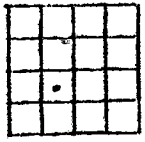
County Holt



sec. 32 T. 60 R. 37

Owner Miller et. al.

Elev. 1104.5 MGS# 8434

Farm Simpson, John No. 1 TD 2195 Shows — Spls. ✓

Status D & A Date Completed 12-1-43 Fm@TD Dev

Remarks:

00033

~~00008~~

RECENT DRILLING

in

NORTHWESTERN MISSOURI

By

FRANK C. GREENE

REPORT OF INVESTIGATIONS NO. 1

1945

EDWARD L. CLARK, *Director and State Geologist*

MISSOURI GEOLOGICAL SURVEY AND
WATER RESOURCES

ROLLA, MISSOURI

Log of Miller, *et al* No. 1 John Simpson. Location: Cen. NE 1/4 SW 1/4 sec. 32, T. 60 N., R. 37 W., Holt County, Missouri, 4 miles east of Oregon. Surface elevation, 1104.5 feet (?Source). Commenced, 9-16-1943, and completed, 12-1-1943. Dry and abandoned. Total depth, 2195 feet. Cable tool test. Casing record: 12 1/2 inch set at 568 feet; 10 inch at 975 feet; and 8 1/4 inch at 1332 feet. Contractor: Harry Harper, Falls City, Nebraska.

FORMATIONAL SUMMARY

	Thickness, feet	*Depth, feet*
Pleistocene and Recent Series:		
Surface soil and glacial drift	98	98
Pennsylvanian system:		
Shawnee group	220	318
Douglas group	192	510
Pedee group	58	568
Lansing-Kansas City groups	289	857
Pleasanton-Henrietta groups	175	1032
Cherokee group	708	1740
Mississippian system:		
Ste. Genevieve formation	40	1780
St. Louis formation	22	1802
Spergen formation	18	1820
Warsaw formation	35	1855
Keokuk-Burlington formations	135	1990
Chouteau formation (may include the Gilmore City formation (?) in the upper 45 feet)	70	2060
Kinderhook shale	82	2142
Devonian system	53	2195, T.D.

WATER ANALYSES

Horizon	*T.D.S.*	*Cl.*	*SO_4*	*Na-K as Na*
	Parts per million			
Water in hole when casing set at 568 feet	8978.0	4029.6	631.4	2677.8
Base of Kansas City, 857 ft.	25361.0	12848.0	217.9	8488.0
Lower Cherokee, 1283-1302 ft.	18099.0	9358.6	14.8	5994.6
Lower Cherokee, 1378-1455 ft.	15414.0	8132.2	11.9	4730.1
Devonian, 2195 ft., T. D.	2518.0	671.6	447.3	841.9

DRILLER'S LOG

	Thickness, feet	*Depth, feet*
Clay, yellow	5	5
Clay, yellow	35	40
———	25	65
Clay	32½	97½
Lime and shale	17½	115

	Thickness, feet	*Depth, feet*
Lime	10	125
Shale	15	140
Lime	4	144
Shale	2	146
Lime	9	155
Shale	21	176
Lime	2	178
Shale	62	240
Lime	22	262
Shale	9	271
Lime	2	273
Shale	21	294
Lime	3	297
Shale	15	312
Lime	15	327
Shale	3	330
Lime	35	365
Red rock	7	372
Shale, blue	19	391
Lime	24	415
Shale, blue	26	441
Shale, sandy	29	470
Break	4	474
Shale, sandy	8	482
Shale	28	510
Shale, black	6	516
Shale, blue	24	540
Shale, broken (Set 58 ft. of 12½ in. pipe at 568 ft; 200 ft. water in hole, sampled)	28	568
Lime, hard	12	580
Shale, blue	10	590
Lime	25	615
Shale	5	620
Lime and shale, blue	11	631
Lime	24	655
Shale, blue	7	662
Lime	13	675
———	..	———
Lime	18	696
Lime and shale	7	703
Lime	24	727
Shale	24	751
Lime	27	778
Lime	22	800
Shale	5	805
Lime	23	828
Shale	11	839
Lime	9	848
Lime	10	858
Shale (water, 2 BPH, enough to drill with, sampled)	42	900
Lime	5	905
Shale	7	912
Lime and shale	6	918
Shale	36	954
Lime	3	957
Shale	14	971
Lime	4	975
Lime	8	983
(Hole caved badly, pipe pulled, hole straightened and reamed and pipe reset 12½ in. at bottom)		
Red rock	15	998
Lime	6	1004
Shale	11	1015

	Thickness, feet	Depth, feet
Lime	5	1020
Shale	7	1027
Lime	11	1038
Shale	34	1072
Lime	8	1080
Shale	80	1160
Lime	7	1167
Shale	15	1182
Lime	13	1195
Shale, blue	13	1208
Shale, black	7	1215
Lime	20	1235
Shale	10	1245
Lime	2	1247
Shale, dark	36	1283
Sand (Hole making 7 BW)	19	1302
Shale	50	1352
Shale, sandy (Pipe set 8 ¼ in.)	8	1360
Shale	18	1378
Sand (HFW at 1378 ft.)	77	1455
Shale, sandy	20	1475
Shale	30	1505
Shale, sandy	10	1515
Shale, broken lime		
Correction	13	1528
Sand, B (SLM, 1510 ft.)	11	1518
Sand, B	7	1525
Shale	15	1540
Shale, black	31	1571
Shale, blue, sandy	19	1590
Shale, black	10	1600
Sand, hard with black shale	30	1630
Sand	10	1640
Shale	26	1666
Shale, black	43	1709
Shale	11	1720
Sand and lime	5	1725
Water sand (HFW)	5	1730
Water sand	10	1740
Lime ("Miss." H, water, 1758 ft.)	15	1755
Lime	45	1800
Lime	85	1885
Lime	15	1900
Lime ("Miss." H)	9	1909
Lime S	16	1925
Lime, hard and sharp	13	1938
Lime ("Miss.")	22	1960
Lime ("Miss.")	48	2008
Lime ("Miss." H)	7	2015
Lime S brake	26	2041
Shale TH	23	2064
Shale S	8	2072
Red shale	4	2082
Shale, blue	18	2100
Red rock	6	2106
Lime, broken	9	2115
Red rock	6	2112
Break lime, shale, dark blue	3	2115
Lime	3	2118
Lime H	2	2120 to 2124
Shale	1	2125
Red shale	6	2131

	Thickness, feet	Depth, feet
Shale	14	2145
Shale—chalk	24	2169
Lime } So much water in hole it is hard to get	2	2171
Lime hard } cuttings		
Lime	24	2195, T.D.

cc: fcg

27-F-30

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES - ROLLA, MO.

COUNTY Holt LOG NUMBER 8434

COMPANY OR OWNER Miller et al

FARM John Simpson WELL NO. 1

LOCATION C NE SW SEC. 32 T. 60 R. 37W

CONTRACTOR Harry Harper

DRILLER TOOL DR.

COMMENCED Sept. 16 COMPLETED Dec. 1, 1943

PRODUCTION D & A PLOTTED Yes

CASING RECORD 12½ @ 568, 10" @ 975, 8¼ @ 1352

WATER RECORD

SOURCE OF LOG 317 samples ELEV. 1104.5

REMARKS TOTAL DEPTH 2195

CHEM. ANAL. NO.

FORMATION	THICK.	DEPTH	FORMATION	THICK.	DEPTH
Glacial Drift	92	92			
Shawnee	220	312			
Douglas	256	568			
Lansing - Kansas City	289	857			
Pleasanton - Henrietta	175	1032			
Cherokee	708 ~~703~~	~~1735~~ 1740	1740		
Ste. Genevieve	40 ~~45~~	1780	857		
St. Louis	22	1802	883		
Spergen	18	1820			
Warsaw	35	1855			
Keokuk-Burlington	135	1990			
Gilmore City	45	2035	2060		
Chouteau	25	2060	1104		
Kinderhook shale	82	2142	956		
Devonian	53	2195			
			2060		
			1740		
			320		

cc: fog

27-F-30

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES - ROLLA, MO.

COUNTY Holt LOG NUMBER

COMPANY OR OWNER Miller et al

FARM John H. Simpson WELL NO. 1

LOCATION SEC. 32 T. 60 R. 37

CONTRACTOR Harry Harper

DRILLER TOOL DR.

COMMENCED 9/16/43 COMPLETED Dec. 1, 1943

PRODUCTION D & A PLOTTED

CASING RECORD

WATER RECORD

SOURCE OF LOG Driller's original ELEV. 1104.58

REMARKS TOTAL DEPTH 2195

CHEM. ANAL. NO.

FORMATION	THICK.	DEPTH	FORMATION	THICK.	DEPTH
Yellow clay	0	5	Lime	391	415
Yellow clay	5	40	Blue shale	415	441
------	40	65	Sandy shale	441	470
Clay	65	97½	Break	470	474
Lime	97½		Sandy shale	474	482
(Bob says lime from 97½ to 105, next entry on log:)			Shale	482	510
			Shale, black	510	516
Shale	97½	115	Shale, blue	516	540
Lime	115	125	Shale, broken	540	568
Shale	125	140	Set 12½ 58# @ 568		
Lime	140	144	200' water in hole (sampled)		
Shale	144	146	Lime, hard	568	580
Lime	146	155	Shale, blue	580	590
Shale	155	176	Lime	590	615
Lime	176	178	Shale	615	620
Shale	178	240	Lime	620	
Lime	240	262	Shale, blue	620	631
Shale	262	271	Lime	631	655
Lime	271	273	Shale, blue	655	662
Shale	273	294	Lime	662	675
Lime	294	297	--------	---	---
Shale	297	312	Lime	678	696
Lime	312	327	Lime and shale	696	703
Shale	327	330	Lime	703	727
Lime	330	365	Shale	727	751
Red rock	365	372	Lime	751	778
Shale, blue	372	391	Lime	778	800

(over)

Shale	800	805
Lime	805	828
Shale	828	839
Lime	839	848
Lime	848	858
Shale	858	880
Water 2 BPH, enough to drill with, sampled.	880	900
Lime	900	905
Shale	905	912
Lime and shale	912	918
Shale	918	954
Lime	954	957
Shale	957	971
Lime	971	975
Lime	975	983
Hole caving bad, will pull pipe, straight ream and reset 12½" at bottom of hole.		
Red rock	983	998
Lime	998	1004
Shale	1004	1015
Lime	1015	1020
Shale	1020	1027
Lime	1027	1038
Shale	1038	1072
Lime	1072	1080
Shale	1080	1160
Lime	1160	1167
Shale	1167	1182
Lime	1182	1195
Blue shale	1195	1208
Black shale	1208	1215
Lime	1215	1235
Shale	1235	1245
Lime	1245	1247
Dark shale	1247	1283
Sand	1283	1302
Hole making 7 BW		
Shale	1302	1352
Sandy shale Set 8¼	1352	1360
Shale	1360	1378
Sand HFW @ 1378	1378	1455
Sandy shale	1455	1475
Shale	1475	1505
Sandy shale	1505	1515
Shale, broken lime	1515	
Correction	1515 =	1528
Sand B SLM 1510	1507	1518
Sand B	1518	1525
Shale	1525	1540
Black shale	1540	1571
Sandy blue shale	1571	1590
Black shale	1590	1600
Hard sand	1600	
Shale, black	1600	1630
Sand	1630	1640
Shale	1640	1666
Shale, black	1666	1709
Shale	1709	1720
Sand - lime	1720	1725
Water sand HFW	1725	1730
Water sand	1730	1740
Lime Miss H, water to 1758	1740	1755
Lime	1755	1800
Lime	1800	1885
Lime	1885	1900
Miss Lime H	1999	1909
Lime S	1909	1925
Lime, hard and sharp	1925	1938
Miss. lime	1938	1960
Miss. lime	48	2008
Miss. lime H	7	2015
Lime S brake	26	2041
Shale TH	2041	2064
Shale S	2064	2072
Red shale	2078	2082
Shale blue	2082	2100
Red rock	2100	2106
Broken lime	2106	2115
Red rock	2106	2112
Break lime, shale dark blue	2112	2115
Lime	2115	2118
Lime H	2118	2120 to 2124
Shale		2125
Top of Hunton 2124, Skelly top 2145 corrected elevation from Skelly well 48 lower shot in to mast and measured to flow. Steel line 2119 was 2118, reduced hole 2131.		
Red shale		2131
Shale		2145
Shale - chalk		2169
Lime So much water in hole		2171
Lime hard it is hard to get cuttings		
No log (lime acc. to driller)	2171	2195

Bob reports this well 48' lower than Skelly but guessed at distance of Skelly DF above ground 1154 - 48 = 1106. It is probable that the original elevation run by line = 1104.58 is correct - FCG

Top of Hunton 2145 (Bill Earl acc. to Miller)

E Kennard
W Adams

O D Jones
H W Sutter

27-F-30

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES - ROLLA, MO.

COUNTY Holt

LOG NUMBER

COMPANY OR OWNER Miller Hall

FARM John H Simpson WELL NO.

LOCATION C NE SW SEC. 32 T. 60 R. 37

CONTRACTOR Harvey Harper

DRILLER TOOL DR.

COMMENCED 9/16/43 COMPLETED

PRODUCTION PLOTTED

CASING RECORD 12 1/2" 58' 36' pulled 10" 97' 8" 1302' 8" OK

WATER RECORD

SOURCE OF LOG Drillers daily sheets

REMARKS

ELEV. ~~1124.5~~ 1104.5

TOTAL DEPTH

CHEM. ANAL. NO.

FORMATION	THICK	DEPTH	FORMATION	THICK	DEPTH
Yellow clay	0	5	Lime	240	262
"	5	40	Shale	262	271
	40	65	Lime	271	273
Clay	65	97½	Shale	273	294
Lime	97½		Lime	294	297
(Bit Sag to 105)			Shale	297	312
			Lime	312	327
Shale	97½	115	Shale	327	330
Lime	115	125	Lime	330	365
Shale	125	140	Red Rock	365	372
Lime	140	144	Shale blue	372	391
Shale	144	146	Lime	391	415
Lime	146	155	Blue shale	415	441
Shale	155	176	Sandy shale	441	470
Lime	176	178	Break	470	474
Shale	178	240	Sandy shale	474	482
			Shale	482	510

water @480

Shale black 510-516
Shale blue 516 540
Shale brown 540 568
Bit 12 1/2 58# @ 568
200' in hole

Lime hard 568 580
Shale blue 580 590
Lime 590 615
Shale 615 620
Lime 620 -
Shale blue 620 631
Lime 631 655
Shale blue 655 662
Lime 662 675

678 696
Lime 696 703
Lime & shale 703 727
Lime 727 751
Shale 751 778
Lime 778 800
Lime 800 805
Shale 805 828
Lime 828 839
Shale 839 848
Lime 848 858
Lime 858 880
Shale 880 900
Water 2 BPH
(enough to drill with) 900 905
Lime 905 912
Shale 912 918
Lime & shale 918 954
Shale 954 957
Lime 957 971
Shale 971 975
Lime 975

9/30/43 Hole caving bad
shut down to straighten
Ream & set 12 1/2 Reamer

Lime 975 983
Red rock 983 998
Lime 998 1004
Shale 1004 1015
Lime 1015 1020
Shale 1020 1027
Lime 1027 1038
Shale 1038 1052
Shale 1052 1072
Lime 1072 1080
Shale 1080 1160
Lime 1160 1167
Shale 1167 1182
Lime 1182 1195
1 Brown shale 1195 1208
3 Black shale 1208 1215
Blacking hole —
Lime 1215 1235
Shale 1235 1245
Lime 1245 1247
Dark shale 1247 1283
Sand 1283 1302
Hole making 7 B 7 W
(cut 84 at 1 with UR)
Shale 1302 1340
Shale 1340 1352
Sandy shale 1352 1360
Shale 1360 1378
Sand 1378 1455 HF W
Sandy shale 1455 1475 @ 1378
Shale 1475 1480
Shale 1480 1485
Shale 1485 1500
Shale 1500 1505
Sandy shale 1505 1515

10/29/43

Cont.

27-F-30

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES - ROLLA, MO.

COUNTY _____ LOG NUMBER _____

COMPANY OR OWNER Miller

FARM Simpson WELL NO. _____

LOCATION _____ SEC. _____ T. _____ R. _____

CONTRACTOR _____

DRILLER _____ TOOL DR. _____

COMMENCED _____ COMPLETED _____

PRODUCTION _____ PLOTTED _____

CASING RECORD _____

WATER RECORD _____

SOURCE OF LOG _____ ELEV. _____

REMARKS _____ TOTAL DEPTH _____

CHEM. ANAL. NO. _____

FORMATION	THICK.	DEPTH	FORMATION	THICK.	DEPTH	
Shale broken lime	1515		Shale	1709	1720	
Correction	1515	1528	Sand - lime	1720	1725	sand
Sand B	1507	1518	Water sand	1725	1730	HFW 11/17
SL 1510			" "	1730	1740	
Sand B	1518	1525	Lime Miss lt	1740	1755	Water to 1758
Shale	1525	1540	Lime	1755	1765	
Black shale	1540	1571	Lime	1765	1782	
Sandy Bl shale	1571	1590	"	1782	1792	
Black shale	1590	1600	Miss Lime	1792	1800	11/16 sand
Hard sand	1600		Sm 3/43			
Shale black	1600	1615	Lime	1800	1810	
Shale black	1615	1630	"		1827	
Sand	1630	1640	"		1845	
(Shale acc to driller not in log)	1640	1650	Miss 5 "		1859	
Shale	1650	1666	"		1871	11/20
Shale black	1666	1709	"		1885	11/20
			"		1893	
			"		1900	
			Miss Lime lt		1909	
			Lime S		1925	
			Lime hard & sharp		1938	

Lime		1938		
"	"	1960	1970	11/24
"	"	1990	" "	
"	"	2008		
"	"	2015		
"	lt	2041		Sent
Lime	S. Shale		11/27/43	2055
Shale		2064	T lt	
"	S	2072		
Red shale		2078 to 2082		
Shale blue		2082 to 2100		
Red rock		2100 to 2106		
Broken lime		2106 to 2115		
Red rock		~~2106 to 2112~~		reduced of sample
Break lime		2112 to 2115		Shale dark blue
Lime		2115 to 2118		and fossiferous from 2115
Lime	lt	2118 to 2120 to 2124		
Shale		2125		

Top of Hunton 2129
Shelby top 2145
corrected elevation from
Shelby used 48 hour
Shot in to mast and
measured to floor
Steel line 2119 - was 2118
Reduced hole at 2131

Red shale	2137	Reduced hole	
Shale	2145		
Shale - chalk	2169		Sent
Lime	2171		
Lime	lt	2171 2189	12/1/43
Natog Lime	2195	12/1/43	

Top of Hunton 2145 Bill Ford
[illegible]

2145
1105
2040

November 19, 1943

Mr. F. C. (Bob) Miller
Mound City, Missouri

~~Dear Mr. Miller:~~

I am enclosing herewith a copy of our graphic log of your well in Holt County to a depth of 1800 feet.

In comparing the log of this well with that of the Skelly Oil Company well one-half mile southeast, it appears that essentially the same section has been drilled. I have tentatively drawn the contact between the Ste. Genevieve and St. Louis limestones at 1780 feet. This contact is not a particularly good one for measuring sections and it may be that a better correlation can be obtained when the top of the Spergen dolomite is reached. This dolomite was reached at a depth of approximately 1814 feet in the Skelly well.

As additional samples are received from your well I will send you that portion of the log which may be pasted onto the log enclosed herewith.

Very truly yours,

John Grohskopf
Geologist

JG/mh
encl.
cc: F. C. Greene

November 22, 1943

Mr. F. C. (Bob) Miller
Mound City, Missouri

Dear Mr. Miller:

Enclosed herewith is a copy of our log of your Simpson well in Holt County covering the interval from 1799 to 1885 feet.

Very truly yours,

John Grohskopf
Geologist

JG/mh
encl.
cc: F. C. Greene

November 27, 1943

Mr. F. C. (Bob) Miller
Mound City, Missouri

Dear Mr. Miller:

Enclosed herewith is a copy of our graphic log of your Simpson well in Holt County covering the interval from 1885 to 1970 feet.

Very truly yours,

John Grohskopf
Geologist

JG/mh
encl.
cc: F. C. Greene

December 3, 1943

Mr. F. C. (Bob) Miller
Mound City, Missouri

Dear Mr. Miller:

I am enclosing herewith the graphic log of your well in Holt County covering the interval from 1970 to 2055 feet.

The delay in submitting this portion of the log has been caused by my absence from the office for the past several days.

As additional samples are received we will submit the log to you as quickly as possible.

Cordially yours,

John Grohskopf
Geologist

JG/mh
encl.
cc: F. C. Greene

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: Holt
Owner: Miller et al Simpson #1
Location: NE SW Sec. 32, T. 60, R. 37
Source: Drilling well 710 ft.
Analysis No.: 3623 Total Depth _____ and No. _____
Date Analyzed: 4-23-44
Analyst: R. T. Rolufs
Collector: F. C. Greene, 10-2-43

CONSTITUENTS:	IN PARTS PER MILLION
Turbidity	Turbid - Dark Ppt.
Color	None
Odor	None
Total Suspended Solids	ND
Total Dissolved Solids	8978.0
Loss on Ignition	132.0
Chloride Radicle (Cl)	4029.6
Nitrate Radicle (NO_3)	ND
Sulphate (SO_4)	631.4
Bi-Carbonate Radicle (HCO_3)	338.5
Carbonate Radicle (CO_3)	00
Sodium (Na) Potassium (K) as Na	2677.8
Magnesium (Mg)	80.7
Iron (Fe)	ND
Manganese (Mn)	ND
Silica (SiO_2) Insoluble	16.2
Calcium (Ca)	150.5
Total Hardness	575.1
Carbonate Hardness	277.6
Alkalinity	277.6
Precipitated Iron (Pp't. Fe.)	ND
Temporary Hardness	ND
Al_2O_3 & Fe_2O_3	0.6

Remarks: Water in hole when casing set at 568 ft.

Copies to: F. C. Greene

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: Holt
Owner: Miller et al Simpson #1
Location: NE SW Sec. 32, T. 60, R. 37
Source: Drilling well 880-900 - base of Kansas City
Analysis No.: 3824 Total Depth _____ and No. _____
Date Analyzed: 4-23-44
Analyst: R. T. Rolufs
Collector: F. C. Greene 10-2-43

CONSTITUENTS:	IN PARTS PER MILLION
Turbidity	Turbid - Grayish Ppt.
Color	None
Odor	None
Total Suspended Solids	ND
Total Dissolved Solids	25361.0
Loss on Ignition	719.0
Chloride Radicle (Cl)	12848.0
Nitrate Radicle (NO_3)	ND
Sulphate (SO_4)	217.9
Bi-Carbonate Radicle (HCO_3)	175.9
Carbonate Radicle (CO_3)	00
Sodium (Na) Potassium (K) as Na	8468.0
Magnesium (Mg)	191.5
Iron (Fe)	ND
Manganese (Mn)	ND
Silica (SiO_2) Insoluble	5.2
Calcium (Ca)	366.0
Total Hardness	1675.2
Carbonate Hardness	144.2
Alkalinity	144.2
Precipitated Iron (Ppt. Fe.)	ND
Temporary Hardness	ND
Al_2O_3 & Fe_2O_3	4.0

Remarks:

Copies to: F. C. Greene

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: Holt
Owner: F. C. (Bob) Miller et al #1 Simpson
Location: Center NE SW Sec. 32, T. 60, R. 37
Source: Drilling well 1288-1302 Lower Cherokee
Analysis No.: 3620 Total Depth _____ and No. _____
Date Analyzed: 4-23-44
Analyst: R. T. Rolufs
Collector: F. C. Greene 10-10-43

CONSTITUENTS:	IN PARTS PER MILLION
Turbidity	Turbid - Dark Ppt.
Color	None
Odor	None
Total Suspended Solids	ND
Total Dissolved Solids	18099.0
Loss on Ignition	291.0
Chloride Radicle (Cl)	9358.6
Nitrate Radicle (NO_3)	ND
Sulphate (SO_4)	14.8
Bi-Carbonate Radicle (HCO_3)	228.1
Carbonate Radicle (CO_3)	00
Sodium (Na) Potassium (K) as Na	5994.6
Magnesium (Mg)	93.0
Iron (Fe)	ND
Manganese (Mn)	ND
Silica (SiO_2) Insoluble	6.0
Calcium (Ca)	235.8
Total Hardness	966.8
Carbonate Hardness	187.0
Alkalinity	187.0
Precipitated Iron (Ppt. Fe.)	ND
Temporary Hardness	ND
Al_2O_3 + Fe_2O_3	2.4

Remarks:

Copies to: F. C. Greene

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: Polk
Owner: Miller et al Simpson #1
Location: Center NE SW Sec. 32, T. 60, R. 27
Source: Lower Cherokee sand 1378-1455 ft.
Analysis No.: 5626 Total Depth _____ and No. _____
Date Analyzed: 4-23-44
Analyst: R. T. Rolufs
Collector: F. C. Greene 10-25-43

CONSTITUENTS:	IN PARTS PER MILLION
Turbidity	Turbid - Dark Gray Ppt.
Color	None
Odor	None
Total Suspended Solids	ND
Total Dissolved Solids	15414.0
Loss on Ignition	524.0
Chloride Radicle (Cl)	8152.2
Nitrate Radicle (NO_3)	ND
Sulphate (SO_4)	11.9
Bi-Carbonate Radicle (HCO_3)	257.9
Carbonate Radicle (CO_3)	00
Sodium (Na) Potassium (K) as Na	4720.1
Magnesium (Mg)	77.9
Iron (Fe)	ND
Manganese (Mn)	ND
Silica (SiO_2) Insoluble	6.4
Calcium (Ca)	163.9
Total Hardness	741.6
Carbonate Hardness	211.5
Alkalinity	211.5
Precipitated Iron (Ppt. Fe.)	ND
Temporary Hardness	ND
Al_2O_3 + Fe_2O_3	1.2

Remarks:

Copies to: F. C. Greene

27-F-29

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: Holt
Owner: Miller et al Simpson #1
Location: Center NE SW Sec. 32, T. 60, R. 37
Source: Well
Analysis No.: 3685 Total Depth 2195 and No. _____
Date Analyzed: 4-23-44
Analyst: R. T. Rolufs
Collector: F. C. Greene 12-2-43

CONSTITUENTS:	IN PARTS PER MILLION
Turbidity	Turbid - Bailer Sample
Color	None
Odor	None
Total Suspended Solids	ND
Total Dissolved Solids	2518.0
Loss on Ignition	46.0
Chloride Radicle (Cl)	671.6
Nitrate Radicle (NO_3)	ND
Sulphate (SO_4)	447.3
Bi-Carbonate Radicle (HCO_3)	668.0
Carbonate Radicle (CO_3)	2.9
Sodium (Na) Potassium (K) as Na	841.9
Magnesium (Mg)	16.1
Iron (Fe)	ND
Manganese (Mn)	ND
Silica (SiO_2) Insoluble	22.4
Calcium (Ca)	29.3
Total Hardness	147.5
Carbonate Hardness	147.5
Alkalinity	550.2
Precipitated Iron (Ppt. Fe.)	ND
Temporary Hardness	ND
Al_2O_3 + Fe_2O_3	6.0

Remarks: Bailed from bottom of hole before abandoning well at T.D.

Copies to: F. C. Greene