COUNTY Clay

sec. 28 T. 53 R. 32

Owner Eastern Drlg Co.

Elev. 999.95 MGS# 5557

Farm Williams, D. W. No. 1 TD 1906 Shows 05 Spls. ✓

Status D&A Date Completed 8-16-39 Fm@TD Jeff. City

Remarks:

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Log of Eastern Drilling Company No. 1 D. W. Williams. Location: 330 feet south and 2200 feet west of the northeast corner NW 1/4 NW 1/4 NE 1/4 sec. 28, T. 53 N., R. 32 W., Clay County, Missouri. Surface elevation (of derrick floor), 1000 feet (P.T.). Commenced, 3-16-39, and completed, 8-16-39. Total depth, 1906 feet. Dry and abandoned. Cable tool test. Casing record: 460 feet of 10 inch; 1455 feet of 6 5/8 inch; and 4 7/8 inch liner set at 1853 feet. Contractor: E. A. Cullum, North Kansas City, Missouri.

FORMATIONAL SUMMARY

	Thickness, feet	*Depth, feet*
Pleistocene and Recent Series:		
Surface soil and glacial drift	25	25
Pennsylvanian system:		
Lansing group	90	115
Kansas City group	190	305
Pleasanton group	150	455
Henrietta group	80	535
Cherokee group	499	1034
Mississippian system:		
St. Louis formation	26	1060
Spergen-Upper Warsaw formations	35	1095
Warsaw formation	50	1145
Keokuk-Burlington formations	130	1275
Chouteau formation	102	1377
Kinderhook shale	28	1405
Devonian system	220	1625
Ordovician system:		
Kimmswick formation	75	1700
Decorah (?) formation	31	1731
St. Peter sandstone	107	1838
Ordovician or Canadian system:		
Jefferson City formation	68	1906, T.D.

WATER ANALYSES

Horizon	*T.D.S.*	Parts per million *Cl.*	*SO_4*	*Na-K as Na*
Basal Kansas City at 263-270 ft.	515.0	114.9	22.8	110.2
Henrietta, 495-503 ft.	10124.0	5754.2	12.3	3900.6
Cherokee, 615 ft.	10500.0	5616.3	48.8	3794.3
Lower Cherokee, 846 ft.	6439.0	3024.2	261.1	2448.9
Devonian, 1445 ft.	6854.0	3244.8	422.0	2506.0
Devonian, 1575 ft.	12862.0	6117.8	1163.1	3851.4
Contact, Devonian and Kimmswick, 1625 ft.	11065.0	5406.0	992.9	3534.7
Kimmswick, 1700 ft.	8704.0	3981.8	699.6	2944.6
St. Peter, 1760 ft.	7025.0	3273.0	536.6	2488.3
St. Peter, 1815 ft.	7671.0	3537.3	567.0	2675.1
Jefferson City ("Arbuckle"), 1870 ft.	8845.0	4417.0	641.1	3139.3
Jefferson City ("Arbuckle"), 1906 ft., T.D.	21048.0	9778.6	1170.7	5893.1

SAMPLE LOG

	Thickness, feet	*Depth, feet*
Pleistocene series:		
Glacial drift:		
Boulder clay, gray with sand and pebbles of chert, limestone, and igneous rocks	25	25
Pennsylvanian system:		
Lansing group:		
Limestone, tan to gray, argillaceous and in upper 10 feet, sandy, fossiliferous. Contains some spinose chert and silicified brachiopod fragments	30	55
Shale, gray, sandy with mica flakes and plant remains	20	75
Shale, gray, slightly sandy and micaceous with a thin coal bed and some argillaceous limestone beds with ostracods between 85-90 feet	40	115
Kansas City group:		
Limestone, light tan, fossiliferous with a small residue of pyrite, sand aggregates and kaolinized spines	10	125
Shale, gray	20	145
Limestone and shale, interbedded with a basal black shale and traces of glauconite and kaolinized fossil fragments	15	160
Shale, black to gray with a grading into shale and limestone and a small residue of kaolinized fossils	10	170
Limestone, tan, fossiliferous with fusulinids. Residue, less than 10 percent, of beekite, chert and silicified fusulinids fragments	5	175
Shale, gray to green with some limestone fragments	10	185
Limestone, fossiliferous with fusulinid fragments. Residue, less than 10 percent, of chalcedonic chert, kaolinized fossils and fusulinids	10	195
Shale, gray with some sand	15	210
Limestone, sandy, argillaceous with many fossils	10	220
Shale, gray, interbedded with gray, argillaceous, and fossiliferous limestone	15	235
Limestone (Winterset), gray, argillaceous and cherty. Chert, tan to gray, fossiliferous with some quartz and chalcedony	30	265
Shale, black, slaty	5	270
Limestone (Bethany Falls), tan, dense to sub-lithograpic, and oolitic at top. Residue, small, of silicified brachiopod fragments and kaolin balls	20	290
Shale, gray and black	5	295
Limestone (Hertha), tan, dense, sparingly fossiliferous with a small residue of kaolin, spines, a trace of chalcedonic chert, and slightly oolitic (may be caved oolites from Bethany Falls)	10	305

	Thickness, feet	Depth, feet
Pleasanton group:		
Shale, gray, calcareous and slightly sandy toward base.	15	320
Shale, gray with some mica	20	340
Shale, dark gray to black	15	355
Shale, gray, sandy in upper 10 feet	35	390
Shale, gray with calcareous fossils	5	395
Sandstone, medium fine-grained, angular with calcareous cement	5	400
Shale, red, calcareous wth calcareous fossils	5	405
Limestone, tan to gray, sandy, argillaceous	5	410
Sandstone, medium-grained, calcareous and becoming shaly in lower 5 feet	15	425
Shale, green	10	435
Shale, dark gray to black with dark, argillaceous, fossiliferous limestone	10	445
Shale, gray	10	455
Henrietta group:		
Shale, gray, sandy with dark argillaceous limestone	5	460
Shale, green and gray	10	470
Limestone, argillaceous with gray shale	5	475
Limestone, tan, dense with some calcite inclusions. Residue, 20 percent, of fine-grained micaceous sand and fossil fragments	5	480
Shale, gray, sandy	5	485
Shale, black, carbonaceous with dark gray, argillaceous and fossiliferous limestone	5	490
Limestone, tan, fossiliferous with some black shale and partially dolomitic in lower 5 feet	10	500
Shale, green and gray with some tan dolomite in upper part	15	515
Limestone, brown, fossiliferous with black, carbonaceous shale	5	520
Shale, gray	5	525
Shale, green and gray, calcareous with nodular limestone	5	530
Dolomitic limestone, tan, fine-grained, crystalline with black carboneaceous shale	5	535
Cherokee group:		
Sand, angular, micaceous and argillaceous	5	540
Shale, gray, micaceous, sandy in upper 10 feet, with a thin coal seam between 565-570 feet, and some siderite oolites and concretions	50	590
Shale, black, carbonaceous with a thin coal bed	5	595
Sand, dark, angular, oil stained	20	615
Shale, gray	5	620
Shale, black, carbonaceous with a thin coal seam and some brown, fossiliferous limestone	5	625
Shale, gray to black with a thin coal seam and some siderite concretions	5	630
Shale, gray, sandy in part, micaceous with some calcareous beds at 690-700 feet, and containing abundant siderite or "ironstone" as both oolites and massive concretions	95	725
Sand, angular, micaceous, calcareous in upper 5 feet, and becoming dark and argillaceous toward base	20	745
Sand, angular, micaceous interbedded with dark gray to black, carbonaceous shale	5	750
Shale, dark gray to black, carbonaceous with some siderite oolites. A thin coal seam occurs at 755-825 feet. Sandy below 800 feet. (Sample record not complete at this interval)	95	[illegible]

	Thickness, feet	Depth, feet
Sand, coarse-grained, sub-angular to very coarse-grained at 905 feet. (Sample record not complete at this interval)	90	925
Sand, medium-grained, sub-angular, micaceous with some coarse-grained sand below 1000 feet. (Sample record not complete at this interval)	100	1025
Sand, coarse, arkosic	5	1030
Sand, coarse, arkosic with black platy shale	4	1034
Mississippian system:		
St. Louis formation:		
Limestone, tan and white, dense to sub-lithographic, in part. A few poorly developed calcareous oolites occur at the top and bottom. Residue, averaging about 10 percent, of chalcedonic chert, quartz rosettes, fine-grained sand and pyrite	26	1060
Spergen-Upper Warsaw formations:		
Shale and limestone interbedded: shale, gray to green; and limestone, tan, highly fossiliferous with many small fossils. Residue, 15 percent, of mottled, fossiliferous chert and pink chalcedony	5	1065
Shale and limestone interbedded: shale, green to gray; and limestone, tan, dolomitic. Residue, as above	10	1075
Shale, green, interbedded with thin limestone beds with a small amount of porous tripolitic chert and spine aggregates	5	1080
Dolomitic limestone, tan, fine-grained crystalline with a small residue of spinose chert, green shale, pyrite and fine-grained sand	15	1095
Warsaw formation:		
Dolomitic limestone, tan, cherty. A fine-grained dolomitic limestone with some crystalline limestone occurs between 1080-1095 feet and some glauconite at 1110 feet. Residue, about 40 percent, of chert, mottled, fossiliferous with crinoids and bryozoans	50	1145
Keokuk-Burlington formations:		
Limestone, white and light tan, crystalline, cherty. Slightly dolomitic at top and base. Residue, averages about 20 to 40 percent, of white chert, finely porous to dense with quartz lined cavities, crinoids imprints, and some spine and brachiopod prints	85	1230
Dolomite and dolomitic limestone, tan and gray, fine-grained crystalline, very cherty. Residue, 60 to 80 percent, of white dense chert	40	1270
Limestone, white, crystalline with a small residue of white quartzose to dense chert and a trace of sand	5	1275
Chouteau formation:		
Dolomitic limestone, gray, finely crystalline, cherty. Residue, 40 to 60 percent, of chert, gray and tan, dense and rough with some fossil fragments and quartz	40	1315
Limestone, tan and gray, fine-grained, dense, in part, to sub-lithographic. Residue, usually less than 10 percent, of quartzose chert, porous brown shale, and pyrite	62	1377
Kinderhook shale:		
Shale, gray to green	13	1390
Dolomitic limestone, gray, fine-grained with green shale and fine-grained sand	5	1395
Shale, green, soft with some black spores	10	1405

	Thickness, feet	*Depth, feet*
Devonian system:		
Limestone, cream to light gray, dense, very finely crystalline. Residue, less than 5 percent, of pyrite and rounded sand grains	30	1435
Limestone, light gray to tan, dense. Residue, less than 10 percent, of sand, pyrite, translucent chert and green shale	135	1570
Limestone, white, dense with white, dense dolomite. Residue, less than 5 percent, of rounded sand	5	1575
Dolomite, white, very finely crystalline to dense. Residue, as above	5	1580
Dolomite, light gray, finely granular. Residue, as above	5	1585
Limestone, white, very finely crystalline to dense. Residue, less than 10 percent, of white, dense chert and sand	10	1595
Limestone, as above. Residue, about 50 percent, of quartzose chert and some rounded sand	5	1600
Limestone, as above. Residue, about 50 percent, chiefly of rounded sand	5	1605
Limestone, gray to buff, finely granular to dense. Residue, less than 5 percent, of rounded to angular sand	10	1615
Limestone, gray, dense, very sandy with some gray-blue chert	5	1620
Sand, white, rounded and frosted with white, dense chert and a little gray, dense limestone	5	1625
Ordovician system:		
Kimmswick formation:		
Limestone, gray, very finely crystalline. Residue, averages 50 percent, of white and gray, dense chert and some rounded sand	50	1675
Limestone, as above. Residue, averages about 20 percent, of white to gray chert and sand grains	25	1700
Decorah (?) formation:		
Dolomite, gray to brown, crystalline. Residue, about 10 percent, of rounded sand with some dark brown shale	8	1708
Cutting washed away in crevice	7	1715
Dolomite, brown, crystalline, sandy	16	1731
St. Peter formation:		
Sand, white, rounded, frosted	107	1838
Jefferson City formation:		
Chert, dead white, rough with a little gray-green shale and sand	17	1855
Dolomite, brown and gray, finely granular to crystalline, containing oolitic chert and some sand	51	1906, T.D.

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