729

30

Ss. 95%± A to C, maj. gr. 1/2-1/4, prim. sub 1-1/2, Dol. 5%± bf fine xline, dense; pyrite, tr, Grn. sh caving.

1735 Ss. 97%± A to C, maj. gr. 1/2-1/4, prim. sub 1/4-1/8; Grn. sh. caving.

40

1740* Ss. 80%± A to C, maj. gr. 1/2-1/4, prim. sub 1-1/2; Dol. 20%± lgt. gry. med xline, Sandy Grn. sh caving.

1745 Ss. 80% similar to 1740-1745

50

1750* Ss. 95% A to C. maj. gr. 1/2-1/4; prim. sub 1/4-1/8; Dol 5% lgt gry. fine xline, dense; Grn. sh caving. - Sand finer than above + secondary enlargement

1753 Ss. 85%± A to C, maj. gr. 1/2-1/4, prim. sub 1/4-1/8; secondary enlargement common, glauconite 3%±; Chert, 12% wh, pulverulent; Grn. Sh. caving.

1757 Ss. 90%± A to C, maj. gr. 1/2-1/4, prim. sub. 1/4-1/8; secondary enlargement

1759* common; glauconite 3%±; Chert, 7%± wh. to lgt. gray.

60

Ss 60% A to C. maj. gr. 1/2-1/4 prim sub 1-1/2, Dol. 40% bf to lgt brwn. med. xline. sandy; Grn sh caving abundant. Chert, tr.

1764*

Ss. 90% A to C. maj. gr. 1/2-1/4, prim. sub. 1/4-1/8; sec. enlgment common; Dol. 10%± cementing sand; Grn Sh. caving.

70

1769 Ss. similar to 1764-1769

1771* Ss. 65%± (65% insol.) A to C, maj. gr. 1/4-1/8 prim sub. 1/2-1/4; Dol. 35%± bf. fine xline, sandy; Grn. sh. caving

1779 Ss 65%± (Dol 35%±) (bf. med. to fine xline sandy) Sand 65%± A to C; maj. gr. 1/2 - 1/4, prim sub 1-1/2; Grn sh caving.

80

1784* (65% insol.) Tops of St. Lawrence

1785 Dol. 60%± cream to bf., med to fine, xline firm; Sand, 40%, A to C, maj. gr. 1/2-1/4, prim sub. 1-1/2; Grn. sh. caving.

90

1790'9"* Ss. A to a, maj. gr 1/4-1/8 - prim sub 1/4-1/8; 70%± of sample; [caving — Sand A to C, coarse, secondarily enlarged, 90%, grn. sh. and dol chips 10%] 70% of sample

1794 Ss. 50% A to a, maj. gr. 1/4-1/8 prim. sub. 1/4-1/8; Dol. 50% cream to bf - in small

1797* chips and cementing sand grains 30% of sample; Sand. a to C, maj. gr. 1-1/2 - prim. sub. 2-1, and grn. Sh.. Caving. 100% of sample

1800 1802 See next page

Sheet No. 18 Name of Well City Well No 2 Survey No. W-0052

Location Mt Pleasant Iowa - South Park Date Drilled 1935 Analyst Talley

1799

1R 00 Dol. 35% of cream to bf, fine x line, in sm all chips, and cementing sand grains; Sand, 45% Alca, mag. gr. 1/4-1/8, prin. sub. 1/8-1/16; 95% of simple; Sand coarse, sub gran sh. caving, 5% of sample

1802

10

20

30

40

50

60

70

80

90

00

Frye

45-50
50-55
55-60
60-65
65-70
70-73
73-77
77-82
82-87½
87½-95 - 37.5%

Brooks

90-95 37.6%
95-100 48.7
100-105 43.7
105-110 64.4
110-115 55.6
115-120 60.8
120-125 45.7
125-130 41.1
130-135 43.9
135-140 73.3

Moore

140-145 10.3
150 6.7
155 10.7
160 41.6
165 51.6
170 50.0
175 60.5
180 66.1
185 52.6
190 39.7

Vernon

200-205 11.8
210 5.7
215 5.4
220 6.3
225 76.0
230 92.7
235 91.0
240 88.7
245 85.7
250 85.7

Donnelly

650-675
685-698
708-718

650-655 17.1
660 8.3
665 5.0
670 23.4
675 78.1

685-690 31.7
690-695 42.7
695-698 34.4
708-713 42.5
713-718 7.8

Bates

718-720 - 36.6
720-725 57.5
725-730 69.4
730-750
750-760

730-735 17.7
740 16.4
745 20.4
750 73.4
755 40.4
760 32.8
760-765 35.3

Bissell

815-860

815-820 9.6
825 18.3
830 12.8
835 10.6
840 16.5
840-843 29.7
843-847 14.1
847-851 4.3
851-856 8.1
856-860 11.1

Banks

900-947

900-905 14.0
905-910 20.7
915 22.7
920 15.7
925 10.5
930 13.0
930-933 7.3
933-938 7.0
938-943 10.7
943-947 6.3

DEEP WELL STUDY

Well No. W— 0025 2

Depth 8½ to 15 Screens & not crushed

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.60 gm.	100.0%	2. Wt. of F. P. 2.36
3. Wt. after solution, with filter paper	12.35 gm.		
4. Less wt. F. P. (2)	2.36 gm.		
5. Wt. Insol. Residue (3 minus 4)	9.99 gm.	24.6%	
6. Wt. lost by solution (1 minus 5)	30.61 gm.	75.4%	
7. To balance (5 plus 6)	40.60 gm.	100.0%	

B. Subsidation:

1. Original Wt.	11.73	9.99 gm.	100.0%
2. Cylinder (+1/32)	2.16	9.57 gm.	95.8%
3. Jar (1/32—1/64)	2.54 2.34	.20 gm.	2.0%
4. Drain		.22 gm.	2.2%

C. Screen Analysis 9.53

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	2.26	23.8
½–¼ mm	4.33	45.7
¼–⅛ mm	1.57	16.5
⅛–1/16	1.01	10.6
Pan	.32	3.4
Total	9.49	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

A. % : a. % : C. %

r % : R %

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: %

Secondary Minerals: %

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 21 to 30
No. samples used 2
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.20 gm.	100.0%	2. Wt. of F. P.	2.18
3. Wt. after solution, with filter paper	27.62 gm.			
4. Less wt. F. P. (2)	2.18 gm.			
5. Wt. Insol. Residue (3 minus 4)	25.44 gm.	84.3 %		
6. Wt. lost by solution (1 minus 5)	4.76 gm.	15.7 %		
7. To balance (5 plus 6)	30.20 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	25.44 gm.	100.0%	
2. Cylinder (+1/32) 15.82 2.16	13.66 gm.	53.7%	
3. Jar (1/32—1/64) 5.73 2.13	3.60 gm.	14.1 %	
4. Drain	8.18 gm.	32.2%	

C. Screen Analysis 13.58

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	3.98	29.4
½–¼ mm	1.30	9.6
¼–⅛ mm	2.12	15.7
⅛–1/16	3.32	24.5
Pan	2.82	20.8
Total	13.54	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 1052

Depth 40 to 50

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 40.71 gm. 100.0% : 2. Wt. of F. P. 2.18
3. Wt. after solution, with filter paper . . . . . 26.75 gm.
4. Less wt. F. P. (2) . . . 2.18 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 24.57 gm. 60.3 % 45-50 48.1
6. Wt. lost by solution (1 minus 5) . . . . . 16.17 gm. 39.7 %
7. To balance (5 plus 6) . . 40.71 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 24.57 gm. 100.0%
2. Cylinder (+1/32) 6.13 / 2.25 — 3.88 gm. 15.8%
3. Jar (1/32—1/64) 4.79 / 2.25 — 2.54 gm. 10.3%
4. Drain . . . . . 18.15 gm. 73.9%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Shape Analysis:

Heavy Minerals . . . . . gm. %

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

Light Minerals . . . . . gm. %

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

Minerals Identified; Heavy Concentrate

No. of Grains

Rel. %

Classification Grouping:

Primary Minerals: ..... %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 50 to 55

No. samples used 1

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.40 gm.	100.0%	2. Wt. of F. P.	2.39
3. Wt. after solution, with filter paper	13.24 gm.			
4. Less wt. F. P. (2)	2.39 gm.			
5. Wt. Insol. Residue (3 minus 4)	10.85 gm.	26.9%		
6. Wt. lost by solution (1 minus 5)	29.55 gm.	73.1%		
7. To balance (5 plus 6)	40.40 gm.	100.0%		

B. Subsidation:

1. Original Wt.	10.85 gm.	100.0%	
2. Cylinder (+1/32) 8.83 2.33 3.22	6.50 gm.	59.8%	
3. Jar (1/32—1/64) 3.13	1.09 gm.	10.1%	
4. Drain	3.26 gm.	30.1%	

C. Screen Analysis 6.28

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	2.79	44.7
¼–⅛ mm	1.30	20.8
⅛–1/16	1.25	20.0
Pan	.91	14.5
Total	6.25	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A. % : a. % : C. %

Light Minerals . . . . gm. % r % : R %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: %

Secondary Minerals: %

Light Concentrate

Total . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 65 to 68 Screened not crushed

No. samples used 1

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 25 %)

1. Sample weight	40.56 gm.	100.0%	2. Wt. of F. P.	2.18
3. Wt. after solution, with filter paper	12.30 gm.			
4. Less wt. F. P. (2)	2.18 gm.			
5. Wt. Insol. Residue (3 minus 4)	10.1 gm.	24.8%		
6. Wt. lost by solution (1 minus 5)	30.44 gm.	75.2%		
7. To balance (5 plus 6)	40.56 gm.	100.00%		

60-65 38.4%

B. Subsidation:

1. Original Wt.	10.12 gm.	100.0%	
2. Cylinder (+1/32) 1.16, 2.10	2.66 gm.	26.3%	
3. Jar (1/32—1/64) 3.94, 2.53	1.41 gm.	13.9%	
4. Drain	6.05 gm.	59.8%	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 10 to 77

No. samples used 2 Screened not crushed

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.47 gm.	100.0% :	2. Wt. of F. P. 2.30
3. Wt. after solution, with filter paper	10.31 gm.		
4. Less wt. F. P. (2)	2.30 gm.		
5. Wt. Insol. Residue (3 minus 4)	8.01 gm.	19.8 %	
6. Wt. lost by solution (1 minus 5)	32.46 gm.	80.2 %	
7. To balance (5 plus 6)	40.47 gm.	100.0 %	

10-13 20.8
13-77 79.0
28.8

B. Subsidation:

1. Original Wt.	8.01 gm.	100.0%	
2. Cylinder (+1/32)	6.45 / 2.10	4.35 gm.	54.8%
3. Jar (1/32—1/64)	2.98 / 2.03	.95 gm.	11.9 %
4. Drain		2.71 gm.	33.8%

C. Screen Analysis 4.23

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	1.61	38.3
¼–⅛ mm	1.21	28.8
⅛–1/16	.74	17.6
Pan	.64	15.3
Total	4.20	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst

Date

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 58.7 to 98 screened not crushed

No. samples used 5

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.59 gm.	100.0%	2. Wt. of F. P.	2.33
3. Wt. after solution, with filter paper	17.46 gm.			
4. Less wt. F. P. (2)	2.33 gm.			
5. Wt. Insol. Residue (3 minus 4)	15.13 gm.	37.3 %	wt	
6. Wt. lost by solution (1 minus 5)	25.46 gm.	62.7 %		
7. To balance (5 plus 6)	40.59 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	8.32	gm.	100.0%
2. Cylinder (+1/32)	2.08 / 6.67	gm.	41.2%
3. Jar (1/32—1/64)	3.59 / 2.17 / 1.42	gm.	9.4 %
4. Drain	7.47	gm.	49.4 %

C. Screen Analysis 6.13

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.11	50.8
¼–⅛ mm	1.34	21.9
⅛–1/16	.63	10.9
Pan	.64	10.4
Total	6.12	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %
Total		100%		
Light Concentrate			Secondary Minerals: ..... %	
Total		100%	Total	100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 100 to 110 screened not crushed

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.57 gm.	100.0%	2. Wt. of F. P. 2.36
3. Wt. after solution, with filter paper	21.13 gm.		
4. Less wt. F. P. (2)	2.36 gm.		
5. Wt. Insol. Residue (3 minus 4)	18.77 gm.	46.3 %	
6. Wt. lost by solution (1 minus 5)	21.80 gm.	53.8 %	
7. To balance (5 plus 6)	40.57 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	18.77 gm.	100.0%	
2. Cylinder (+1/32) 19.34 2.40	16.94 gm.	90.3 %	
3. Jar (1/32—1/64) 2.18	.45 gm.	2.4 %	
4. Drain	1.38 gm.	7.3 %	

C. Screen Analysis 17.28

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	13.35	77.7
¼–⅛ mm	2.04	11.8
⅛–1/16	.80	4.7
Pan	.99	5.8
Total	17.18	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 120 to 130 Screened not crushed

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.81 gm.	100.0%	2. Wt. of F. P. 2.17
3. Wt. after solution, with filter paper	20.61 gm.		
4. Less wt. F. P. (2)	2.17 gm.		
5. Wt. Insol. Residue (3 minus 4)	18.44 gm.	45.2 %	
6. Wt. lost by solution (1 minus 5)	22.37 gm.	54.8 %	
7. To balance (5 plus 6)	40.81 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	18.44 gm.	100.0%	
2. Cylinder (+1/32) 18.43 2.30 2.72	16.63 gm.	90.2%	
3. Jar (1/32—1/64) 2.27	.45 gm.	2.4 %	
4. Drain	1.36 gm.	7.4%	

C. Screen Analysis 16.54

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	13.77	83.5
¼–⅛ mm	1.53	9.3
⅛–1/16	.73	4.4
Pan	.46	2.8
Total	16.49	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A ..... %: a ..... %: C ..... %

Light Minerals . . . . gm. % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 140 to 150 screened not crushed

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1.	Sample weight	10.48 gm.	100.0%	2. Wt. of F. P. 2.33
3.	Wt. after solution, with filter paper	5.01 gm.		
4.	Less wt. F. P. (2)	2.33 gm.		
5.	Wt. Insol. Residue (3 minus 4)	2.68 gm.	6.5%	
6.	Wt. lost by solution (1 minus 5)	3780 gm.	93.4%	
7.	To balance (5 plus 6)	4048 gm.	100.0%	

B. Subsidation:

1.	Original Wt.	2.68 gm.	100.0%	
2.	Cylinder (+1/32)	4.91 − 2.39 = 2.52 gm.	94.0%	
3.	Jar (1/32—1/64)	2.62 − 2.50 = .12 gm.	4.5%	
4.	Drain	.04 gm.	1.5%	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate

	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total		Total	100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 160 to 170 screened not crushed

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.03 gm.	100.0%	2. Wt. of F. P.	2.36
3. Wt. after solution, with filter paper	18.86 gm.			
4. Less wt. F. P. (2)	2.36 gm.			
5. Wt. Insol. Residue (3 minus 4)	16.50 gm.	41.2 %		
6. Wt. lost by solution (1 minus 5)	23.53 gm.	58.8 %		
7. To balance (5 plus 6)	40.03 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	16.50 gm.	100.0%	
2. Cylinder (+1/32) 17.99 − 2.19	15.80 gm.	95.8%	
3. Jar (1/32—1/64) 2.13 −	.20 gm.	1.2%	
4. Drain	.50 gm.	3.0%	

C. Screen Analysis 15.79

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	8.30	52.5
¼–⅛ mm	4.01	25.3
⅛–1/16	1.92	12.2
Pan	1.57	10.0
Total	15.80	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A ..... %: a ..... %: C ..... %

Light Minerals . . . . gm. % r ..... %: R ..... %.

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 180 to 190 Screened not crushed

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.32 gm.	100.0%	2. Wt. of F. P. 2.34
3. Wt. after solution, with filter paper	20.69 gm.		
4. Less wt. F. P. (2)	2.34 gm.		
5. Wt. Insol. Residue (3 minus 4)	18.35 gm.	45.6 %	
6. Wt. lost by solution (1 minus 5)	21.97 gm.	54.4 %	
7. To balance (5 plus 6)	40.32 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	18.3 gm.	100.0%	
2. Cylinder (+1/32) 18.10 2.18	15.92 gm.	86.8 %	
3. Jar (1/32—1/64) 2.10	gm.	3.6 %	
4. Drain	1.76 gm.	9.6 %	

C. Screen Analysis 15.83

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	10.35	65.6
¼–⅛ mm	1.78	11.3
⅛–1/16	1.66	10.5
Pan	1.99	12.6
Total	15.78	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... % : a ..... % : C ..... %

Light Minerals ..... gm. ..... % r ..... % : R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 200 to 210 Screened not crushed

No. samples used 2

Analyst Scott

Date 2-17-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.51 gm.	100.0% :	2. Wt. of F. P. 2.37
3. Wt. after solution, with filter paper	5.11 gm.		
4. Less wt. F. P. (2)	2.37 gm.		
5. Wt. Insol. Residue (3 minus 4)	2.74 gm.	6.8 %	
6. Wt. lost by solution (1 minus 5)	37.77 gm.	93.2 %	
7. To balance (5 plus 6)	40.51 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	14 gm.	100.0%	
2. Cylinder (+1/32) 4.57 2.13	44 gm.	89.0 %	
3. Jar (1/32—1/64) 2.35	1.8 gm.	6.6 %	
4. Drain	1.2 gm.	4.4 %	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W—6052
Depth 220 to 230
No. samples used 2
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 1.5 %)

1. Sample weight . . . . . 40.53 gm. 100.0% : 2. Wt. of F. P. 2.32
3. Wt. after solution, with filter paper . . . . . 36.24 gm.
4. Less wt. F. P. (2) . . . 2.32 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 32.96 gm. 81.3 %
6. Wt. lost by solution (1 minus 5) . . . . . 7.57 gm. 18.7 %
7. To balance (5 plus 6) . . 40.53 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 32.96 gm. 100.0%
2. Cylinder (+1/32) 12.96 2.34 10.62 gm. 32.3 %
3. Jar (1/32—1/64) 6.16 2.00 6.16 gm. 18.7 %
4. Drain . . . . . 16.18 gm. 49.1 %

C. Screen Analysis 10.53

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.04	38.4 — prob. among
¼–⅛ mm	1.59	15.1
⅛–1/16	1.60	15.2
Pan	3.28	31.1
Total	10.51	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample . . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . . gm. % A ..... %: a ..... %: C ..... %

Light Minerals . . . . . gm. % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 240 to 250

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.91 gm.	100.0%	2. Wt. of F. P. 2.35
3. Wt. after solution, with filter paper	38.71 gm.		
4. Less wt. F. P. (2)	2.35 gm.		
5. Wt. Insol. Residue (3 minus 4)	36.36 gm.	88.9 %	
6. Wt. lost by solution (1 minus 5)	4.55 gm.	11.1 %	
7. To balance (5 plus 6)	40.91 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	36.36 gm.	100.0%	
2. Cylinder (+1/32) 32.36 2.50	29.86 gm.	82.1 %	
3. Jar (1/32—1/64) 7.27 2.40	4.87 gm.	13.4 %	
4. Drain	1.63 gm.	4.5 %	

C. Screen Analysis 30.14

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	12.82	42.5
½–¼ mm	6.20	20.5
¼–⅛ mm	1.03	3.4
⅛–1/16	1.13	3.7 X
Pan	9.01	29.9
Total	30.19	100.0

place Sol Eggers

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. / Bromoform } ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

A. %: a. %: C. %

r %: R %.

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 260 to 270
No. samples used 2
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.25 gm.	100.0%	2. Wt. of F. P. 2.27
3. Wt. after solution, with filter paper	34.79 gm.		
4. Less wt. F. P. (2)	2.27 gm.		
5. Wt. Insol. Residue (3 minus 4)	32.52 gm.	80.8 %	
6. Wt. lost by solution (1 minus 5)	7.73 gm.	19.2 %	
7. To balance (5 plus 6)	40.25 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	32.52 gm.	100.0%	
2. Cylinder (+1/32) 31.24 2.26	28.98 gm.	89.1%	
3. Jar (1/32—1/64) 4.45 1.95	2.50 gm.	7.7 %	
4. Drain	1.04 gm.	3.2 %	

C. Screen Analysis 28.88

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	8.43	29.2
½–¼ mm	10.81	37.4
¼–⅛ mm	1.40	4.8
⅛–1/16	1.41	4.8
Pan	6.90	23.8
Total	28.95	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 270 to 280
No. samples used 1
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.59 gm.	100.0%	2. Wt. of F. P.	2.34
3. Wt. after solution, with filter paper	39.00 gm.			
4. Less wt. F. P. (2)	2.34 gm.			
5. Wt. Insol. Residue (3 minus 4)	36.66 gm.	90.3 %		
6. Wt. lost by solution (1 minus 5)	3.93 gm.	9.7 %		
7. To balance (5 plus 6)	40.59 gm.	100.0 %		

B. Subsidation:

1. Original Wt.		36.66 gm.	100.0%
2. Cylinder (+1/32)	17.19 / 2.46	14.73 gm.	40.2%
3. Jar (1/32—1/64)	9.52 / 2.51	7.06 gm.	19.3%
4. Drain		14.87 gm.	40.5%

C. Screen Analysis 14.61

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	5.25	36.0
¼–⅛ mm	2.18	15.0
⅛–1/16	2.17	14.8
Pan	4.98	34.2
Total	14.58	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....
Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %
Secondary Minerals: ..... %

Total 100%

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

DEEP WELL STUDY

Well No. W— 8052

Depth 292 to 300

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl .15 %)

1. Sample weight . . . . . 40.89 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 31.47 gm.
4. Less wt. F. P. (2) . . . 2.32 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 29.15 gm. 71.3 %
6. Wt. lost by solution (1 minus 5) . . . . . 11.74 gm. 28.7 %
7. To balance (5 plus 6) . . 0.89 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 29.15 gm. 100.0%
2. Cylinder (+1/32) 12.03 2.38 9.65 gm. 33.1 %
3. Jar (1/32—1/64) 7.28 2.80 gm. 16.5 %
4. Drain . . . . . 14.70 gm. 50.4 %

C. Screen Analysis 9.35

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.69	51.3
¼–⅛ mm	1.17	12.8
⅛–1/16	1.09	11.9
Pan	2.20	24.0
Total	9.15	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. Bromoform } .....Sp. gr. Size–Grade(s).....mm.

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

Shape Analysis:

Heavy Minerals . . . . . gm. %

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

Light Minerals . . . . . gm. %

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

Minerals Identified; Heavy Concentrate

No. of Grains | Rel. % | Classification Grouping: Primary Minerals: .....% | Absol. %

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 310 to 320 screened not crush

No. samples used 2

Analyst Scott

Date 2-13-3[illegible]

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 35.72 gm. 100.0% : 2. Wt. of F. P. 2.18
3. Wt. after solution, with filter paper . . . . . 32.55 gm.
4. Less wt. F. P. (2) . . . 2.12 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 30.37 gm. 85.0 %
6. Wt. lost by solution (1 minus 5) . . . . . 5.35 gm. 15.0 %
7. To balauce (5 plus 6) . . 35.72 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 30.37 gm. 100.0%
2. Cylinder (+1/32) 19.60 / 2.15 / 17.45 gm. 57.4%
3. Jar (1/32—1/64) 2.17 / 2.31 / 2.86 gm. 9.4%
4. Drain . . . . . 10.06 gm. 33.2%

C. Screen Analysis 17.26

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	9.77	57.0
¼–⅛ mm	2.48	14.5
⅛–1/16	2.33	13.6
Pan	2.54	14.9
Total	17.12	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . . gm. % A ..... %: a ..... %: C ..... %

Light Minerals . . . . . gm. % r ..... %: R ..... %.

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 330 to 340
No. samples used 2
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 40.23 gm. 100.0% : 2. Wt. of F. P. 2.28
3. Wt. after solution, with filter paper . . . . . 33.85 gm.
4. Less wt. F. P. (2) . . . 2.28 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 31.57 gm. 78.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 8.66 gm. 21.5 %
7. To balance (5 plus 6) . . 40.23 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 31.57 gm. 100.0%
2. Cylinder (+1/32) 20.11 2.17 17.57 gm. 56.9%
3. Jar (1/32—1/64) 5.36 2.00 3.36 gm. 10.7%
4. Drain . . . . . 10.24 gm. 32.4%

C. Screen Analysis 17.74

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	6.18	35.1
½–¼ mm	4.89	27.7
¼–⅛ mm	1.97	11.2
⅛–1/16	1.99	11.3
Pan	2.59	14.7
Total	17.62	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. Bromoform } ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample . . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . . gm. % A. % : a. % : C. %

Light Minerals . . . . . gm. % r % : R %.

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: %

Light Concentrate

Secondary Minerals: %

Total	100%	Total	100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 350 to 360
No. samples nsed 2
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 40.57 gm. 100.0% : 2. Wt. of F. P. 2.34
3. Wt. after solution, with filter paper . . . . . 37.29 gm.
4. Less wt. F. P. (2) . . . 2.34 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 34.90 gm. 86.0 %
6. Wt. lost by solution (1 minus 5) . . . . . 5.67 gm. 14.0 %
7. To balance (5 plus 6) . . 40.57 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 34.90 gm. 100.0%
2. Cylinder (+1/32) 21.19 2.28 18.91 gm. 54.2 %
3. Jar (1/32—1/64) 6.43 4.25 gm. 12.2 %
4. Drain . . . . . 11.74 gm. 33.6 %

C. Screen Analysis 18.73

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	5.09	27.4
½–¼ mm	3.85	20.7
¼–⅛ mm	3.19	17.2
⅛–1/16	2.92	21.2
Pan	2.50	13.5
Total	18.56	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....
Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals . . . . . gm. %

Light Minerals . . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W-- 0052
Depth 370 to 380
No. samples used 2
Analyst Scott
Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.27 gm.	100.0%	2. Wt. of F. P. 2.21
3. Wt. after solution, with filter paper	36.09 gm.		
4. Less wt. F. P. (2)	2.21 gm.		
5. Wt. Insol. Residue (3 minus 4)	33.88 gm.	84.2 %	
6. Wt. lost by solution (1 minus 5)	6.39 gm.	15.8 %	
7. To balance (5 plus 6)	40.27 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	33.88 gm.	100.0%	
2. Cylinder (+1/32) 23.11 2.20	21.51 gm.	63.5%	
3. Jar (1/32—1/64) 3.82 2.19	3.63 gm.	10.7 %	
4. Drain	8.74 gm.	25.8 %	

C. Screen Analysis 21.31

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	6.12	28.7
½–¼ mm	5.65	26.5
¼–⅛ mm	3.44	16.1
⅛–1/16	3.33	15.6
Pan	2.80	13.1
Total	21.34	100.0

39

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 390 to 400

No. samples used 2

Analyst Scott

Date 2-13-34

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	40.33 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	37.66 gm.		
4. Less wt. F. P. (2)	2.21 gm.		
5. Wt. Insol. Residue (3 minus 4)	35.45 gm.	87.9 %	
6. Wt. lost by solution (1 minus 5)	4.88 gm.	12.1 %	
7. To balance (5 plus 6)	40.33 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	35.45 gm.	100.0%	
2. Cylinder (+1/32) 24.36 2.10	22.26 gm.	62.7%	
3. Jar (1/32—1/64) 5.10 2.35	2.75 gm.	7.8%	
4. Drain	10.44 gm.	29.5%	

C. Screen Analysis 22.37

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	12.39	55.4
¼–⅛ mm	4.31	19.2
⅛–1/16	3.86	17.2
Pan	1.82	8.2
Total	22.38	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 410 to 420

No. samples used 22

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 40.74 gm. 100.0% : 2. Wt. of F. P. 2.19
3. Wt. after solution, with filter paper . . . . . 38.47 gm.
4. Less wt. F. P. (2) . . . 2.19 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 36.28 gm. 89.1 %
6. Wt. lost by solution (1 minus 5) . . . . . 4.46 gm. 10.9 %
7. To balance (5 plus 6) . . 40.74 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . 36 gm. 100.0%
2. Cylinder (+1/32) 2.75 2.18 11.57 gm. 31.9 %
3. Jar (1/32—1/64) 7.02 2.18 4.84 gm. 13.3 %
4. Drain . . . . . 19.87 gm. 54.8 %

C. Screen Analysis 11.40

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.65	41.2
¼–⅛ mm	1.49	13.2
⅛–1/16	2.40	21.2
Pan	2.75	24.4
Total	11.29	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . . gm. %

Light Minerals . . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 430 to 440

No. samples used

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	39.52 gm.	100.0%	2. Wt. of F. P. 2.90
3. Wt. after solution, with filter paper	37.29 gm.		
4. Less wt. F. P. (2)	2.90 gm.		
5. Wt. Insol. Residue (3 minus 4)	34.89 gm.	88.4 %	
6. Wt. lost by solution (1 minus 5)	4.63 gm.	11.6 %	
7. To balance (5 plus 6)	39.52 gm.	100.0 %	

B. Subsidation:

1. Original Wt.		34.89 gm.	100.0%
2. Cylinder (+1/32)	11.94 2.48	9.46 gm.	27.2%
3. Jar (1/32—1/64)	4.61 2.11	.52 gm.	7.2%
4. Drain		22.93 gm.	65.6%

C. Screen Analysis 9.21

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	31	59.4
¼–⅛ mm	59	17.5
⅛–1/16	32	13.5
Pan	17	9.6
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W-- 0052

Depth 450 to 460

No. samples used 2

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

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

1. Sample weight	39.73 gm.	100.0%	2. Wt. of F. P. 2.38
3. Wt. after solution, with filter paper	38.15 gm.		
4. Less wt. F. P. (2)	2.38 gm.		
5. Wt. Insol. Residue (3 minus 4)	35.77 gm.	90.0%	
6. Wt. lost by solution (1 minus 5)	3.96 gm.	10.0%	
7. To balance (5 plus 6)	39.73 gm.	100.0%	

B. Subsidation:

1. Original Wt.	35.77 gm.	100.0%	
2. Cylinder (+1/32) 12.25 2.11	10.14 gm.	28.1%	
3. Jar (1/32—1/64) 6.10 2.36	3.74 gm.	10.5%	
4. Drain	21.89 gm.	61.4%	

C. Screen Analysis 9.90

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	.09	21.3
¼–⅛ mm	.13	30.
⅛–1/16		26.8
Pan		21.9
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 470 to 480

No. samples used 2

Analyst Scott

Date 2-13-34

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	36.63 gm.	100.0%	2. Wt. of F. P. 2.32
3. Wt. after solution, with filter paper	34.29 gm.		
4. Less wt. F. P. (2)	2.32 gm.		
5. Wt. Insol. Residue (3 minus 4)	31.79 gm.	86.7 %	
6. Wt. lost by solution (1 minus 5)	4.84 gm.	13.3 %	
7. To balance (5 plus 6)	36.63 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	11.89	11.89 gm.	100.0%
2. Cylinder (+1/32)	2.48	9.41 gm.	79.6 %
3. Jar (1/32—1/64)	5.50 3.19	3.36 gm.	10.6 %
4. Drain		19.02 gm.	59.8 %

C. Screen Analysis 9.20

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	1.86	20.5
¼–⅛ mm	.77	30.4
⅛–1/16		29.9
Pan	1.75	19.2
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 490 to 500

No. samples used 3

Analyst Scott

Date 2-13-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 2.5 %)

1. Sample weight	38.14 gm.	100.0%	2. Wt. of F. P.	2.33
3. Wt. after solution, with filter paper	32.98 gm.			
4. Less wt. F. P. (2)	2.33 gm.			
5. Wt. Insol. Residue (3 minus 4)	30.65 gm.	80.5%		
6. Wt. lost by solution (1 minus 5)	7.49 gm.	19.5%		
7. To balance (5 plus 6)	38.14 gm.	100.0%		

B. Subsidation:

1. Original Wt.		30.65 gm.	100.0%
2. Cylinder (+1/32)	8.11 − 2.24 = 5.87	5.87 gm.	19.2%
3. Jar (1/32—1/64)	6.30 − 2.31 = 3.99	3.99 gm.	13.0%
4. Drain		20.79 gm.	67.8%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	5	15.1
¼–⅛ mm	15	20.4
⅛–1/16	5	29.5
Pan	1.97	35.0
Total	5	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains

Rel. %

Classification Grouping:

Primary Minerals: ..... %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— W-0052

Depth 510 to 520

No. samples used 2

Analyst Penne

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.33 gm. 100.0% : 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . 18.06 gm.
4. Less wt. F. P. (2) . . . 2.49 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 15.57 gm. 76.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 4.76 gm. 23.5 %
7. To balance (5 plus 6) . . 20.33 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . 6.90 . . . 15.57 gm. 100.0%
2. Cylinder (+1/32) 2.25 . . . 4.65 gm. 29.8 %
3. Jar (1/32—1/64) 3.91 / 2.30 . . . 1.61 gm. 10.4 %
4. Drain . . . . . 9.31 gm. 59.8 %

C. Screen Analysis 4.52

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	1.85	41.7
¼–⅛ mm	.52	10.7
⅛–1/16	.87	19.7
Pan	1.19	27.9
Total	4.43	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . . gm. %

Light Minerals . . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: . . . . % — Absol. %

Total 100%

Light Concentrate

Secondary Minerals: . . . . %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— W-00252
Depth 530 to 540
No. samples used 3
Analyst Pennel
Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.13 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	13.82 gm.			
4. Less wt. F. P. (2)	2.39 gm.			
5. Wt. Insol. Residue (3 minus 4)	11.43 gm.	71.1 %		
6. Wt. lost by solution (1 minus 5)	8.70 gm.	28.9 %		
7. To balance (5 plus 6)	20.13 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	11.43 gm.	100.0%	
2. Cylinder (+1/32) 2.27 2.15	1.89 gm.	16.5%	
3. Jar (1/32—1/64) 2.23	1.52 gm.	13.3 %	
4. Drain	8.02 gm.	70.2%	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... % : a ..... % : C ..... %

Light Minerals ..... gm. ..... % r ..... % : R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— W-0252

Depth 550 to 559

No. samples used

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 10 %)

1. Sample weight	22.11 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	10.48 gm.		
4. Less wt. F. P. (2)	2.42 gm.		
5. Wt. Insol. Residue (3 minus 4)	8.06 gm.	36.5 %	
6. Wt. lost by solution (1 minus 5)	14.05 gm.	63.5 %	
7. To balance (5 plus 6)	22.11 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	4.34	8.06 gm.	100.0%
2. Cylinder (+1/32)	2.31	2.03 gm.	25.2 %
3. Jar (1/32—1/64)	2.89	.63 gm.	7.8 %
4. Drain		4.0 gm.	67.0 %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr., Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified:
Heavy Concentrate

	No. of Grains	Rel. %

Classification Grouping:
Primary Minerals: %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 559 to 564

No. samples used 1

Analyst Penne

Date 6/15/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.54 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.05 gm.
4. Less wt. F. P. (2) . . . 2.29 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 3.76 gm. 18.4 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.78 gm. 81.6 %
7. To balance (5 plus 6) . . 20.54 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A ..... % : a ..... % : C ..... %

Light Minerals . . . . gm. % r ..... % : R ..... %.

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 568 to 570

No. samples used 1

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.15 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	6.48 gm.		
4. Less wt. F. P. (2)	2.21 gm.		
5. Wt. Insol. Residue (3 minus 4)	4.27 gm.	21.2 %	
6. Wt. lost by solution (1 minus 5)	15.88 gm.	78.8 %	
7. To balance (5 plus 6)	20.15 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%	
2. Cylinder (+1/32)	gm.	%	
3. Jar (1/32—1/64)	gm.	%	
4. Drain	gm.	%	

C. Screen Analysis 4/11

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	.65	13.6
¼–⅛ mm	.06	1.3
⅛–1/16	.05	1.0
Pan	1.30	24.2
Total	4.96	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 570 to 575

No. samples used

Analyst Pennel

Date 18/35

MECHANICAL ANALYSIS

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

1. Sample weight	20.29 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	5.39 gm.		
4. Less wt. F. P. (2)	.21 gm.		
5. Wt. Insol. Residue (3 minus 4)	3.18 gm.	15.7 %	
6. Wt. lost by solution (1 minus 5)	17.11 gm.	84.3 %	
7. To balance (5 plus 6)	20.29 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	%
3. Jar (1/32—1/64)	..... gm.	%
4. Drain	..... gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 545 to 585

No. samples used 2

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight	20.56 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	5.81 gm.		
4. Less wt. F. P. (2)	2.41 gm.		
5. Wt. Insol. Residue (3 minus 4)	.40 gm.	16.5 %	
6. Wt. lost by solution (1 minus 5)	17.16 gm.	83.5 %	
7. To balance (5 plus 6)	20.56 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	..... %
3. Jar (1/32—1/64)	..... gm.	..... %
4. Drain	..... gm.	..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total	100%	Total	100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 585 to 595

No. samples used

Analyst Penne

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.41 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.92 gm.		
4. Less wt. F. P. (2)	2.44 gm.		
5. Wt. Insol. Residue (3 minus 4)	2.48 gm.	12.2 %	
6. Wt. lost by solution (1 minus 5)	17.93 gm.	87.8 %	
7. To balance (5 plus 6)	20.41 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 595 to 605

No. samples used 1

Analyst Peanel

Date 6/12/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.06 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 5.94 gm.
4. Less wt. F. P. (2) . . . 2.41 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 3.53 gm. 17.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.53 gm. 82.5 %
7. To balance (5 plus 6) . . 20.06 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains

Rel. %

Classification Grouping: Primary Minerals: . . . . %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: . . . . %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W-- 0052

Depth 605 to 613

No. samples used 2

Analyst Pan

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.12 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	8.31 gm.			
4. Less wt. F. P. (2)	gm.			
5. Wt. Insol. Residue (3 minus 4)	5.90 gm.	29.3 %		
6. Wt. lost by solution (1 minus 5)	14.22 gm.	71.7 %		
7. To balance (5 plus 6)	20.12 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 5.7%

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.58	80.9
¼–⅛ mm	.64	11.3
⅛–1/16	.22	3.9
Pan	.22	3.9
Total	5.66	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth [illegible] to 623

No. samples used 5

Analyst Penna

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.51 gm. 100.0%; 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.53 gm.
4. Less wt. F. P. (2) . . . 2.44 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.09 gm. 19.9 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.42 gm. 80.1 %
7. To balance (5 plus 6) . 20.51 gm. ..... %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052

Depth 623 to 631

No. samples used 2

Analyst Penna

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.28 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	9.11 gm.		
4. Less wt. F. P. (2)	gm.		
5. Wt. Insol. Residue (3 minus 4)	4.70 gm.	23.1 %	
6. Wt. lost by solution (1 minus 5)	15.54 gm.	76.9 %	
7. To balance (5 plus 6)	20.28 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 4.60

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.89	86.1
¼–⅛ mm	.33	7.3
⅛–1/16	.14	3.1
Pan	.16	3.5
Total	4.52	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 638 to 642

No. samples used 2

Analyst Pennell

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.44 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	14 gm.		
4. Less wt. F. P. (2)	gm.		
5. Wt. Insol. Residue (3 minus 4)	4.52 gm.	20.6 %	
6. Wt. lost by solution (1 minus 5)	17.42 gm.	79.4 %	
7. To balance (5 plus 6)	21.94 gm.	%	

B. Subsidation:

1. Original Wt. 5.32	4.52 gm.	100.0%	
2. Cylinder (+1/32) 2.22 2.35	3.10 gm.	68.6 %	
3. Jar (1/32—1/64) 226	.09 gm.	2.0 %	
4. Drain	.33 gm.	29.4 %	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 642 to 650

No. samples used 2

Analyst Panel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.47 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	7.10 gm.		
4. Less wt. F. P. (2)	2.24 gm.		
5. Wt. Insol. Residue (3 minus 4)	4.86 gm.	23.7 %	
6. Wt. lost by solution (1 minus 5)	15.61 gm.	76.3 %	
7. To balance (5 plus 6)	20.47 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis +.76

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.91	84.6
¼–⅛ mm	.32	6.9
⅛–1/16	.22	4.8
Pan	.17	3.7
Total	4.62	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:
Heavy Concentrate

No. of Grains | Rel. %

Classification Grouping:
Primary Minerals: ..... %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.09 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.29 gm.		
4. Less wt. F. P. (2)	2.44 gm.		
5. Wt. Insol. Residue (3 minus 4)	1.85 gm.	9.2 %	
6. Wt. lost by solution (1 minus 5)	18.24 gm.	90.8 %	
7. To balance (5 plus 6)	20.09 gm.	100.0 %	

Well No. W— 0052

Depth 650 to 660

No. samples used 2

Analyst Pennel

Date 6/18/35

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 660 to 670

No. samples used 2

Analyst Penner

Date 6/11/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.27 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	5.89 gm.		
4. Less wt. F. P. (2)	2.41 gm.		
5. Wt. Insol. Residue (3 minus 4)	3.48 gm.	17.2 %	
6. Wt. lost by solution (1 minus 5)	16.79 gm.	82.8 %	
7. To balance (5 plus 6)	20.27 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: %

Light Concentrate

Secondary Minerals: %

Total	100%	Total	100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 670 to 675

No. samples used

Analyst Pennel

Date 1/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.51 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	10.47 gm.		
4. Less wt. F. P. (2)	23 gm.		
5. Wt. Insol. Residue (3 minus 4)	8.24 gm.	40.2%	
6. Wt. lost by solution (1 minus 5)	12.27 gm.	59.8%	
7. To balance (5 plus 6)	20.51 gm.	100.0%	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 805

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	7.18	90.6
¼–⅛ mm	.36	4.5
⅛–1/16	.19	2.4
Pan	.20	2.5
Total	7.92	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A % : a % : C %

r % : R %.

Minerals Identified:
Heavy Concentrate

No. of Grains | Rel. % | Absol. %

Classification Grouping:
Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

Wash + screen

DEEP WELL STUDY

Well No. W— 0052

Depth 675 to 680

No. samples used

Analyst Penne

Date 6/16/55

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.62 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. . . . . 20.62 gm. 100.0%
2. Cylinder (+1/32) 21.03 / 2.26 — 18.77 gm. 91.0%
3. Jar (1/32—1/64) 2.61 / 2.41 — .20 gm. 1.0%
4. Drain . . . . . 1.65 gm. 8.0%

C. Screen Analysis 18.78

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	17.09	91.1
¼–⅛ mm	.61	3.3
⅛–1/16	.35	1.9
Pan	.58	3.1
Total	18.63	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . . gm. ..... %

Light Minerals . . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate

No. of Grains

Rel. %

Classification Grouping:

Primary Minerals: ..... %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

Wash + screen

DEEP WELL STUDY

Well No. W— 0052

Depth 680 to 685

No. samples used

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.16 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. . . . . 20 gm. 100.0%
2. Cylinder (+1/32) 22.15 / 2.45 — 19.70 gm. 97.7%
3. Jar (1/32—1/64) 2.46 / 2.46 — 2.00 gm. -0-%
4. Drain . . . . . .76 gm. 2.3%

C. Screen Analysis 19.75

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	18.41	93.4
¼–⅛ mm	.06	5.4
⅛–1/16	.15	0.8
Pan	.07	0.4
Total	19.69	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains

Rel. %

Classification Grouping: Primary Minerals: .....%

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 685 to [illegible]

No. samples used [illegible]

Analyst Penna

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl [illegible] %)

1. Sample weight	20.04	gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	10.58	gm.		
4. Less wt. F. P. (2)	.45	gm.		
5. Wt. Insol. Residue (3 minus 4)	8.13	gm.	40.5 %	
6. Wt. lost by solution (1 minus 5)	11.91	gm.	59.5 %	
7. To balance (5 plus 6)	20.04	gm.	100.0 %	

B. Subsidation:

1. Original Wt.		gm.	100.0%
2. Cylinder (+1/32)		gm.	%
3. Jar (1/32—1/64)		gm.	%
4. Drain		gm.	%

C. Screen Analysis 8.10

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	5.62	71.4
¼–⅛ mm	1.27	16.2
⅛–1/16	.60	7.6
Pan	.38	4.8
Total	7.87	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 695 to 705

No. samples used 1

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.53 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 9.84 gm.
4. Less wt. F. P. (2) . . . . gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 7.66 gm. 37.3%
6. Wt. lost by solution (1 minus 5) . . . . . 12.87 gm. 62.7%
7. To balance (5 plus 6) . . 20.53 gm. 100.0%

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ...%
3. Jar (1/32—1/64) ..... gm. ...%
4. Drain . . . . gm. ...%

C. Screen Analysis /, 37

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	6.49	86.6
¼–⅛ mm	.26	3.5
⅛–1/16	.26	3.5
Pan	.48	6.4
Total	7.49	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ...%

Light Minerals . . . . gm. ...%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate | No. of Grains | Rel. % | Classification Grouping: Primary Minerals: ...% | Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ...%

Total . . . . . 100% Total 100%

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

Wash and screen

DEEP WELL STUDY

Well No. W— 0052

Depth 703 to 708

No. samples used .....

Analyst Pettijohn

Date .....

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20 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. . . . . 20.10 gm. 100.0%
2. Cylinder (+1/32) 1.708 2.45 14.63 gm. 72.8%
3. Jar (1/32—1/64) 2.65 2.24 ~1 gm. 2.0%
4. Drain . . . . . 5.06 gm. 25.2%

C. Screen Analysis 14.60

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	11.92	82.0
¼–⅛ mm	1.20	8.3
⅛–1/16	.65	4.5
Pan	.76	5.2
Total	14.53	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping:

Primary Minerals: .....%

	Absol. %
Total	100%

Light Concentrate

Secondary Minerals: .....%

Total	100%

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052

Depth 108 to 218

No. samples used

Analyst Penne

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.32 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 8.87 gm.
4. Less wt. F. P. (2) . . . 2 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 6.46 gm. 31.8 %
6. Wt. lost by solution (1 minus 5) . . . . . 13.86 gm. 68.2 %
7. To balance (5 plus 6) . . 20.32 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 6.38

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	5.38	86.2
¼–⅛ mm	.45	7.2
⅛–1/16		3.4
Pan	.20	3.2
Total	6.24	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %	Absol. %
Total		100%	
Light Concentrate			
Total		100%	100%

Classification Grouping:

Primary Minerals: ..... %

Secondary Minerals: ..... %

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

DEEP WELL STUDY

Well No. W— 0052

Depth 718 to 725

No. samples used 2

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.37 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	11.69 gm.		
4. Less wt. F. P. (2)	2.43 gm.		
5. Wt. Insol. Residue (3 minus 4)	9.26 gm.	45.4 %	
6. Wt. lost by solution (1 minus 5)	11.11 gm.	54.6 %	
7. To balance (5 plus 6)	20.37 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis % 3.3

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	7.50	81.8
¼–⅛ mm	.42	4.6
⅛–1/16	.45	4.9
Pan	.80	8.7
Total	9.17	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total ..... 100% Total 100%

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

Wash + screen

DEEP WELL STUDY

Well No. W— 0052

Depth 725 to 730

No. samples used

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.10 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. . . . . 20.10 gm. 100.0%
2. Cylinder (+1/32) 21.47 / 21.43 19.04 gm. 94.7%
3. Jar (1/32—1/64) 21.67 / 21.43 .24 gm. 1.2%
4. Drain . . . . . .82 gm. 4.1%

C. Screen Analysis 19.00

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	16.63	98.7
¼–⅛ mm	.91	4.8
⅛–1/16	.53	2.8
Pan	.64	3.7
Total	18.76	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A.....%: a.....%: C.....%

Light Minerals . . . . gm. % r.....%: R.....%.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 230 to 235

No. samples used 1

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl .5 %)

1. Sample weight . . . . . 2.19 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.49 gm.
4. Less wt. F. P. (2) . . . 2.19 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.30 gm. 21.2 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.95 gm. 78.8 %
7. To balance (5 plus 6) . . 20.25 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 4.19

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.2	76.4
¼–⅛ mm	.24	5.7
⅛–1/16	.28	6.7
Pan	.51	12.2
Total	4.19	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping: Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 735 to 745

No. samples used 2

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 1 %)

1. Sample weight	20.11 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.94 gm.		
4. Less wt. F. P. (2)	2.72 gm.		
5. Wt. Insol. Residue (3 minus 4)	2.52 gm.	12.2 %	
6. Wt. lost by solution (1 minus 5)	17.59 gm.	87.8 %	
7. To balance (5 plus 6)	20.71 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

Wash + Screen

DEEP WELL STUDY

Well No. W— 0052

Depth 745 to 750

No. samples used

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.02 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. . . . . 20.02 gm. 100.0%
2. Cylinder (+1/32) 21.49 / 21.48 — 19.01 gm. 95.0 %
3. Jar (1/32—1/64) 2.25 / 2.23 — .02 gm. 0.1 %
4. Drain . . . . . .99 gm. 4.9 %

C. Screen Analysis 19.10

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	18.76	98.6
¼–⅛ mm	.13	0.7
⅛–1/16	.13	0.7
Pan		
Total	19.02	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

Wash and screen

DEEP WELL STUDY

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.08 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.....%

Well No. W— 0052
Depth 750 to 755
No. samples used 1
Analyst Pence
Date 11/8/35

B. Subsidation:

1. Original Wt. . . . . 20.08 gm. 100.0%
2. Cylinder (+1/32) 9.73 2.51 17.33 gm. 86.4 %
3. Jar (1/32—1/64) 2.51 .09 gm. 0.4 %
4. Drain . . . . . 2.66 gm. 13.2 %

C. Screen Analysis 17.39

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	15.97	92.6
¼–⅛ mm	.86	5.0
⅛–1/16	.27	1.6
Pan		0.8
Total	17.24	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....
Date .....

Wt. of sample . . . .gm..... 100.0% Shape Analysis:

Heavy Minerals . . . .gm.....% A.....% : a.....% : C.....%

Light Minerals . . . .gm.....% r .....% : R .....% .

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: .....% — Absol. %

Total 100%

Light Concentrate — Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 755 to 762

No. samples used

Analyst Penne

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight	21.13 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	9.72 gm.		
4. Less wt. F. P. (2)	2.29 gm.		
5. Wt. Insol. Residue (3 minus 4)	7.43 gm.	35.2%	
6. Wt. lost by solution (1 minus 5)	13.70 gm.	64.8%	
7. To balance (5 plus 6)	21.13 gm.	100.0%	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 7.44

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.52	48.0
¼–⅛ mm	1.41	19.2
⅛–1/16	.74	10.1
Pan	1.66	22.7
Total	7.33	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %
Total		100%		
Light Concentrate			Secondary Minerals: ..... %	
Total		100%	Total	100%

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

DEEP WELL STUDY

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.07 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	9.64 gm.		
4. Less wt. F. P. (2)	2.22 gm.		
5. Wt. Insol. Residue (3 minus 4)	7.42 gm.	36.9 %	
6. Wt. lost by solution (1 minus 5)	12.65 gm.	63.1 %	
7. To balance (5 plus 6)	20.07 gm.	100.0 %	

Well No. W— 0052

Depth 762 to 766

No. samples used 1

Analyst Pennel

Date 6/18/35

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 7.30

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.89	53.4
¼–⅛ mm	.80	11.0
⅛–1/16	.91	12.5
Pan	1.68	23.1
Total	7.28	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

Wash and screen

DEEP WELL STUDY

Well No. W— 0052

Depth 766 to 770

No. samples used 1

Analyst Penner

Date 6-18-35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.03 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. . . . . 20.03 gm. 100.0%
2. Cylinder (+1/32) 20.18 / 2.46 17.72 gm. 88.5%
3. Jar (1/32—1/64) 2.50 / 2.47 .03 gm. 0.1%
4. Drain . . . . . 2.28 gm. 11.4%

C. Screen Analysis 17.75

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	16.37	92.8
¼–⅛ mm	.94	5.3
⅛–1/16	.34	1.9
Pan		
Total	17.65	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: .....% — Absol. %

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W-- 0052

Depth 770 to 775

No. samples used /

Analyst Pennel

Date 6/18/35

MECHANICAL ANALYSIS

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

1. Sample weight	20.10	gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	11.16	gm.		
4. Less wt. F. P. (2)	2.50	gm.		
5. Wt. Insol. Residue (3 minus 4)	8.66	gm.	43.6%	
6. Wt. lost by solution (1 minus 5)	11.44	gm.	56.4%	
7. To balance (5 plus 6)	20.10	gm.	100.0%	

B. Subsidation:

1. Original Wt.	8.66	gm.	100.0%
2. Cylinder (+1/32) 5.10 2.22 2.42	2.88	gm.	33.3%
3. Jar (1/32—1/64) 2.28	.14	gm.	1.6%
4. Drain	5.64	gm.	65.1%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample ..... gm. ..... 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A..... %: a..... %: C..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Light Concentrate

Secondary Minerals: .....%

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 775 to 785
No. samples used
Analyst Pannel
Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.06 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	9.15 gm.		
4. Less wt. F. P. (2)	2.19 gm.		
5. Wt. Insol. Residue (3 minus 4)	6.96 gm.	34.7 %	
6. Wt. lost by solution (1 minus 5)	13.10 gm.	65.3 %	
7. To balance (5 plus 6)	20.06 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	6.96 gm.	100.0%	
2. Cylinder (+1/32) 5.24 2.27	3.47 gm.	99.8 %	
3. Jar (1/32—1/64) 2.37 2.28	.09 gm.	1.3 %	
4. Drain	3.40 gm.	48.9 %	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 785 to 792
No. samples used 2
Analyst Pennel
Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.90 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	14.92 gm.		
4. Less wt. F. P. (2)	2.24 gm.		
5. Wt. Insol. Residue (3 minus 4)	12.68 gm.	59.2 %	
6. Wt. lost by solution (1 minus 5)	8.72 gm.	40.8 %	
7. To balance (5 plus 6)	21.40 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	12.68 gm.	100.0%	
2. Cylinder (+1/32) 6.82 2.28 2.96	4.54 gm.	35.8%	
3. Jar (1/32—1/64) .69 2.27	.69 gm.	5.4%	
4. Drain	7.45 gm.	58.8 %	

C. Screen Analysis 7.45

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.92	88.5
¼–⅛ mm	.11	2.5
⅛–1/16	.20	4.5
Pan	.20	4.5
Total	4.42	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 797 to 806
No. samples used 2
Analyst Pennel
Date 6/18/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.11 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	14.55 gm.			
4. Less wt. F. P. (2)	2.45 gm.			
5. Wt. Insol. Residue (3 minus 4)	12.10 gm.	60.2 %		
6. Wt. lost by solution (1 minus 5)	8.01 gm.	39.8 %		
7. To balance (5 plus 6)	20.11 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	12.10 gm.	100.0%	
2. Cylinder (+1/32)	.60 gm.	38.0 %	.88, 2.28, 2.87
3. Jar (1/32—1/64)	.60 gm.	5.0 %	2.27
4. Drain	6.90 gm.	57.0 %	

C. Screen Analysis 4.53

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.23	71.6
¼–⅛ mm	.36	8.0
⅛–1/16	.64	14.2
Pan	.28	6.2
Total	4.51	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:
A ..... %: a ..... %: C ..... %
r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: ..... % — Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 806 to 815

No. samples used 2

Analyst Penne

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.01 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	15.42 gm.		
4. Less wt. F. P. (2)	2.58 gm.		
5. Wt. Insol. Residue (3 minus 4)	12.84 gm.	61.1 %	
6. Wt. lost by solution (1 minus 5)	8.17 gm.	38.9 %	
7. To balance (5 plus 6)	21.01 gm.	100 %	

B. Subsidation:

1. Original Wt.	12.84 gm.	100.0%	
2. Cylinder (+1/32)	5.51 gm.	42.9 %	7.56, 2.05
3. Jar (1/32—1/64)	.46 gm.	3.6 %	2.46
4. Drain	6.87 gm.	53.5 %	

C. Screen Analysis 5.51

SIZE	GRAMS	%
2 plus		
2÷1 mm	.41	7.5
1–½ mm	.48	8.7
½–¼ mm	2.13	38.8
¼–⅛ mm	.46	8.4
⅛–1/16	1.36	24.8
Pan	.65	11.8
Total	5.49	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 815 to 820

No. samples used .....

Analyst House

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 2024 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 5.89 gm.
4. Less wt. F. P. (2) . . . 2.5 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 3.3 gm. 16.57 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.87 gm. 83.43 %
7. To balance (5 plus 6) . . 2024 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified:
Heavy Concentrate

	No. of Grains	Rel. %
Total		100%

Light Concentrate

Total		100%

Classification Grouping:

Primary Minerals: ..... %

Secondary Minerals: ..... %

Absol. %
100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 820 to 830

No. samples used .....

Analyst Hei

Date 1/25/32

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.63 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	6.28 gm.		
4. Less wt. F. P. (2)	2.58 gm.		
5. Wt. Insol. Residue (3 minus 4)	3.70 gm.	17.9 %	
6. Wt. lost by solution (1 minus 5)	6.93 gm.	82.1 %	
7. To balance (5 plus 6)	26 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	%
3. Jar (1/32—1/64)	..... gm.	%
4. Drain	..... gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 830 to 840

No. samples used .....

Analyst Haines

Date 6/25/36

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.94 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	4.64 gm.		
4. Less wt. F. P. (2)	2.27 gm.		
5. Wt. Insol. Residue (3 minus 4)	2.37 gm.	11.3 %	
6. Wt. lost by solution (1 minus 5)	18.57 gm.	88.7 %	
7. To balance (5 plus 6)	20.94 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	%
3. Jar (1/32—1/64)	..... gm.	%
4. Drain	..... gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0252

Depth 843 to 851

No. samples used .....

Analyst .....

Date 35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	22.02 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	3.81 gm.		
4. Less wt. F. P. (2)	2.46 gm.		
5. Wt. Insol. Residue (3 minus 4)	1.41 gm.	6.5 %	
6. Wt. lost by solution (1 minus 5)	20.22 gm.	93.5 %	
7. To balance (5 plus 6)	21.63 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	..... %
3. Jar (1/32—1/64)	..... gm.	..... %
4. Drain	..... gm.	..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform / ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 860 to 870

No. samples used .....

Analyst Penne l

Date 1/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	22.49 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	4.24 gm.		
4. Less wt. F. P. (2)	2.50 gm.		
5. Wt. Insol. Residue (3 minus 4)	1.74 gm.	7.7 %	
6. Wt. lost by solution (1 minus 5)	20.75 gm.	92.3 %	
7. To balance (5 plus 6)	22.49 gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W- 0052

Depth 874 to 883

No. samples used 2

Analyst Jewel

Date

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	22.13 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.85 gm.		
4. Less wt. F. P. (2)	2.14 gm.		
5. Wt. Insol. Residue (3 minus 4)	1.99 gm.	9.0 %	
6. Wt. lost by solution (1 minus 5)	20.14 gm.	91.0 %	
7. To balance (5 plus 6)	22.13 gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total	100%	Total	100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 883 to 892

No. samples used .....

Analyst .....

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.08 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	3.07 gm.		
4. Less wt. F. P. (2)	2.14 gm.		
5. Wt. Insol. Residue (3 minus 4)	93 gm.	4.4 %	
6. Wt. lost by solution (1 minus 5)	20.1 gm.	95.6 %	
7. To balance (5 plus 6)	21.08 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	..... %
3. Jar (1/32—1/64)	..... gm.	..... %
4. Drain	..... gm.	..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 892 to 900

No. samples used. .....

Analyst Pearce

Date 6/25/25

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 21.51 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 2.89 gm.
4. Less wt. F. P. (2) . . . 2.27 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . .62 gm. 2.9 %
6. Wt. lost by solution (1 minus 5) . . . . . 20.89 gm. 97.1 %
7. To balance (5 plus 6) . . 21.5 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

A. % : a. % : C. %

r % : R %.

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 910 to 920

No. samples used 2

Analyst Payne

Date 6/25/55

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.60 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution. with filter paper . . . . . 5.47 gm.
4. Less wt. F. P. (2) . . . 2.48 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 2.99 gm. 14.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 61 gm. 85.5 %
7. To balance (5 plus 6) . . 20.60 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+-1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains	Rel. %

Classification Grouping: Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 430 to 438

No. samples used

Analyst Renne

Date 6/26/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.45 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.35 gm.		
4. Less wt. F. P. (2)	2.49 gm.		
5. Wt. Insol. Residue (3 minus 4)	1.86 gm.	8.7 %	
6. Wt. lost by solution (1 minus 5)	19.59 gm.	91.3 %	
7. To balance (5 plus 6)	21.45 gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:
Heavy Concentrate

No. of Grains | Rel. %

Classification Grouping:
Primary Minerals: ..... %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W-- 0052

Depth 949 to 954

No. samples used

Analyst Pennel

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 2033 gm. 100.0% : 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . 439 gm.
4. Less wt. F. P. (2) . . . 247 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 190 gm. 93 %
6. Wt. lost by solution (1 minus 5) . . . . . 43 gm. 9.1 %
7. To balance (5 plus 6) . . 2033 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: . . . . % — Absol. %

Total 100%

Light Concentrate

Secondary Minerals: . . . . %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 960 to 971

No. samples used .....

Analyst Kenne l

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.14 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	3.08 gm.			
4. Less wt. F. P. (2)	2.29 gm.			
5. Wt. Insol. Residue (3 minus 4)	.79 gm.	3.9 %		
6. Wt. lost by solution (1 minus 5)	19.35 gm.	96.1 %		
7. To balance (5 plus 6)	20.14 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 975 to 985

No. samples used .....

Analyst Pennel

Date 12/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.31 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	3.75 gm.		
4. Less wt. F. P. (2)	2.51 gm.		
5. Wt. Insol. Residue (3 minus 4)	.24 gm.	6.1 %	
6. Wt. lost by solution (1 minus 5)	19.07 gm.	93.9 %	
7. To balance (5 plus 6)	20.31 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%	
2. Cylinder (+1/32)	..... gm.	..... %	
3. Jar (1/32—1/64)	..... gm.	..... %	
4. Drain	..... gm.	..... %	

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:
Heavy Concentrate

	No. of Grains	Rel. %
Total		100%

Classification Grouping:
Primary Minerals: ..... %

Absol. %

Light Concentrate

Secondary Minerals: ..... %

Total		Total	

100%

100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 996 to 1001

No. samples used

Analyst Keuve

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.70 gm. 100.0% : 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . 3.96 gm.
4. Less wt. F. P. (2) . . . 2.58 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 1.38 gm. 6.7 %
6. Wt. lost by solution (1 minus 5) . . . . . 19.32 gm. 93.3 %
7. To balance (5 plus 6) . . 20.70 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

A. % : a % : C. %

r % : R %.

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1012 to 102

No. samples used .....

Analyst Reuse

Date 2/23/43

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 2023 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 04 gm.
4. Less wt. F. P. (2) . . . 2.16 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 93 gm. 4.6 %
6. Wt. lost by solution (1 minus 5) . . . . . 1930 gm. 95.4 %
7. To balance (5 plus 6) . . 2023 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals . . . . . gm. ..... %

Light Minerals . . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains | Rel. % | Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1030 to 1035

No. samples used .....

Analyst Kenner

Date 12/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.59 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.64 gm.
4. Less wt. F. P. (2) . . . 2.19 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.45 gm. 21.6 %
6. Wt. lost by solution (1 minus 5) . . . . . 14 gm. 78.4 %
7. To balance (5 plus 6) . . 59 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

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.....

DEEP WELL STUDY

Well No. W— 0052

Depth 1042 to .....

No. samples used .....

Analyst Penne

Date 6/25/35

MECHANICAL ANALYSIS

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

1. Sample weight	22 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	21 gm.		
4. Less wt. F. P. (2)	2.09 gm.		
5. Wt. Insol. Residue (3 minus 4)	..... gm.	18.9 %	
6. Wt. lost by solution (1 minus 5)	4.4 gm.	81.8 %	
7. To balance (5 plus 6)	22.56 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	%
3. Jar (1/32—1/64)	..... gm.	%
4. Drain	..... gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1053 to 1060

No. samples used

Analyst Ken

Date 33

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 21.53 gm. 100.0% : 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . 1.8 gm.
4. Less wt. F. P. (2) . . . 2.0 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . gm. 11.4 %
6. Wt. lost by solution (1 minus 5) . . . . . 19.07 gm. 88.6 %
7. To balance (5 plus 6) . . 21.53 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains | Rel. % | Absol. %

Classification Grouping:

Primary Minerals: . . . . %

Total 100%

Light Concentrate

Secondary Minerals: . . . . %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W-- 0052

Depth 1065 to 1076

No. samples used 2

Analyst Pannell

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.84 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	gm.		
4. Less wt. F. P. (2)	.05 gm.		
5. Wt. Insol. Residue (3 minus 4)	.84 gm.	3.4 %	
6. Wt. lost by solution (1 minus 5)	20.00 gm.	91.6 %	
7. To balance (5 plus 6)	gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

Screen

DEEP WELL STUDY

Well No. W— 0052

Depth 1081 to 1087

No. samples used

Analyst Pennel

Date 6/25/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.27 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2+1 mm	.16	0.7
1–½ mm	.73	3.6
½–¼ mm	14.14	69.6
¼–⅛ mm	5.03	24.8
⅛–1/16	.26	1.3
Pan	Trace	
Total	20.32	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified:
Heavy Concentrate

No. of Grains | Rel. %

Classification Grouping:
Primary Minerals: .....%

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

Screen

DEEP WELL STUDY

Well No. W— 0052

Depth 1087 to 1093

No. samples used

Analyst Howell

Date 12-5-63

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.34 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.09	0.4
½–¼ mm	8.46	41.8
¼–⅛ mm	10.56	52.2
⅛–1/16	1.04	5.1
Pan	.10	0.5
Total	20.25	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %

Primary Minerals: .....%

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Screen

Well No. W— 2052

Depth 1093 to 1096

No. samples used

Analyst Pawel

Date 6/25/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.91 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
~~2 plus~~		
2+1 mm	.26	1.2
1–½ mm	.28	1.3
½–¼ mm	11.49	55.2
¼–⅛ mm	7.53	36.1
⅛–1/16	.85	4.1
Pan	.44	2.1
Total	20.85	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

Wt. of sample . . . .gm..... 100.0% Shape Analysis:

Heavy Minerals . . . .gm.....% A.....% : a.....% : C.....%

Light Minerals . . . .gm.....% r .....% : R .....%.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: .....%	Absol. %

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Screen

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 21.25 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.....%

Well No. W-- 0052

Depth 1096 to 1100

No. samples used 1

Analyst Samuel

Date 2-5-36

B. Subsidation:

1. Original Wt. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm	.14	0.7
1–½ mm	.22	1.0
½–¼ mm	8.62	40.6
¼–⅛ mm	10.38	48.8
⅛–1/16	1.59	7.5
Pan	.30	1.4
Total	21.25	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 1105 to 1112

No. samples used

Analyst

Date

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.13 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	21.27 gm.		
4. Less wt. F. P. (2)	2.03 gm.		
5. Wt. Insol. Residue (3 minus 4)	19.24 gm.	95.6 %	
6. Wt. lost by solution (1 minus 5)	.89 gm.	4.4 %	
7. To balance (5 plus 6)	20.13 gm.	100 %	

B. Subsidation:

1. Original Wt.	19.2 gm.	100.0%	
2. Cylinder (+1/32)	13.1 gm.	68.2 %	
3. Jar (1/32—1/64)	gm.	3.5 %	
4. Drain	5.7 gm.	28.3 %	

C. Screen Analysis 13.12

SIZE	GRAMS	%
2 plus		
2–1 mm	1.20	9.2
1–½ mm	.79	6.1
½–¼ mm	4.92	37.8
¼–⅛ mm	4.77	36.6
⅛–1/16	.80	6.1
Pan	.54	4.2
Total	13.02	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst

Date

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 1115 to 1121

No. samples used 2

Analyst Pearl

Date 9-29-35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.59 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	21.07 gm.		
4. Less wt. F. P. (2)	.07 gm.		
5. Wt. Insol. Residue (3 minus 4)	19.00 gm.	92.3 %	
6. Wt. lost by solution (1 minus 5)	1.59 gm.	7.7 %	
7. To balance (5 plus 6)	20.59 gm.	100 %	

B. Subsidation:

1. Original Wt.	2.20 gm.	100.0%	
2. Cylinder (+1/32) 8.56 2.25 4.48	6.31 gm.	39.2 %	
3. Jar (1/32—1/64)	2.70 gm.	12.6 %	
4. Drain	.029 gm.	54.2 %	

C. Screen Analysis 6.40

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	2.80	43.8
¼–⅛ mm	.76	11.9
⅛–1/16	.90	14.1
Pan	1.94	30.2
Total	6.40	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains

Rel. %

Classification Grouping:

Primary Minerals: ..... %

Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1121 to 1125

No. samples used

Analyst Reuse

Date 6/23/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.22 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	21.03 gm.			
4. Less wt. F. P. (2)	2.02 gm.			
5. Wt. Insol. Residue (3 minus 4)	19.01 gm.	94.0 %		
6. Wt. lost by solution (1 minus 5)	.21 gm.	6.0 %		
7. To balance (5 plus 6)	.22 gm.	100 %		

B. Subsidation:

1. Original Wt.	19.6 gm.	100.0%	
2. Cylinder (+1/32)	.05 gm.	%	4.32
3. Jar (1/32—1/64)	2.18 2.. gm.	%	
4. Drain	8.82 gm.	%	

C. Screen Analysis 8.09

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	74.05	
¼–⅛ mm	.87	
⅛–1/16	1.02	
Pan	2.14	26.5
Total	8.08	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst

Date

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total	100%	Total	100%

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

Screen

DEEP WELL STUDY

Well No. W-- 0052

Depth 1130 to 1138

No. samples used 1

Analyst PG

Date 2/22/25

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.22 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2+1 mm		3.3
1–½ mm	5.58	28.1
½–¼ mm	8.24	40.9
¼–⅛ mm	5.44	26.9
⅛–1/16	.21	1.0
Pan		
Total	20.14	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate		
Total		100%

Total 100%

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

Screen

DEEP WELL STUDY

Well No. W— 0052

Depth 1138 to 1145

No. samples used .....

Analyst HE UCL

Date 5

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.85 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
~~2 plus~~		
2+1 mm	.51	2.5
1–½ mm	2.38	11.4
½–¼ mm	10.93	52.6
¼–⅛ mm	6.70	32.2
⅛–1/16	.28	1.3
Pan	Trace	
Total	20.80	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: .....%

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

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Screen

DEEP WELL STUDY

Well No. W-- 0052

Depth 1145 to 1150

No. samples used

Analyst Kaupel

Date 6/25/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.37 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
~~2 plus~~		
2+1 mm	.51	2.5
1–½ mm	1.29	6.4
½–¼ mm	9.48	46.6
¼–⅛ mm	7.57	37.3
⅛–1/16		6.0
Pan	.24	1.2
Total	20.31	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

Wt. of sample . . . .gm..... 100.0% Shape Analysis:

Heavy Minerals . . . .gm.....% A.....% : a.....% : C.....%

Light Minerals . . . .gm.....% r .....% : R .....% .

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: .....% — Absol. %

Total 100%

Light Concentrate — Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Screen

Well No. W— 0052

Depth 1150 to 1155

No. samples used

Analyst Pennel

Date 1/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 21.13 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. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm	.28	1.3
1–½ mm	.39	1.8
½–¼ mm	6.94	32.9
¼–⅛ mm	10.93	51.8
⅛–1/16	2.40	11.4
Pan	.17	0.8
Total	21.11	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Screen

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.17 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.....%

Well No. W— 0052
Depth 115 to 160
No. samples used.....
Analyst .....
Date 4/25/95

B. Subsidation:

1. Original Wt. . . . .gm..... 100.0%
2. Cylinder (+1/32) .....gm.....%
3. Jar (1/32—1/64) .....gm.....%
4. Drain . . . .gm.....%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm	.21	1.0
1–½ mm	2.10	10.4
½–¼ mm	10.51	52.2
¼–⅛ mm	6.57	32.6
⅛–1/16	.77	3.4
Pan	Trace	
Total	20.16	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform .....Sp. gr. Size–Grade(s).....mm.

Analyst .....
Date .....

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

Heavy Minerals . . . .gm.....%

Light Minerals . . . .gm.....%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1165 to 1173

No. samples used 2

Analyst Pannel

Date 6/25/35

MECHANICAL ANALYSIS

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

1. Sample weight	20.31	gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	11.14	gm.		
4. Less wt. F. P. (2)	2.04	gm.		
5. Wt. Insol. Residue (3 minus 4)	9.10	gm.	44.8	%
6. Wt. lost by solution (1 minus 5)	11.21	gm.	55.2	%
7. To balance (5 plus 6)	20.31	gm.	100	%

B. Subsidation:

1. Original Wt.	gm.	100.0%	
2. Cylinder (+1/32)	gm.		%
3. Jar (1/32—1/64)	gm.		%
4. Drain	gm.		%

C. Screen Analysis 8.89

SIZE	GRAMS	%
2 plus		
2–1 mm	1.28	14.6
1–½ mm	2.49	28.4
½–¼ mm	3.18	36.2
¼–⅛ mm	1.41	16.1
⅛–1/16	.24	2.7
Pan	.18	2.0
Total	8.78	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate

No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1180 to 1183

No. samples used

Analyst Pennel

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 21.43 gm. 100.0% ; 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . 6.75 gm.
4. Less wt. F. P. (2) . . . 2.06 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.6 gm. 21.8 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.74 gm. 78.2 %
7. To balance (5 plus 6) . . 21.43 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 4.52

SIZE	GRAMS	%
2 plus		
2–1 mm	.37	8.3
1–½ mm	.96	21.6
½–¼ mm	1.95	43.8
¼–⅛ mm	.76	17.1
⅛–1/16	.25	5.6
Pan	.16	3.6
Total	4.45	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst

Date

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A. % : a. % : C. %

Light Minerals . . . . gm. % r % : R %.

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: %

Secondary Minerals: %

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1185 to 1195

No. samples used .....

Analyst Pennel

Date 6/25/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.18 gm. 100.0%
2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 10.61 gm.
4. Less wt. F. P. (2) . . . 2.06 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 8.55 gm. 42.4 %
6. Wt. lost by solution (1 minus 5) . . . . . 11.63 gm. 57.6 %
7. To balance (5 plus 6) . . 20.18 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 8.36

SIZE	GRAMS	%
2 plus		
2–1 mm	.83	1.0
1–½ mm	1.74	20.8
½–¼ mm	3.36	40.2
¼–⅛ mm	1.93	23.2
⅛–1/16	.34	4.1
Pan	.14	1.7
Total	8.34	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1205 to 1215

No. samples used .....

Analyst Penner

Date 1/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.82 gm.	100.0%	2. Wt. of F. P. .....
3. Wt. after solution, with filter paper	10.80 gm.		
4. Less wt. F. P. (2)	2.10 gm.		
5. Wt. Insol. Residue (3 minus 4)	7.90 gm.	36.2 %	
6. Wt. lost by solution (1 minus 5)	13.92 gm.	63.8 %	
7. To balance (5 plus 6)	21.82 gm.	100 %	

B. Subsidation:

1. Original Wt.	..... gm.	100.0%
2. Cylinder (+1/32)	..... gm.	..... %
3. Jar (1/32—1/64)	..... gm.	..... %
4. Drain	..... gm.	..... %

C. Screen Analysis 7.77

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	6.25	81.8
¼–⅛ mm	.88	11.5
⅛–1/16	.51	6.7
Pan		
Total	7.64	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1223 to 1232

No. samples used 2

Analyst Pennel

Date 9/5/35

MECHANICAL ANALYSIS

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

1. Sample weight . . . . . 20.91 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 18.85 gm.
4. Less wt. F. P. (2) . . . 2.22 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 16.63 gm. 79.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 4.28 gm. 20.5 %
7. To balance (5 plus 6) . . 20.91 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 7.53

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.90	65.2
¼–⅛ mm	.51	6.8
⅛–1/16	.53	7.1
Pan	.57	7.6
Total	7.51	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . . gm. %

Light Minerals . . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: .....% — Absol. %

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1242 to 1252

No. samples used .....

Analyst Pearce

Date 4/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 2024 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 4.49 gm.
4. Less wt. F. P. (2) . . . 2.14 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.35 gm. 21.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.2 gm. 78.5 %
7. To balance (5 plus 6) . . 20.24 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 420

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	.87	69.7
¼–⅛ mm	.55	13.3
⅛–1/16	.38	9
Pan	.32	7.8
Total	4.12	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A ..... % : a ..... % : C ..... %

Light Minerals . . . . gm. % r ..... % : R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1201 to 1266

No. samples used 2

Analyst

Date

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	14.88 gm.		
4. Less wt. F. P. (2)	2.13 gm.		
5. Wt. Insol. Residue (3 minus 4)	12.75 gm.	63.1 %	
6. Wt. lost by solution (1 minus 5)	7.77 gm.	37.9 %	
7. To balance (5 plus 6)	20.52 gm.	%	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 12.68

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	10.27	81.4
¼–⅛ mm	.44	11.4
⅛–1/16	.54	4.3
Pan	.37	2.9
Total	12.62	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst

Date

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1220 to 1275
No. samples used
Analyst Penne.l
Date 7/5

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.77 gm. 100.0% : 2. Wt. of F. P.
3. Wt. after solution, with filter paper . . . . . 9.28 gm.
4. Less wt. F. P. (2) . . . 2.13 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 7.15 gm. 34 %
6. Wt. lost by solution (1 minus 5) . . . . . 13.62 gm. 65.6 %
7. To balance (5 plus 6) . 20.77 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) 6.30 2.05 4.25 gm. 59.4 %
3. Jar (1/32—1/64) 2.29 2.09 gm. 2.8 %
4. Drain . . . . . 2.70 gm. 37 %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst
Date

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate | No. of Grains | Rel. % | Classification Grouping: Primary Minerals: . . . % | Absol. %

Total 100%

Light Concentrate

Secondary Minerals: . . . %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 1275 to 1280

No. samples used .....

Analyst Paul

Date 3/3/33

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.16 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 13.55 gm.
4. Less wt. F. P. (2) . . . 2.21 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 13.34 gm. ..... %
6. Wt. lost by solution (1 minus 5) . . . . . 6.82 gm. 33.9 %
7. To balance (5 plus 6) . . 20.16 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 13.14

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	2.44	18.9
½–¼ mm	5.59	43.8
¼–⅛ mm	3.85	29.6
⅛–1/16	.89	
Pan	.28	
Total	13.05	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. % — Classification Grouping: Primary Minerals: ..... % — Absol. %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1285 to 90

No. samples used .....

Analyst [illegible]

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.16 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 9.24 gm.
4. Less wt. F. P. (2) . . . 2.05 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 7.19 gm. .....%
6. Wt. lost by solution (1 minus 5) . . . . . 12.97 gm. 64.6 %
7. To balance (5 plus 6) . . 20.16 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. .....%
3. Jar (1/32—1/64) . . . . . gm. .....%
4. Drain . . . . . gm. .....%

C. Screen Analysis 7.05

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.60	65.3
¼–⅛ mm	1.40	19.8
⅛–1/16	.42	6.0
Pan	.63	8.9
Total	7.05	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . . gm. .....%

Light Minerals . . . . . gm. .....%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1290 to 1295
No. samples used 1
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.32 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	6.44 gm.			
4. Less wt. F. P. (2)	2.12 gm.			
5. Wt. Insol. Residue (3 minus 4)	4.32 gm.	21.2 %		
6. Wt. lost by solution (1 minus 5)	16.00 gm.	78.8 %		
7. To balance (5 plus 6)	20.32 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 4.24

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.02	71.4
¼–⅛ mm	.64	15.1
⅛–1/16	.31	7.3
Pan	.26	6.2
Total	4.23	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1305 to 1314
No. samples used 2
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.17 gm. 100.0%; 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 7.23 gm.
4. Less wt. F. P. (2) . . . 2.10 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 5.13 gm. 25.4 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.04 gm. 74.6 %
7. To balance (5 plus 6) . . 20.17 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 5.04

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.47	68.9
¼–⅛ mm	.84	16.7
⅛–1/16	.37	7.3
Pan	.36	7.1
Total	5.04	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1325 to 1330
No. samples used 1
Analyst Pannel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.16 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	7.34 gm.			
4. Less wt. F. P. (2)	2.16 gm.			
5. Wt. Insol. Residue (3 minus 4)	5.18 gm.	25.7 %		
6. Wt. lost by solution (1 minus 5)	14.98 gm.	74.3 %		
7. To balance (5 plus 6)	20.16 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 5.12

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.73	73.6
¼–⅛ mm	.65	12.8
⅛–1/16	.56	11.0
Pan	.13	2.6
Total	5.07	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst
Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified:
Heavy Concentrate

	No. of Grains	Rel. %	Absol. %
Total		100%	

Classification Grouping:
Primary Minerals: %

Light Concentrate

Secondary Minerals: %

Total		100%	100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1335 to 1345
No. samples used 2
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 75 %)

1. Sample weight	21.00 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	6.59 gm.			
4. Less wt. F. P. (2)	2.13 gm.			
5. Wt. Insol. Residue (3 minus 4)	4.46 gm.	21.2 %		
6. Wt. lost by solution (1 minus 5)	16.54 gm.	78.8 %		
7. To balance (5 plus 6)	21.00 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 4.42

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.68	85.0
¼–⅛ mm	.27	6.2
⅛–1/16	.15	3.5
Pan	.23	5.3
Total	4.33	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1350 to 1365

No. samples used 3

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.41 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.25 gm.
4. Less wt. F. P. (2) . . . 2.15 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.10 gm. 20.1 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.31 gm. 79.9 %
7. To balance (5 plus 6) . . 20.41 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 4.08

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	2.75	69.3
¼–⅛ mm	.68	17.1
⅛–1/16	.54	13.6
Pan		
Total	3.97	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Analyst .....

Date .....

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052
Depth 1365 to 1375
No. samples used 2
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.20 gm. 100.0%
2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.29 gm.
4. Less wt. F. P. (2) . . . 2.29 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.00 gm. 19.8 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.20 gm. 80.2 %
7. To balance (5 plus 6) . . 20.20 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified:

Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 00052
Depth 1380 to 1387
No. samples used 2
Analyst Penne l
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.10 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 7.09 gm.
4. Less wt. F. P. (2) . . . 2.15 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.94 gm. 24.6 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.16 gm. 76.4 %
7. To balance (5 plus 6) . . 20.10 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 4.85

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.75	79.0
¼–⅛ mm	45	8.5
⅛–1/16	54	11.5
Pan		
Total	4.74	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1391 to 1399
No. samples used 2
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	21.29 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	5.09 gm.			
4. Less wt. F. P. (2)	2.14 gm.			
5. Wt. Insol. Residue (3 minus 4)	2.95 gm.	13.8 %		
6. Wt. lost by solution (1 minus 5)	18.34 gm.	86.2 %		
7. To balance (5 plus 6)	21.29 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst
Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: %

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1408 to 1412
No. samples used 2
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.84 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	9.92 gm.			
4. Less wt. F. P. (2)	2.18 gm.			
5. Wt. Insol. Residue (3 minus 4)	7.74 gm.	37.1 %		
6. Wt. lost by solution (1 minus 5)	13.10 gm.	62.9 %		
7. To balance (5 plus 6)	20.84 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 7.75

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	6.49	84.8
¼–⅛ mm	.65	8.5
⅛–1/16	.22	2.9
Pan	.29	3.8
Total	7.65	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1425 to 1435
No. samples used 2
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.97 gm. 100.0%; 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 7.77 gm.
4. Less wt. F. P. (2) . . . 2.07 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 5.70 gm. 27.2 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.27 gm. 72.8 %
7. To balance (5 plus 6) . . 20.97 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 5 68

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	1.77	31.6
½–¼ mm	2.04	36.5
¼–⅛ mm	1.38	24.7
⅛–1/16	.24	4.3
Pan	.17	3.0
Total	5.60	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample . . . . gm. ..... 100.0% Shape Analysis:

Heavy Minerals . . . . gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals . . . . gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %
Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0057

Depth 1440 to 1445

No. samples used 1

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.19 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	12.98 gm.			
4. Less wt. F. P. (2)	2.27 gm.			
5. Wt. Insol. Residue (3 minus 4)	10.71 gm.	53.1 %		
6. Wt. lost by solution (1 minus 5)	9.48 gm.	46.9 %		
7. To balance (5 plus 6)	20.19 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 10.60

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	3.78	35.8
½–¼ mm	3.87	36.5
¼–⅛ mm	1.78	16.8
⅛–1/16	.63	6.0
Pan	.52	4.9
Total	10.58	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1445 to 1450
No. samples used 1
Analyst Pannell
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.10 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	14.30 gm.			
4. Less wt. F. P. (2)	2.09 gm.			
5. Wt. Insol. Residue (3 minus 4)	12.21 gm.	60.8 %		
6. Wt. lost by solution (1 minus 5)	7.89 gm.	39.2 %		
7. To balance (5 plus 6)	20.10 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 12.09

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	5.44	45.2
½–¼ mm	5.00	41.5
¼–⅛ mm	1.09	9.1
⅛–1/16	.25	2.1
Pan	.25	2.1
Total	12.03	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0252
Depth 1455 to 1465
No. samples used 2
Analyst Penne l
Date 9/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.30 gm. 100.0%; 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 7.31 gm.
4. Less wt. F. P. (2) . . . 2.25 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 5.06 gm. 24.9 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.24 gm. 75.1 %
7. To balance (5 plus 6) . . 20.30 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 4.97

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.51	71.2
¼–⅛ mm	.60	12.2
⅛–1/16	.38	7.7
Pan	.44	8.9
Total	4.93	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . . gm. %

Light Minerals . . . . . gm. %

Shape Analysis:

A ..... %; a ..... %; C ..... %

r ..... %; R ..... %.

Minerals Identified; Heavy Concentrate | No. of Grains | Rel. % | Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1470 to 1475
No. samples used 1
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.05 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	6.43 gm.			
4. Less wt. F. P. (2)	2.21 gm.			
5. Wt. Insol. Residue (3 minus 4)	4.22 gm.	21.1 %		
6. Wt. lost by solution (1 minus 5)	15.83 gm.	78.9 %		
7. To balance (5 plus 6)	20.05 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 4.16

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	2.59	62.3
¼–⅛ mm	1.12	26.9
⅛–1/16	.45	10.8
Pan		
Total	4.16	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1475 to 1485

No. samples used 2

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.33 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	14.09 gm.			
4. Less wt. F. P. (2)	2.06 gm.			
5. Wt. Insol. Residue (3 minus 4)	12.03 gm.	59.2 %		
6. Wt. lost by solution (1 minus 5)	8.30 gm.	40.8 %		
7. To balance (5 plus 6)	20.33 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 11.88

SIZE	GRAMS	%
~~2 plus~~		
2+1 mm	.25	2.1
1–½ mm	1.92	16.2
½–¼ mm	5.44	46.0
¼–⅛ mm	3.45	29.2
⅛–1/16	.55	4.7
Pan	.21	1.8
Total	11.82	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping:

Primary Minerals: ..... %

Secondary Minerals: ..... %

Absol. %
100%

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

DEEP WELL STUDY

Well No. W— 00952

Depth 1485 to 1492

No. samples used 2

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.25 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	9.62 gm.		
4. Less wt. F. P. (2)	2.09 gm.		
5. Wt. Insol. Residue (3 minus 4)	7.53 gm.	37.2 %	
6. Wt. lost by solution (1 minus 5)	12.72 gm.	62.8 %	
7. To balance (5 plus 6)	20.25 gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 7.36

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.77	10.6
½–¼ mm	4.48	61.9
¼–⅛ mm	1.67	23.1
⅛–1/16	.32	4.4
Pan		
Total	7.24	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1492 to 1502

No. samples used 2

Analyst Pannel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.44 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	6.86 gm.			
4. Less wt. F. P. (2)	2.10 gm.			
5. Wt. Insol. Residue (3 minus 4)	4.76 gm.	23.3 %		
6. Wt. lost by solution (1 minus 5)	15.68 gm.	76.7 %		
7. To balance (5 plus 6)	20.44 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 4.72

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.00	85.8
¼–⅛ mm	.54	11.6
⅛–1/16	.12	2.6
Pan		
Total	4.66	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1502 to 1512
No. samples used 2
Analyst Pennel
Date 2/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.39 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	6.24 gm.			
4. Less wt. F. P. (2)	2.10 gm.			
5. Wt. Insol. Residue (3 minus 4)	4.14 gm.	20.3 %		
6. Wt. lost by solution (1 minus 5)	16.25 gm.	79.7 %		
7. To balance (5 plus 6)	20.39 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 4.07

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	3.40	84.1
¼–⅛ mm	.36	8.9
⅛–1/16	.28	7.0
Pan		
Total	4.04	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

Wt. of sample ..... gm. 100.0% Shape Analysis:

Heavy Minerals ..... gm. ..... % A ..... %: a ..... %: C ..... %

Light Minerals ..... gm. ..... % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %
Total		100%		
Light Concentrate			Secondary Minerals: ..... %	
Total		100%	Total	100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1518 to 1523
No. samples used 1
Analyst Pennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl .15 %)

1. Sample weight . . . . . 20.20 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 7.65 gm.
4. Less wt. F. P. (2) . . . 2.10 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 5.55 gm. 27.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 14.65 gm. 72.5 %
7. To balance (5 plus 6) . . 20.20 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 5.47

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.67	86.4
¼–⅛ mm	.51	9.4
⅛–1/16	.11	2.0
Pan	.12	2.2
Total	5.41	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1534 to 1537
No. samples used 1
Analyst Pannel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.24 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	13.27 gm.			
4. Less wt. F. P. (2)	2.26 gm.			
5. Wt. Insol. Residue (3 minus 4)	11.01 gm.	54.5 %		
6. Wt. lost by solution (1 minus 5)	9.23 gm.	45.5 %		
7. To balance (5 plus 6)	20.24 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 10.87

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	10.13	
¼–⅛ mm	.27	
⅛–1/16	.16	
Pan	.22	
Total	10.78	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1542 to 1547

No. samples used 1

Analyst Pannell

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.18 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 7.81 gm.
4. Less wt. F. P. (2) . . . 2.10 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 5.71 gm. 28.3 %
6. Wt. lost by solution (1 minus 5) . . . . . 14.47 gm. 71.7 %
7. To balance (5 plus 6) . . . 20.18 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 5.55

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	4.75	86.2
¼–⅛ mm	.43	7.8
⅛–1/16	.33	6.0
Pan		
Total	5.51	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1552 to 1565

No. samples used 2

Analyst Pannell

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.20 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	9.57 gm.		
4. Less wt. F. P. (2)	2.25 gm.		
5. Wt. Insol. Residue (3 minus 4)	7.32 gm.	36.2 %	
6. Wt. lost by solution (1 minus 5)	12.88 gm.	63.8 %	
7. To balance (5 plus 6)	20.20 gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 7.21

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	6.54	91.0
¼–⅛ mm	.31	4.3
⅛–1/16	.34	4.7
Pan		
Total	7.19	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1520 to 1580

No. samples used 2

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.21 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	6.32 gm.			
4. Less wt. F. P. (2)	2.14 gm.			
5. Wt. Insol. Residue (3 minus 4)	4.18 gm.	20.7 %		
6. Wt. lost by solution (1 minus 5)	16.03 gm.	79.3 %		
7. To balance (5 plus 6)	20.21 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1585 to 1590

No. samples used 1

Analyst Pannel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.64	gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.79	gm.		
4. Less wt. F. P. (2)	2.09	gm.		
5. Wt. Insol. Residue (3 minus 4)	2.70	gm.	13.1	%
6. Wt. lost by solution (1 minus 5)	17.94	gm.	86.9	%
7. To balance (5 plus 6)	20.64	gm.	100	%

B. Subsidation:

1. Original Wt.		gm.	100.0%
2. Cylinder (+1/32)		gm.	%
3. Jar (1/32—1/64)		gm.	%
4. Drain		gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1590 to 1595

No. samples used 1

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.19 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	3.92 gm.			
4. Less wt. F. P. (2)	2.07 gm.			
5. Wt. Insol. Residue (3 minus 4)	1.85 gm.	9.2 %		
6. Wt. lost by solution (1 minus 5)	18.34 gm.	90.8 %		
7. To balance (5 plus 6)	20.19 gm.	00 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified:

Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: %

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1606 to 1615

No. samples used 2

Analyst Pennel

Date 2/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 1.5 %)

1. Sample weight . . . . . 21.35 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 8.53 gm.
4. Less wt. F. P. (2) . . . 2.10 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 6.43 gm. 30.2 %
6. Wt. lost by solution (1 minus 5) . . . . . 14.92 gm. 69.8 %
7. To balance (5 plus 6) . . 21.35 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 6.37

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	5.37	84.8
¼–⅛ mm	.77	12.2
⅛–1/16	.12	1.9
Pan	.07	1.1
Total	6.33	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A.....%: a.....%: C.....%

Light Minerals . . . . gm. % r .....%: R .....%.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 6052

Depth 1623 to 1633

No. samples used 2

Analyst Pennel

Date 2/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	5.56 gm.		
4. Less wt. F. P. (2)	2.28 gm.		
5. Wt. Insol. Residue (3 minus 4)	3.28 gm.	16.4 %	
6. Wt. lost by solution (1 minus 5)	16.72 gm.	83.6 %	
7. To balance (5 plus 6)	20.00 gm.	100 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping:

Primary Minerals: %

Secondary Minerals: %

Absol. %
100%

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

DEEP WELL STUDY

Well No. W— 2052
Depth 1639 to 1650
No. samples used 2
Analyst Pennel
Date 2/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.18 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 4.57 gm.
4. Less wt. F. P. (2) . . . 2.03 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 2.54 gm. 12.6 %
6. Wt. lost by solution (1 minus 5) . . . . . 17.64 gm. 87.4 %
7. To balance (5 plus 6) . . 20.18 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) gm. %
3. Jar (1/32—1/64) gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: Absol. %
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 2052

Depth 1655 to 1665

No. samples used 2

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.74 gm. 100.0% : 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 4.49 gm.
4. Less wt. F. P. (2) . . . . 2.08 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 2.41 gm. 11.6 %
6. Wt. lost by solution (1 minus 5) . . . . . 18.33 gm. 88.4 %
7. To balance (5 plus 6) . . 20.74 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A ..... %: a ..... %: C ..... %

Light Minerals . . . . gm. % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1670 to 1679

No. samples used 2

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.68 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	14.10 gm.			
4. Less wt. F. P. (2)	2.11 gm.			
5. Wt. Insol. Residue (3 minus 4)	11.99 gm.	58.0 %		
6. Wt. lost by solution (1 minus 5)	8.69 gm.	42.0 %		
7. To balance (5 plus 6)	20.68 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 12.00

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm	10.73	90.0
¼–⅛ mm	.97	8.1
⅛–1/16	.23	1.9
Pan		
Total	11.93	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1685 to 1695
No. samples used 2
Analyst Penne l
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.21 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.09 gm.
4. Less wt. F. P. (2) . . . 2.26 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 3.83 gm. 18.9 %
6. Wt. lost by solution (1 minus 5) . . . . . 16.38 gm. 81.1 %
7. To balance (5 plus 6) . . 20.21 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:
Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052

Depth 1700 to 1705

No. samples used 1

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.08 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	5.37 gm.			
4. Less wt. F. P. (2)	2.21 gm.			
5. Wt. Insol. Residue (3 minus 4)	3.16 gm.	15.7 %		
6. Wt. lost by solution (1 minus 5)	16.92 gm.	84.3 %		
7. To balance (5 plus 6)	20.08 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1712 to 1720

No. samples used 1

Analyst Pennell

Date 2/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.14 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 4.48 gm.
4. Less wt. F. P. (2) . . . 2.07 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 2.41 gm. 12.0 %
6. Wt. lost by solution (1 minus 5) . . . . . 17.73 gm. 88.0 %
7. To balance (5 plus 6) . . 20.14 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052

Depth 1720 to 1724

No. samples used 1

Analyst Pennel

Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.34 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 6.58 gm.
4. Less wt. F. P. (2) . . . 2.10 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 4.48 gm. 22.0 %
6. Wt. lost by solution (1 minus 5) . . . . . 15.86 gm. 78.0 %
7. To balance (5 plus 6) . . 20.34 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 4.43

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.15	3.4
½–¼ mm	2.09	48.1
¼–⅛ mm	1.78	40.9
⅛–1/16	.27	6.2
Pan	.06	1.4
Total	4.35	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052
Depth 1724 to 1729
No. samples used 1
Analyst Rennel
Date 7/5/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	19.64 gm.	100.0%	2. Wt. of F. P.
3. Wt. after solution, with filter paper	4.28 gm.		
4. Less wt. F. P. (2)	2.08 gm.		
5. Wt. Insol. Residue (3 minus 4)	2.20 gm.	11.2 %	
6. Wt. lost by solution (1 minus 5)	17.44 gm.	88.8 %	
7. To balance (5 plus 6)	19.64 gm.	100.0 %	

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm		
½–¼ mm		
¼–⅛ mm		
⅛–1/16		
Pan		
Total		100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total ..... 100% Total 100

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

DEEP WELL STUDY

Well No. W— 0052
Depth 1729 to 1740
No. samples used 2
Analyst Talley
Date Apr. 1 1935

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 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)	19.40 gm.	97.0 %		
6. Wt. lost by solution (1 minus 5)	.60 gm.	3.0 %		
7. To balance (5 plus 6)	20.00 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 1921

SIZE	GRAMS	%
2 plus		
2+1 mm	.23	1.2
1–½ mm	3.33	17.4
½–¼ mm	9.75	50.9
¼–⅛ mm	5.60	29.3
⅛–1/16	.23	1.2
Pan	Tr.	
Total	19.14	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate		
Total		100%

Total 100%

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

DEEP WELL STUDY

Well No. W-- 00552

Depth 1740 to 1750

No. samples used 2

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.00 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) . . . . . 15.61 gm. 78.2 %
6. Wt. lost by solution (1 minus 5) . . . . . 4.39 gm. 21.8 %
7. To balance (5 plus 6) . . 20.00 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . .gm. 100.0%
2. Cylinder (+1/32) .....gm. .....%
3. Jar (1/32—1/64) .....gm. .....%
4. Drain . . . .gm. .....%

C. Screen Analysis 15.55

SIZE	GRAMS	%
2 plus		
2+1 mm	.10	0.6
1–½ mm	2.76	17.9
½–¼ mm	8.39	54.4
¼–⅛ mm	3.82	24.8
⅛–1/16	.35	2.3
Pan	Tr.	
Total	15.42	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . .gm. 100.0% Shape Analysis:

Heavy Minerals . . . .gm. .....% A.....%: a.....%: C.....%

Light Minerals . . . .gm. .....% r .....%: R .....%.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: .....%

Secondary Minerals: .....%

Light Concentrate

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 00572

Depth 1750 to 1753

No. samples used 1

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 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)	10.35 gm.	51.7 %		
6. Wt. lost by solution (1 minus 5)	9.65 gm.	48.3 %		
7. To balance (5 plus 6)	20.0 gm.	100. %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 10.30

SIZE	GRAMS	%
2 plus		
2–1 mm	.45	4.4
1–½ mm		
½–¼ mm	3.79	37.2
¼–⅛ mm	4.30	42.2
⅛–1/16	1.65	16.2
Pan	T	
Total	10.19	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } Sp. gr. Size–Grade(s) mm.

Analyst

Date

Wt. of sample gm. 100.0%

Heavy Minerals gm. %

Light Minerals gm. %

Shape Analysis:

A %: a %: C %

r %: R %.

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: %

Total 100%

Light Concentrate

Secondary Minerals: %

Total 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 00552

Depth 1753 to 1757

No. samples used 1

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 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)	15.78 gm.	77 %		
6. Wt. lost by solution (1 minus 5)	4.62 gm.	23 %		
7. To balance (5 plus 6)	20.00 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 15.76

SIZE	GRAMS	%
2 plus		
2+1 mm	.97	6.2
1–½ mm	3.28	21.2
½–¼ mm	8.44	54.4
¼–⅛ mm	2.66	17.2
⅛–1/16	.16	1.0
Pan	Tr.	
Total	15.51	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1757 to 1759

No. samples used 1

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.00 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) . . . . . 16.68 gm. 83.4 %
6. Wt. lost by solution (1 minus 5) . . . . . 3.32 gm. 16.6 %
7. To balance (5 plus 6) . . 20.00 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . .gm. 100.0%
2. Cylinder (+1/32) .....gm. .....%
3. Jar (1/32—1/64) .....gm. .....%
4. Drain . . . .gm. .....%

C. Screen Analysis 16.59

SIZE	GRAMS	%
2 plus		
2-1 mm	.13	0.8
1–½ mm	1.81	11.1
½–¼ mm	9.60	59.0
¼–⅛ mm	4.19	25.8
⅛–1/16	.50	3.0
Pan	.05	0.3
Total	16.28	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform } .....Sp. gr. Size–Grade(s).....mm.

Analyst .....

Date .....

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

Heavy Minerals . . . .gm. .....%

Light Minerals . . . .gm. .....%

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: .....%

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 00552

Depth 1759 to 1764

No. samples used 1

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.00 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) . . . . . 11.55 gm. 57.8 %
6. Wt. lost by solution (1 minus 5) . . . . . 8.45 gm. 42.2 %
7. To balance (5 plus 6) . . 100.00 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 11.46

SIZE	GRAMS	%
2 plus		
2+1 mm	.74	6.6
1–½ mm	1.26	11.2
½–¼ mm	5.24	46.8
¼–⅛ mm	3.20	28.5
⅛–1/16	.65	5.8
Pan	.12	1.1
Total	11.21	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %
Total		100%		
Light Concentrate			Secondary Minerals: ..... %	
Total		100%	Total	100%

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

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DEEP WELL STUDY

Well No. W— 0052
Depth 1764 to 1769
No. samples used 1
Analyst Talley
Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.00 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) . . . . . 13.70 gm. 68.5 %
6. Wt. lost by solution (1 minus 5) . . . . . 6.30 gm. 31.5 %
7. To balance (5 plus 6) . . 20.00 gm. 100.0 %

B. Subsidation:

1. Original Wt. . . . .gm. 100.0%
2. Cylinder (+1/32) .....gm. .....%
3. Jar (1/32—1/64) .....gm. .....%
4. Drain . . . .gm. .....%

C. Screen Analysis 13.56

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	1.42	10.7
½–¼ mm	5.20	39.4
¼–⅛ mm	5.07	38.4
⅛–1/16	1.42	10.7
Pan	.10	0.8
Total	13.21	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....
Date .....

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

Heavy Minerals . . . .gm. .....%

Light Minerals . . . .gm. .....%

Shape Analysis:

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

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

Minerals Identified: Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: .....%

Total 100%

Light Concentrate

Secondary Minerals: .....%

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1769 to 1771

No. samples used 1

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 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)	12.69 gm.	63.5 %		
6. Wt. lost by solution (1 minus 5)	7.31 gm.	36.5 %		
7. To balance (5 plus 6)	20.00 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 12.57

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.82	6.6
½–¼ mm	3.22	26.0
¼–⅛ mm	6.19	49.9
⅛–1/16	1.89	15.3
Pan	.27	2.2
Total	12.39	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100%

Total 100%

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

DEEP WELL STUDY

Well No. W— 00572

Depth 1771 to 1779

No. samples used 1

Analyst TAILEY

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.00 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) . . . . . 13.04 gm. 65 %
6. Wt. lost by solution (1 minus 5) . . . . . 6.96 gm. 35 %
7. To balance (5 plus 6) . . 20.00 gm. 100 %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) . . . . . gm. %
3. Jar (1/32—1/64) . . . . . gm. %
4. Drain . . . . . gm. %

C. Screen Analysis 12.95

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.33	2.6
½–¼ mm	2.93	23.0
¼–⅛ mm	5.90	46.3
⅛–1/16	3.34	26.2
Pan	.24	1.9
Total	12.74	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1779 to 1785

No. samples used 1

Analyst Talley

Date 4/1/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 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)	13.00 gm.	65 %		
6. Wt. lost by solution (1 minus 5)	7.00 gm.	35 %		
7. To balance (5 plus 6)	20.00 gm.	100 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 12.98

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.43	3.4
½–¼ mm	4.54	35.6
¼–⅛ mm	5.37	42.3
⅛–1/16	2.22	17.4
Pan	.17	1.3
Total	12.73	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals ..... gm. ..... %

Light Minerals ..... gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Light Concentrate

Total 100% Total 100%

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

Ss- base of Jordan @ 1783-84'- med. light grain

DEEP WELL STUDY

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 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)	6.70 gm.	33.5 %		
6. Wt. lost by solution (1 minus 5)	13.30 gm.	66.5 %		
7. To balance (5 plus 6)	2000 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

Well No. W— 0052

Depth 1785 to 1790'9" (1784)

No. samples used 1

Analyst Talley

Date 4/1/35

C. Screen Analysis 6.64

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	1.02	16.1
½–¼ mm	2.19	34.3
¼–⅛ mm	1.60	25.3
⅛–1/16	1.35	21.3
Pan	.19	3.0
Total	6.33	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. %

Classification Grouping: — Absol. %

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

Dolomite; with sand grains and possibly thin, hard, fine grnd SS layers interlaminated.

Approx. 50% of insol. resid. is caved material (Magnetite, Glauc. ? St. Peter ? Jordan)

DEEP WELL STUDY

Well No. W— 0052

Depth 1791 to 1794

No. samples used 1

Analyst Talley

Date 4/15/35

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	17.35 gm.			
4. Less wt. F. P. (2)	2.04 gm.			
5. Wt. Insol. Residue (3 minus 4)	15.31 gm.	76.55 %		
6. Wt. lost by solution (1 minus 5)	4.69 gm.	23.45 %		
7. To balance (5 plus 6)	20.00 gm.	100.00 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 17.24

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	1.05	6.2
½–¼ mm	6.27	37.1
¼–⅛ mm	7.26	43.0
⅛–1/16	2.11	12.5
Pan	.21	1.2
Total	16.90	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. %

Light Minerals . . . . gm. %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %
Total		100%
Light Concentrate		
Total		100%

Classification Grouping: Absol. %

Primary Minerals: ..... %

Secondary Minerals: ..... %

Total 100%

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

DEEP WELL STUDY

Well No. W— 0052

Depth 1794 to 1799

No. samples used 1

Analyst Talley

Date 4/4/55

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight . . . . . 20.00 gm. 100.0%: 2. Wt. of F. P. .....
3. Wt. after solution, with filter paper . . . . . 12.18 gm.
4. Less wt. F. P. (2) . . . 2.05 gm.
5. Wt. Insol. Residue (3 minus 4) . . . . . 10.13 gm. 50.65 %
6. Wt. lost by solution (1 minus 5) . . . . . 9.87 gm. 49.35 %
7. To balance (5 plus 6) . 20.00 gm. ..... %

B. Subsidation:

1. Original Wt. . . . . gm. 100.0%
2. Cylinder (+1/32) ..... gm. ..... %
3. Jar (1/32—1/64) ..... gm. ..... %
4. Drain . . . . gm. ..... %

C. Screen Analysis 12.11

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.24	2.0
½–¼ mm	4.57	38.7
¼–⅛ mm	6.02	50.9
⅛–1/16	.87	7.4
Pan	.12	1.0
Total	11.82	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

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

Heavy Minerals . . . . gm. ..... %

Light Minerals . . . . gm. ..... %

Shape Analysis:

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

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

Minerals Identified; Heavy Concentrate — No. of Grains — Rel. % — Absol. %

Classification Grouping:

Primary Minerals: ..... %

Total 100%

Light Concentrate

Secondary Minerals: ..... %

Total . . . . . 100% Total 100%

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

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DEEP WELL STUDY

Well No. W— 0052

Depth 1799 to 1802

No. samples used 1

Analyst Talley

Date 4-5-55

MECHANICAL ANALYSIS

A. Acid treatment (HCl 15 %)

1. Sample weight	20.00 gm.	100.0%	2. Wt. of F. P.	
3. Wt. after solution, with filter paper	11.14 gm.			
4. Less wt. F. P. (2)	2.13 gm.			
5. Wt. Insol. Residue (3 minus 4)	9.01 gm.	45.05 %		
6. Wt. lost by solution (1 minus 5)	10.99 gm.	54.95 %		
7. To balance (5 plus 6)	20.00 gm.	100.0 %		

B. Subsidation:

1. Original Wt.	gm.	100.0%
2. Cylinder (+1/32)	gm.	%
3. Jar (1/32—1/64)	gm.	%
4. Drain	gm.	%

C. Screen Analysis 11.09

SIZE	GRAMS	%
2 plus		
2–1 mm		
1–½ mm	.10	0.9
½–¼ mm	1.38	12.5
¼–⅛ mm	6.53	59.2
⅛–1/16	2.86	25.9
Pan	.16	1.5
Total	11.03	100.0

MINERALOGICAL ANALYSIS

(Use opposite side of page for details of minerals)

Acet. Tetrabr. / Bromoform ..... Sp. gr. Size–Grade(s) ..... mm.

Analyst .....

Date .....

Wt. of sample . . . . gm. 100.0% Shape Analysis:

Heavy Minerals . . . . gm. % A ..... %: a ..... %: C ..... %

Light Minerals . . . . gm. % r ..... %: R ..... %.

Minerals Identified; Heavy Concentrate	No. of Grains	Rel. %	Classification Grouping: Primary Minerals: ..... %	Absol. %
Total		100%		
Light Concentrate			Secondary Minerals: ..... %	
Total		100%	Total	100%

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