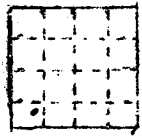
county DeKalb



sec 11 twp 57 rge 31

owner Moore, G.W. et al

elev 1011 MGS# ~~[illegible]~~ 6436 ~~rge~~ ~~drillers~~ sample log

farm McQuate, C.A. No. 1 TD ~~[illegible]~~ 1490 fm TD Devonian shows trace of oil *

status _____ date completed _____

remarks: ~~*~~1 driller

00023

~~8~~ ~~00001~~

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 Geo. W. Moore, *et al* No. 1 C. A. McQuate. Location: 900 feet north and 1000 feet east of southwest corner of sec. 11, T. 57 N., R. 31 W., DeKalb County, Missouri, near Osborn. Elevation (of derrick floor), 1011 feet (P.T.). Commenced, 3-30-1939, and completed, June 1939. Total depth, 1490 feet. Dry and abandoned. Drilled with cable tools. Casing record: 16 inch set at 70 feet; 12 1/2 inch at 191 feet; 10 inch at 747 feet; and 8 1/4 inch at 1223 feet. Contractor: Barnes Bros., Independence, Kansas.

FORMATIONAL SUMMARY

	Thickness, feet	*Depth, feet*
Pleistocene and Recent Series:		
Surface and glacial drift	70	70
Pennsylvanian system:		
Lansing group	115	185
Kansas City group	180	365
Pleasanton group	115	480
Henrietta group	95	575
Cherokee group	475	1050
Mississippian system:		
St. Louis formation	15	1065
Spergen-Upper Warsaw formations	35	1100
Warsaw formation	60	1160
Keokuk-Burlington formations	105	1265
Chouteau formation	74	1339
Kinderhook shale	31	1370
Devonian system	120	1490, T.D.

NOTE: Sand was logged from 1029-1053 feet and was found in the cuttings. Miss Mary Hundhausen of the Missouri Geological Survey considered this as possibly of Ste. Genevieve (Mississippian) age.

WATER ANALYSES

Horizon	*T.D.S.*	Parts per million *Cl.*	*SO_4*	*Na-K as Na*
Basal Kansas City at 322-327 ft.	3405.0	1527.1	11.9	1321.6
Basal Kansas City, 348-350 ft.	3819.0	1854.4	3.5	1514.6
Mississippian, 1029-1033 ft.	6931.0	3051.7	925.1	2464.7
Mississippian, 1235-1265 ft.	5859.0	2334.8	1214.3	1915.9

SAMPLE LOG

	Thickness, feet	*Depth, feet*
No samples	22	22
Pleistocene series:		
Glacial drift:		
Sand, angular, polished, arkosic with pebbles of igneous, sedimentary and metamorphic rocks and some tan silt and clay	48	70
Pennsylvanian system:		
Lansing group:		
Limestone, tan, fine-grained, argillaceous. Residue, 10 percent or less, of pyrite, green shale and a trace of white chert	10	80
Shale and limestone: shale, black and gray with tan, fossiliferous limestone fragments. Residue contains some porous fossiliferous chert and silicified worm casts	10	90
Limestone (Plattsburg), tan, dense, argillaceous, fossiliferous. Residue, about 25 percent, of soft, tripolitic, dark fossiliferous chert and silicified crinoids and fusulinids	20	110
Shale, gray with fine-grained sand, mica, plant remains and some limestone fragments	20	130
Shale, gray with some siderite concretions	5	135
Shale, gray with calcareous fossil fragments. Some silicified tubes occur at 140 feet	15	150
Sand, medium-grained, angular, micaceous with calcareous cementing agent	16	166
Shale, gray, sandy with some limestone fragments	4	170
Shale, gray, sandy with plant remains	15	185
Kansas City group:		
Limestone and shale: limestone, tan, fossiliferous, interbedded with gray shale. Residue, 20 percent, of gray shale, pyrite and silicified tubes	5	190
Limestone, gray, argillaceous, fossiliferous. Shale and limestone occur between 195-200 feet. Residue, 10 to 15 percent, of porous, white chert, gray shale and silicified spines and tubes	16	206
Shale, black and gray with calcareous fossils	14	220
Shale, gray with calcareous fossils	15	235
Shale, red	2	237
Limestone, gray, earthy, fossiliferous. Residue, 10 percent or less, of silicified tubes and spines	8	245
Limestone and shale: limestone, highly fossiliferous; and shale, gray. Residue contains pyritized fossil fragments	10	255
Limestone, gray and white, dense to crystalline, fossiliferous. Residue, 10 percent or less, of silicified fusulinids, spines and tubes	20	275
Shale and limestone: shale, gray with limestone, as above. Residue, about 10 percent, of gray shale and silicified fossil fragments	5	280

	Thickness, feet	Depth, feet
Shale, gray	9	289
Limestone (Winterset), white and light gray, sparingly fossiliferous, somewhat cherty. Residue, 10 to 20 percent, of white to light gray, fossiliferous chert with some quartz and pyrite	32	321
Shale, black, carbonaceous, slaty	4	325
Limestone (Bethany Falls), light tan, dense to sublithographic, non-fossiliferous. Contains some green shale partings. Residue, 10 percent or less, of kaolin, chalcedony rosettes, pyrite and green shale	23	348
Shale, black, platy, carbonaceous	2	350
Limestone (Hertha), light gray, dense, sparingly fossiliferous. Residue, 10 to 15 percent, of gray, tripolitic, fossiliferous chert	15	365
Pleasanton group:		
Shale, gray with some mica flakes and some fragments of gray, nodular limestone	5	370
Shale, gray, sandy, with nodules of brown and gray limestone	9	379
Shale, red	2	381
Shale, gray, sandy with limestone and siderite concretions	14	395
Shale, gray with plant remains and some mica. Pyritized shells occur toward the base	43	438
Shale and limestone: shale with fine silty sand and calcareous fossils	7	445
Shale, red	6	451
Sand, fine-grained, angular with calcareous cement and limestone fragments	16	467
Shale, gray	13	480
Henrietta group:		
NOTE: The Pleasanton-Henrietta contact is tentative.		
Limestone and shale: limestone, gray and tan, dense, argillaceous; and shale, gray	15	495
Shale, gray with sand aggregates and plant remains	19	514
Shale, black with some dark fossiliferous limestone and kaolin	2	516
Limestone, white and light gray, highly fossiliferous. Residue, 10 to 15 percent, of gray shale, chalcedony, and silicified and kaolinized fossil fragments	10	526
Sand, angular, medium-grained, micaceous with some limestone fragments	9	535
Shale and limestone: shale, gray, sandy with plant remains and mica. The residue contains silicified foraminifera and spines	2	537
Shale, black, carbonaceous with brown, crystalline limestone and dolomitic limestone	10	547
Limestone, dark gray, argillaceous, highly fossiliferous with some brachiopod shell fragments. Residue, 20 percent, of gray shale and pyrite	3	550
Limestone and shale: limestone, gray and tan, fossiliferous with gray shale. Residue contains some fossil fragments replaced by kaolin	12	562
No samples	4	566
Limestone and shale: limestone, fossiliferous and in part, dolomitic. Residue, 40 percent, of gray and black shale with some fossil fragments replaced by kaolin	9	575

Cherokee group:		
Shale, green, soft	5	580
Shale, gray with siderite concretions	5	585
Sand and shale: sand, medium-grained, angular with much gray shale and concretions of limestone and siderite. Some red shale occurs at 593 feet	15	600
Shale, gray, sandy, micaceous with plant remains and siderite concretions. Thin beds of bituminous coal occur between 625-630 feet and 635-640 feet	48	648
No samples	5	653
Shale, dark gray to black	5	658
Limestone, shale, and impure coal: limestone, tan, argillaceous, sparingly fossiliferous with gray and black shale and a trace of carbonized wood or impure coal	7	665
Limestone, tan, crystalline, argillaceous, fossiliferous. Residue, 30 percent, of soft gray shale	5	670
Shale, gray with some limestone fragments	3	673
Limestone, gray, argillaceous with some fossil brachiopods and crinoids. Residue, 20 percent, of gray shale and silicified and kaolinized spines, crinoids and other fossil fragments	3	676
Shale, gray and black, carbonaceous	6	682
Shale, gray, sandy, micaceous	8	690
Shale, gray and red	5	695
Shale, gray and black with siderite and limestone nodules. Some green shale occurs at 710 feet	25	720
Shale, gray	10	730
Shale, gray, sandy, somewhat calcareous	5	735
Shale, gray with some black shale below 743 feet	12	747
Sand, medium coarse, angular grains with much concretionary siderite	8	755
Shale, gray, sandy, micaceous with plant remains. Siderite spherulites are abundant above 765 feet	32	787
Sand, coarse, angular, arkosic, becoming shaly and containing siderite spherulites below 795 feet	23	810
Shale, black with a thin coal bed at the base	30	840
Shale, gray, sandy with some siderite concretions	10	850
Shale, gray and black with thin coal beds at 860-876 feet	28	878
Sand, medium fine-grained, angular, micaceous. Some shale occurs between 882-890 feet	22	900
Sand, as above, with black shale	10	910
Shale, black and gray with spherulites and concretions of siderite	60	970
Shale, gray to green, sandy with siderite concretions	7	977
Coal, bituminous with gray shale, sand and siderite	3	980
Shale, gray with siderite concretions. Somewhat sandy at 1010 feet	40	1020
Shale, black and gray with siderite concretions	9	1029
Sand, medium coarse, angular, regenerated grains with some weathered quartzose chert fragments	21	1050
Mississippian system:		
St. Louis formation:		
Limestone, gray, dense to lithographic. Residue, 10 to 15 percent, of quartzose chert, quartz rosettes and sand grains	15	1065
Spergen-Upper Warsaw formations:		
Limestone, highly fossiliferous with many small fossils including *Endothyra*, small bryozoans, and crinoids. Gray to green shale occurs with the limestone from 1080-1085 feet, and some glauconite at 1100 feet. Residue, 25 to 30 percent, of red chalcedonic chert, pyrite and crinoids and other fossil fragments	35	1100

	Thickness, feet	Depth, feet
Warsaw formation:		
Limestone, gray and white, coarsely crystalline, crinoidal, cherty. A bed of tan to white, finely crystalline dolomite occurs between 1112-1118 feet, and some glauconite occurs toward the base. Residue, 25 to 40 percent, of white and gray, fossiliferous chert with bryozoans and crinoids	60	1160
Keokuk-Burlington formations:		
Limestone, white, coarsely crystalline, crinoidal, cherty. Residue, 40 percent, of dense and rough, white, crinoidal chert with quartz lined cavities	37	1197
Limestone white, crystalline, crinoidal. Residue, 10 percent, of chalcedonic chert and rough, white, fossiliferous chert	10	1207
Limestone, white, coarsely crystalline, cherty, crinoidal. Residue, 40 percent, of white, dense, flaky, subtranslucent chert with some glauconite	21	1228
Dolomite, white, fine-grained crystalline, cherty. Residue, 80 to 50 percent (decreasing with depth), of white, dense, translucent chert with some quartz	27	1255
Dolomite, white, fine-grained, crystalline. Residue, 15 to 20 percent, of white, translucent chert with some quartz	10	1265
Chouteau formation:		
Dolomitic limestone, dark gray, fine-grained crystalline, very argillaceous, cherty. Residue, 40 percent, decreasing to 10 percent at 1300 feet, of gray, dense to porous chert with some quartz and pyrite	39	1304
Limestone, gray, fine-grained to dense and sub-lithographic, earthy, fossiliferous. Residue, small, 10 percent or less, of brown porous shale, quartzose cherts and pyrite	35	1339
Kinderhook shale (undifferentiated):		
Sandstone, very fine-grained, approaching a siltstone in texture, argillaceous	9	1348
Shale, red with hematite oolites. Oolites, discoidal, made up of thin leaves of hematite	3	1351
Shale, red and green. Contains some possible plant remains and large black spores (?)	19	1370
Devonian system:		
Limestone, cream, finely crystalline. Residue, less than 10 percent, of pyrite, white chert and some shale	15	1385
Limestone, cream-brown, granular and finely crystalline, fossiliferous. Some glauconite occurs at 1395 feet. Residue, less than 10 percent, of sand, pyrite and quartzose, chalcedonic chert	15	1400
Limestone, gray-white, dense with some gray, granular dolomite. Residue, less than 10 percent, of sand, pyrite and coralline chert	10	1410
Limestone, cream-gray, dense. Residue, less than 10 percent, of pyrite, translucent white chert and shale	20	1430
Limestone, gray, dense to lithographic. Residue, a trace of gray shale	5	1435
Limestone, cream-gray, finely crystalline and dense. Residue, a trace of gray shale	20	1455
Dolomite, light gray, dense. Residue, less than 10 percent, of translucent and coralline chert and brown shale	5	1460
Limestone, white, crystalline and granular. Residue, less than 10 percent, of coralline chert and dense, white chert	30	1490, T.D.

No 3/ National

27-F-30

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES - ROLLA, MO.

COUNTY DeKalb LOG NUMBER

COMPANY OR OWNER George W. Moore et al

FARM C.A. McQuate WELL NO. 1

LOCATION Nwc SW SW SEC. 11 T. 57 R. 31

CONTRACTOR Barnes Bros (Independence Kans)

DRILLER Elmo Chambers TOOL DR.

COMMENCED 3/30/39 COMPLETED

PRODUCTION PLOTTED

CASING RECORD 10" 747

WATER RECORD

SOURCE OF DDG Drillers original

REMARKS

ELEV. 1007 L-S (1010.18 [illegible]

TOTAL DEPTH 1000'E of SW cor

CHEM. ANAL. NO. 900'N

FORMATION	THICK	DEPTH	FORMATION	THICK	DEPTH
Soil black soft	0	9			
Clay yellow soft	9	30			
Sand clay yellow soft	30	35	water at 35		
Sand & gravel	35	60			
Shale blue soft	60	70	Run 69-3 of 16" set at 70'		
Lime light gray hard	70	82	casing did not shut off water		
Shale blue hard	82	87	Hole full water		
Lime dark gray very hard	87	89	do		
Shale dark soft	89	91	do		
Shale light soft	91	92	do		
Lime light firm	92	94	do		
Lime dark gray hard	94	107	do		
Shale blue soft	107	112	do		
Shale gray firm	112	129	do		
Shale red soft	129	131	do		
Shale green soft	131	139	do		
Lime gray hard	139	140	do		
Slate gray soft	140	142	do		
Sand & gravel soft	142	144	more water dont know how much		
Shale green soft	144	157			
Sandy lime gray firm	157	164			
Shale green soft	164	166			
Lime gray hard	166	170			
Shale green soft	170	187			
Sand fossil soft	187	188			
Sand-lime firm	188	190			
Lime gray hard	190	202	Run 12½ csg 191 (dr 200 4/21		
Shale dark soft	202	204	rig floor on fire		
Lime gray firm	204	210			
Shale dark	210	215			
Lime gray hard	215	216			

Shale light soft	216	220
Lime gray firm	220	226
Shale light soft	226	239
Lime gray firm	239	249
Shale light soft	249	257
Lime gray hard	257	266
Shale light soft	266	268
Lime gray firm	268	272
Shale dark soft	272	276
Lime gray firm	276	280
Shale dark soft	280	289
Lime gray hard	289	322
Shale dark soft	322	
Shale black soft		327
Lime white hard	327	348
Shale dark & black soft	348	350
Lime light gray firm	350	351
Shale gray soft	351	353
Lime gray firm	353	358
Lime gray very hard	358	367
Shale green soft	367	372
Lime gray firm	372	375
Shale green	375	378
Red bed	378	381
Sand	381	383
Shale green	383	392
Red bed red	392	393
Lime gray	393	394
Shale green	394	397
Sandy lime gray firm	397	398
Shale green soft	398	440
Sandy lime gray firm	440	442
Lime gray hard	442	446
Shale green soft	446	448
Shale green soft & red bed	448	451
Shale & lime gray green soft	451	455
Lime shale firm	455	460
Shale green & red bed	460	483
Lime gray hard	483	485
Shale	485	502
Lime soft	502	511
Shale dark soft	511	516
Shale & lime gray soft	516	520
Lime gray hard	520	530
Lime dark gray firm	530	535
Shale dark soft	535	537
Lime gray & dark shale soft	537	547
Lime & shale green	547	550
Shale green	550	555
Lime gray & dark shale	555	560
Shale green soft	560	570
Lime gray hard	570	573
Shale green soft	573	578
Lime gray hard	578	581
Sandy shale green soft	581	583
little water		
1/2 & w/ hr little salty		
Lime gray hard	583	584
Shale & flint	584	593
Green shale & gray lime 560 640 soft	593	595
Shale green & gray lime	595	622
Shale dark gray	622	634
Black shale & dark gray lime soft	634	639
Shale & lime gray	639	676
Black shale & lime		
black & gray soft	676	712
Lime gray firm	712	720
Shale green soft	720	730
green shale & gray lime soft	730	740
Lime gray hard	740	743
green shale & gray lime soft	743	747

Delta-J 109

10 1
3 1
6 4

Mr C H

R. R. Morris

cc: fog

27-F-30

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES - ROLLA, MO.

COUNTY DeKalb LOG NUMBER 6436

COMPANY OR OWNER Geo. W. Moore et al

FARM C. A. McQuate WELL NO. 1

LOCATION NE SW SW SEC. 11 T. 57 R. 31W

CONTRACTOR

DRILLER TOOL DR.

COMMENCED 1939 COMPLETED 1940

PRODUCTION PLOTTED Yes

CASING RECORD

WATER RECORD

SOURCE OF LOG 302 samples

REMARKS 1000 ft. E & 900 ft. N of SW corner

ELEV. 1010.68 (P.T.)

TOTAL DEPTH 1490

CHEM. ANAL. NO.

					11		
	x						

FORMATION	THICK	DEPTH	FORMATION	THICK ?	DEPTH
Glacial Drift	70	70			
Lansing	115	185			
Kansas City	~~180~~ 182	365 67	1011		
Pleasanton	~~115~~ 113	480	367		
Henrietta	95	575	644	1050	
Cherokee	454	1029		367	
Ste. Genevieve	21	1050		683	
St. Louis	15	1065	1050		
Spergen ?	35	1100	1011		
Warsaw	60	1160	39		
Keokuk-Burlington	105	1265			1339
Chouteau	74	1339			1029
Kinderhook	31	1370			310
Devonian	120	1490	1339		
			1011		
			328		

MISSOURI GEOLOGICAL SURVEY
ROLLA, MISSOURI
May 9, 1939

1011
367
634

Mr. John Reynolds
General Delivery
Osborn, Missouri

Dear John:

Enclosed is a copy of our graphic log of your McQuate well to a total depth of 448 feet. I hope that you have picked up the remainder of this log, also the other data which have been sent to you at Princeton.

Very truly yours,

OWR

McQ/mh
encl.

cc: Frank C. Greene

Samples checking drillers log very accurately

MISSOURI GEOLOGICAL SURVEY
ROLLA, MISSOURI

May 17, 1939

Mr. John Reynolds
General Delivery
Osborn, Missouri

Dear Mr. Reynolds:

Enclosed please find a copy of our graphic log of your McQuate well covering the interval from 560 to 695 feet. This may be attached to that portion of the log previously sent you. As additional samples are received we will send you a copy of our log.

The surface elevation of the well is 1010.68 feet by plane table.

Very truly yours,

John Grohskopf

John Grohskopf
Geologist

JG/mh
cc: Frank C. Greene

Frank, we only have drillers log to 676 feet.

John

MISSOURI GEOLOGICAL SURVEY
ROLLA, MISSOURI

May 20, 1939

Mr. John Reynolds
General Delivery
Osborn, Missouri

Dear Mr. Reynolds:

Enclosed please find a copy of our graphic log of your McQuate well covering the interval from 695 to 747 feet.

Very truly yours,

John Grohskopf

John Grohskopf
Geologist

JG/mh
encl.
cc; Frank C. Greene

Frank, I am sending your copy from the surface to 747 feet rolled under separate cover.

John

MISSOURI GEOLOGICAL SURVEY
ROLLA, MISSOURI

June 13, 1939

Mr. H. H. Utley
Baxter Springs,
Kansas

Dear Mr. Utley:

Samples have been received to a depth of 1125 feet from the McQuate well in DeKalb County.

As a result of our examination of the samples we have prepared a plotted or graphic log, a copy of which I am sending to you under separate cover. As additional samples are received from this test we will plot them on similar paper and send them to you for pasting onto the log being sent.

From depth 1027 to 1050 feet a sandstone which is calcareous and slightly cherty occurs. We tentatively correlate this sandstone as Ste. Genevieve which is Mississippian in age. Below 1050 to 1065 feet the St. Louis limestone was drilled. From 1065 to 1125 feet the well is in the Warsaw formation.

Very truly yours,

John Grohskopf

John Grohskopf
Geologist

JG/mh
cc: John Reynolds
Frank C. Greene

P.S. A comparison of the well at this time with other wells in this general area would indicate that if the normal Mississippian section prevails the base of the Mississippi limestone will be encountered at a depth of approximately 1340 feet.

MISSOURI GEOLOGICAL SURVEY
ROLLA, MISSOURI

June 15, 1939

Mr. John Reynolds
General Delivery
Osborn, Missouri

Dear Mr. Reynolds:

Under separate cover I am sending to you a copy of our graphic log of the McQuate well in DeKalb County covering the interval from 750 to 1125 feet.

A sand stone was drilled from 1029 to 1050 feet. This sand was slightly calcareous and cherty and we correlate it as Ste. Genevieve of Mississippian age. The St. Louis limestone was drilled from 1050 to 1065 feet and the Warsaw from 1065 to 1125 feet.

As additional samples are received I will send you portions of the log which may be pasted onto the log being sent.

In comparing this well with other wells in the area we estimate that the base of the Mississippian lime will be encountered at 1340 feet.

Very truly yours,

John Grohskopf

John Grohskopf
Geologist

JG/mh
cc: Frank C. Greene

Frank: Do you know anything about an announced location in 11-39-30? This was given in St Louis Post-Dispatch of June 12.

John

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES
ROLLA, MISSOURI

June 30, 1939

Mr. H. H. Utley
St. Louis Smelting & Refining Co.
Baxter Springs, Kansas.

Dear Howard:

I am herewith enclosing copy of our graphic log of your McQuate well in DeKalb County covering the interval from 1189 to 1309 feet:

The top of the Chouteau limestone was encountered at 1265 feet and the formation has an estimated thickness of from 80 to 100 feet in this area. It is underlain by the Kinderhook shale which will probably have a thickness of from 50 to 85 feet. The shale is underlain by the Devonian limestone.

Just as soon as additional samples of the cuttings are received we will send you the portions of the log they cover.

Very truly yours,

H. A. Buehler

State Geologist.

HAB/McC
cc - John Reynolds
F. C. Greene
Encl. H. S. McQueen

MISSOURI GEOLOGICAL SURVEY
ROLLA, MISSOURI

July 6, 1939

Mr. H. H. Utley
Baxter Springs,
Kansas

Dear Mr. Utley:

Enclosed please find a copy of our graphic log of your McQuate well in DeKalb County, Missouri covering the interval from 1169 to 1406 feet.

The Keokuk-Burlington formations were drilled to 1265 feet. The top of the Chouteau formation was at 1265 feet and the top of the Kinderhook shale at 1339 feet. The Kinderhook section was particularly interesting as it drilled a red shale and oolitic hematite section from 1348 to 1361 feet. This same section was encountered in the core well at Forest City, Holt County, Missouri between the depths of 1953'6" to 1957'. The top of the Devonain was drilled at 1370 feet. The Devonian drilled between 1370 and 1406 feet consists of fine grained tan to white limestone; with coral and bryozoa between 1390 and 1406 feet.

Very truly yours,

Mary Hundhausen

Mary Hundhausen
Geologist

MH/mh
encl.
cc: John Reynolds
Frank C. Greene

July 21, 1939

Mr. John Reynolds
General Delivery
Osborn, Missouri

Dear John:

Chief and I were certainly sorry to miss you, but as I wrote you a few days ago I hope to see you about the time you reach the lower part of the Devonian and I hope I can be of some help to you at that time.

Unless the section in your well should become abnormally thick we would expect the dolomite, sand, and chert conglomerate zone which marks the base of the Devonian to be found around 1575 to 1625 feet. In your locality it may be followed by a thin section of Maquoketa (Sylvan) shale, or on the other hand the Maquoketa may be entirely absent and the Devonian may rest directly upon the Kimmswick (Viola) limestone. In any event this general zone from about 1575 to 1625 feet should be watched very carefully as it is a possible oil and gas producing horizon.

The middle of the Kimmswick formation is composed of very cherty dolomite which I would expect to occur in this locality from 1625 or 1650 to 1700 or 1725 feet. Below it the Lower Kimmswick dolomite will be found and it also should be drilled very carefully as it might reasonably be a productive horizon. It will probably be followed immediately by the St. Peter sand. I will watch your progress from the samples submitted by Greene and will try to be around at the proper time.

Best regards,

Sincerely yours,

McQ/mh
cc: Frank C. Greene

July 29, 1959

Mr. John Reynolds
General Delivery
Osborn, Missouri

Dear John:

Samples from your McQuate well in the interval from 1406 to 1490 feet have been examined. They consist chiefly of limestone, although a small amount of dolomite and magnesian limestone is present from 1450 to 1460 feet.

As near as I can tell at the present time, the estimate (1575-1625 feet) which I recently gave you regarding the base of the Devonian should be about correct.

I expect to be in northwest Missouri next week and will visit the rig for a further discussion of this matter. I suggest you continue to send in, by Frank Greene, the samples, and any examinations that I make while at the rig will be duplicate material which I understand you have. I will probably be around about next Thursday or Friday.

Enclosed herewith are the results of chemical analyses of a number of water samples. I am glad to note that the water is becoming more mineralized with depth.

Best regards,

Sincerely yours,

McQ/mh
encl.
cc: H. H. Utley
Frank C. Greene

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: DeKalb
Owner: George Moore, et al - McQuate #1
Location: Sec. 11, Twp. 57, R. 31
Source: Well
Analysis No.: 2927 Total Depth _____ and No. _____
Date Analyzed: 4-27-39
Analyst: R. T. Rolufs
Collector: F. C. Greene 4-11-39

CONSTITUENTS:	IN PARTS PER MILLION.	
Turbidity	Turbid - Bailer sample.	
Color	None	
Odor	None	
Total Suspended Solids	N D	
Total Dissolved Solids	916.0	RV
Loss on Ignition	184.0	
Chloride Radicle (Cl)	5.5	.16
Nitrate Radicle (NO_3)	2.82	.05
Sulphate (SO_4)	264.4	5.50
Bi-Carbonate Radicle (HCO_3)	383.0	6.28
Carbonate Radicle (CO_3)	00	
Sodium (Na) Potassium (K) as Na	64.8	2.82
Magnesium (Mg)	40.4	3.32
Iron (Fe)	.10	
Manganese (Mn)	-----	
Silica (SiO_2)	22.4	
Calcium (Ca)	117.5	5.86
Total Hardness	459.4	
Carbonate Hardness	314.1	
Alkalinity	314.1	
Precipitated Iron (Ppt. Fe.)	N D	
Temporary Hardness	262.5	
Al_2O_3	1.06	

Remarks: This sample from Glacial sand and gravel at 35 - 60 feet.

Copies to:

John Reynolds

F. C. Greene

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: De Kalb
Owner: Geo. W. Moore et al - McQuate #1
Location: NE SW SW, sec. 11, Twp. 57, R. 31
Source: Drilling well - 322-327 ft. (Galesburg shale)
Analysis No.: 2991 Total Depth _____ and No. _____
Date Analyzed: 6-20-39
Analyst: R. T. Rolufs
Collector: F. C. Greene, 5-1-39

CONSTITUENTS:	IN PARTS PER MILLION.		
Turbidity	Turbid - Bailer Sample		
Color	None		
Odor	Kerosene (from jug ?)		
Total Suspended Solids	N.D.		
Total Dissolved Solids	3405.0		RV
Loss on Ignition	148.0		
Chloride Radicle (Cl)	1527.1	-	43.06
Nitrate Radicle (NO_3)	.77	-	.01
Sulphate (SO_4)	11.9	-	.25
Bi-Carbonate Radicle (HCO_3)	799.5	-	13.11
Carbonate Radicle (CO_3)	29.2	-	.97
Sodium (Na) Potassium (K) as Na	1321.8	-	57.50
Magnesium (Mg)	5.7	-	.47
Iron (Fe)	.07		
Manganese (Mn)	-----		
Silica (SiO_2)	10.8		
Calcium (Ca)	9.0	-	.45
Total Hardness	45.9		
Carbonate Hardness	45.9		
Alkalinity	679.9		
Precipitated Iron (Pp't. Fe.)	N.D.		
Temporary Hardness	12.9		
Al_2O_3	.70		

Remarks:
Water sample from 322-327 ft. Galesburg shale
Determinations by Carpenter: Bromine - 26.1; Fluorine - 3.00, Manganese - .04

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Gen. Del.
Osborn, Mo.

H. H. Utley
Baxter Springs, Kans.

✓ F. C. Greene

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MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: De Kalb
Owner: Geo. W. Moore et al - McQuate #1
Location: NE SW SW, sec. 11, Twp. 57, R. 31
Source: Drilling well - 348-350 ft.
Analysis No.: 2992 Total Depth _____ and No. _____
Date Analyzed: 6-20-39
Analyst: R. T. Rolufs
Collector: F. C. Greene 5-4-39

CONSTITUENTS:	IN PARTS PER MILLION.		
Turbidity	Turbid - Bailer Sample		
Color	None		
Odor	None		
Total Suspended Solids	N.D.		
Total Dissolved Solids	3819.0		RV
Loss on Ignition	103.0		
Chloride Radicle (Cl)	1854.4	-	52.29
Nitrate Radicle (NO_3)	00		
Sulphate (SO_4)	3.5	-	.07
Bi-Carbonate Radicle (HCO_3)	839.1	-	13.76
Carbonate Radicle (CO_3)	25.1	-	.84
Sodium (Na) Potassium (K) as Na	1514.6	-	65.89
Magnesium (Mg)	7.1	-	.58
Iron (Fe)	.17		
Manganese (Mn)	-----		
Silica (SiO_2)	11.6		
Calcium (Ca)	11.8	-	.59
Total Hardness	58.6		
Carbonate Hardness	58.6		
Alkalinity	709.0		
Precipitated Iron (Pp't. Fe.)	N.D.		
Temporary Hardness	22.5		
Al_2O_3	.56		

Determinations by Carpenter: Bromine - 13.35; Fluorine - 5.60; Manganese - .05

Remarks:
Water sample from 348-350 ft. Bethany Falls limestone - Kansas City group.

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General Delivery
Osborn, Mo.

H. H. Utley
Baxter Springs, Kans.

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27-F-29

MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: DeKalb
Owner: Geo. W. Moore et al McQuate #1
Location: NE SW SW Sec. 11, T. 57, R. 31
Source: Drilling Well 1029-1033 ft.
Analysis No.: 8033 Total Depth_____ and No._____
Date Analyzed: 6-30-59
Analyst: R. T. Rolufs
Collector: F. C. Greene 6-9-59

CONSTITUENTS:	IN PARTS PER MILLION.	
Turbidity	Turbid - Bailer Sample	
Color	None	
Odor	Disagreeable	
Total Suspended Solids	ND	
Total Dissolved Solids	6931.0	HV
Loss on Ignition	134.0	
Chloride Radicle (Cl)	3051.7	86.06
Nitrate Radicle (NO_3)	00	
Sulphate (SO_4)	928.1	19.24
Bi-Carbonate Radicle (HCO_3)	423.1	6.94
Carbonate Radicle (CO_3)	00	
Sodium (Na) Potassium (K) as Na	2464.7	107.21
Magnesium (Mg)	61.2	5.03
Iron (Fe)	.70	
Manganese (Mn)	------	
Silica (SiO_2)	3.6	
Calcium (Ca)	153.7	7.67
Total Hardness	635.2	
Carbonate Hardness	346.9	
Alkalinity	346.9	
Precipitated Iron (Pp't. Fe.)	ND	
Temporary Hardness	264.6	
Al_2O_3	1.40	

Remarks:

Water sample from 1029-1033 ft. Ste. Genevieve ? Fm. Mississippian System
Ste. Genevieve ? Fm. Mississippian System.

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MISSOURI GEOLOGICAL SURVEY AND WATER RESOURCES

County: De Kalb
Owner: Geo. W. Moore et al - McQuats #1
Location: Sec.11, Twp.57, R.31
Source: Drilling well 1235 - 1265 ft.
Analysis No.: 8051 Total Depth_____ and No._____
Date Analyzed: 7-22-30
Analyst: R. T. Rolufs
Collector: F. C. Greene

CONSTITUENTS:	IN PARTS PER MILLION.	
Turbidity	Turbid- Bailer Sample	
Color	None	
Odor	N D	
Total Suspended Solids	N D	
Total Dissolved Solids	5869.0	EV
Loss on Ignition	101.0	
Chloride Radicle (Cl)	2334.8	65.84
Nitrate Radicle (NO_3)	N D	
Sulphate (SO_4)	1214.5	25.26
Bi-Carbonate Radicle (HCO_3)	234.9	3.85
Carbonate Radicle (CO_3)	00	
Sodium (Na) Potassium (K) as Na	1915.9	83.34
Magnesium (Mg)	65.9	5.42
Iron (Fe)	N D	
Manganese (Mn)	——	
Silica (SiO_2)	4.4	
Calcium (Ca)	141.4	7.06
Total Hardness	625.7	
Carbonate Hardness	192.6	
Alkalinity	192.6	
Precipitated Iron (Pp't. Fe.)	N D	
Temporary Hardness	N D	
Al_2O_3 & Fe_2O_3	5.60	

Remarks:

This sample from 1235 - 1265 ft. "This cannot be considered as strictly from depth given as there was some water in hole."
Mississippian - Keokuk-Burlington formation.

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F. C. Greene

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