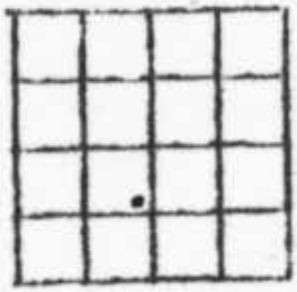
County Clinton



sec. 18 T. 55 R. 31

Owner Hammond, R.M.
(formerly King, C.E. et. al.)

Elev. 1000.5 MGS# 5728

Farm Vandereau No. 3 TD 1829 Shows gas* Spls. ✓
(Formerly Kings-Vandereau #1)

Status _____ Date Completed 11-8-39 Fm@TD Kimmswick

Remarks: *P.B. to save 1,904,150 ft³ of gas @ 557'-590'

00008
~~0000~~

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 C. E. King, *et al* No. 1 Vanderau. Location: 240 feet west and 1370 feet north of the center of the south line sec. 18, T. 55 N., R. 31 W., Clinton County, Missouri, near Plattsburg. Surface elevation, 1000 feet (P.T.). Commenced, 8-26-39, and completed, 11-8-39. Total depth, 1829 feet. Drilled with cable tools. Casing record: 13 1/2 inch at 19 feet; 10 inch at 520 feet; 8 inch at 808 feet; 6 inch at 1437 feet; and 5 3/16 inch at 1790 feet. Plugged back to save 1,904,150 cubic feet gas in the "squirrel sand" at the depth of 557-590 feet (545-605 feet of driller's log). Contractor: H. H. Sherman, Iola, Kansas.

FORMATIONAL SUMMARY

	Thickness, feet	*Depth, feet*
Recent Series:		
Surface	16	16

	Thickness, feet	*Depth, feet*
Pennsylvanian system:		
Lansing group	119	135
Kansas City group (296 ft. of driller's log)	173	308
Pleasanton group	162	470
Henrietta group	58	528
Cherokee group	504	1032
Mississippian system:		
St. Louis formation (no samples, 1032-1040 ft.)	39	1071
Spergen-Upper Warsaw formations	21	1092
Lower Warsaw formation	45	1137
Keokuk-Burlington formations	141	1278
Chouteau formation	91	1369
Kinderhook shale	47	1416
Devonian system ("Hunton")	269	1685
Ordovician system:		
Kimmswick formation	144	1829, T.D.

SAMPLE LOG

Pleistocene series:		
Glacial drift:		
Boulder clay, gray with pebbles of granite, limestone and arkosic sand	16	16
Pennsylvanian system:		
Lansing group:		
Limestone, light tan, weathered, earthy. Residue, small less than 10 percent, of angular sand (probably largely caved)	9	25
Shale, tan to brown and black, calcareous, weathered. Residue, 15 percent, of black and gray shale	7	32
Limestone, tan, fine-grained, crystalline to dense, fossiliferous with some chert. Residue, 20 percent, of porous to dense chert, chalcedony, spines, and fossil fragments	18	50
Shale and limestone: shale, gray, sandy, micaceous below 70 feet; and limestone, brown, thin-bedded, highly fossiliferous. Residue, 10 to 40 percent, of gray shale, sandy shale and silicified microfossils	50	100
Shale, gray, micaceous. Residue, of gray shale	17	117
Limestone, brown, argillaceous, fossiliferous. Residue, less than 10 percent, of quartz, kaolin, silicified tubes, and pyrite	7	124
Shale, gray	11	135
Kansas City group:		
Limestone, gray and brown, mottled, argillaceous, fossiliferous. Residue, 10 percent, of porous, fossiliferous chert with silicified spines and gastropods	8	143
Shale, gray with thin lenses or nodules of limestone. Residue, 30 percent, of gray shale with traces of silicified and kaolinized fossil fragments	7	150
Shale, black, carbonaceous with some calcareous shale. Residue, black shale	10	160
Limestone, argillaceous, highly fossiliferous with small bryozoans, fusulinids, gastropods, and crinoids. Residue, less than 10 percent, of sand grains, pyrite and silicified tubes	5	165
Shale, green in upper 5 feet, gray below	10	175
Limestone, tan and white with calcitic oolites. Some oolitic cavities filled with dark, oily material. Residue, 20 percent, of black shale, chalcedonic chert and kaolin	4	179

	Thickness, feet	Depth, feet
Shale, gray with some interbedded lenses of argillaceous, fossiliferous limestone in upper 10 feet. Residue, gray shale	24	203
Limestone light tan, fine-grained crystalline, sparingly fossiliferous. Residue, 20 percent, of gray shale, sand, and pyritized and silicified fossil fragments	7	210
Shale, gray with calcareous fossils in upper 10 feet. Residue, gray shale with a trace of silicified fossil fragments in the upper 10 feet	20	230
Limestone (Winterset), white to light tan, fine-grained, cherty, non-fossiliferous. Residue, 10 percent, of white, dense chert and spinose chert	30	260
Shale and limestone: shale, black, carbonaceous. Residue, 60 percent, of black shale	8	268
Limestone (Bethany Falls), tan, dense with shaly partings. Residue, small, less than 10 percent, of silicified tubes, kaolin balls and gray-green shale	20	288
Limestone, light tan to white, fine-grained crystalline with some clear calcite nodules. Residue, less than 10 percent, of green shale and kaolinized fossils	15	303
Shale and limestone: shale, black, carbonaceous; and limestone, argillaceous. Residue, 20 percent, of black shale, chalcedonic chert and silicified tubes	5	308

NOTE: The last 40 feet of samples may be confused as the black shale between 303 and 308 feet should lie between the Bethany Falls and Hertha.

Pleasanton and Henrietta groups:		
Shale, gray with a trace of sub-angular, quartz sand	22	330
Sandstone, argillaceous, calcareous with mica and plant remains	25	355
Shale, gray	35	390
Shale, red, calcareous	5	395
Shale, gray and green, slightly calcareous	10	405
Sandstone and shale: sand, medium-grained, sub-angular, interbedded with gray shale and containing some nodules of siderite or "clay ironstone"	15	420
Shale and limestone: shale, gray with calcareous fossils, grading into brown, highly fossiliferous limestone toward the base. Residue, 10 to 15 percent, of gray shale and kaolinized fossil fragments	20	440
Sandstone, angular grains with much mica, gray shale and calcareous cementing material. Residue, 30 percent, of sand, as above	17	457
Shale, gray, calcareous with some sand (probably caved). Residue, 20 percent, of gray shale, sand grains and kaolinized fossil fragments	13	470
Limestone and shale: limestone, brown, thin-bedded, fossiliferous; and shale, black, carbonaceous. Residue, 40 percent, of black and gray shale	5	475
Shale and sand: shale, gray with sand aggregates and calcareous cement. Residue, 40 percent, of gray shale, sand aggregates and spines	7	482
Shale, green	6	488
Limestone, brown, shaly, nodular, fossiliferous with black and gray shale partings. Residue, 20 percent, of black shale and silicified tubes and spines	7	495
Shale, gray to black, carbonaceous, somewhat calcareous. Residue, of black and gray shale	8	503
Shale, gray, soft, calcareous with some pyrite	9	512
Limestone, tan to light brown, finely crystalline to dense and sub-lithographic. Residue, small, 10 percent or less, of gray shale, silicified and kaolinized fossil fragments and forminifera	8	520

	Thickness, feet	Depth, feet
Limestone and shale: limestone, dark, thin-bedded; and shale, gray, pyritic. Residue, 40 percent, of gray shale and pyrite	8	528
Cherokee group:		
Shale, gray, sandy, micaceous with some nodules of siderite and "clay ironstone"	20	548
Shale, gray, micaceous	8	556
Sandstone, angular, medium-grained, micaceous	34	590
Shale, gray with mica and plant remains. A bed of black carbonaceous shale and coal occurs between 590-595 feet	25	615
Limestone, black shale and coal: limestone, tan, fossiliferous; shale, black, carbonaceous with calcareous fossils; and coal, bituminous, fragmentary. Residue, 40 percent, of coal and black shale	5	620
Shale, gray with calcareous fossils embedded in the shale matrix. Residue, 50 percent, of gray shale	6	626
Shale, gray, micaceous, slightly sandy. Residue, 10 percent, of sand aggregates and mica	8	634
Shale, red, calcareous	6	640
Shale, gray with many siderite or "clay ironstone" concretions. Thin coal bed occurs between 650-655 feet	35	675
Limestone, nodular, impure with coal, black shale, spines, plant remains and brachiopods. Residue, 40 percent, of black shale and coal	5	680
Shale, gray with siderite spherulites. Residue, of gray shale	20	700
Shale, gray, slightly sandy	30	730
Sandstone and shale interbedded: sandstone, medium coarse, angular grains with mica and plant remains. Residue, as above	31	761
Shale, gray with spherulites of siderite, becoming sandy toward the base	19	780
Sand, medium coarse-grained, angular with mica and some plant remains. Gray shale occurs between 800-820 feet making up from 30 to 50 percent of the sample	51	831
Shale, gray, sandy with some plant remains and also some nodules of siderite or "clay ironstone". Residue, as described above	30	861
Sand, medium coarse-grained, sub-angular	9	870
Shale, gray, pyritic with some mica and plant remains	42	912
Sand, medium fine-grained to very coarse toward the base, sub-rounded grains	37	949
Shale, dark gray to black, pyritic with nodules and irregular concretions of siderite and some plant remains. A sand bed occurs between 957-966 feet	52	1001
Sand, sub-rounded, frosted, traces of siderite. Residue, of sand, as described above	21	1022
Shale, gray to black, sand, as described above, and leached quartzose chert. Chert makes up about 20 percent of sample. Residue, as above	10	1032
Mississippian system:		

NOTE: The top of Mississippian is near 1032 feet since the leached chert appears in the sample from 1022-1032 feet.

No samples	8	1040

	Thickness, feet	Depth, feet
St. Louis formation:		
Limestone, white to tan, crystalline to dense and sublithographic in texture, sparingly fossiliferous. Residue, small, about 10 percent, of quartzose chert, sand grains, quartz studded oolites and a trace of pink, quartzose chert	31	1071
Spergen or Upper Warsaw formation:		
Limestone and shale: limestone, tan, highly fossiliferous with *Endothyra* and other small fossils; and shale, green to gray, silvery, soft. Residue, 10 to 15 percent, of green shale, red chalcedonic chert, silicified spines, crinoids, and *Endothyra*	21	1092
Warsaw formation:		
Limestone, light gray, crystalline, fossiliferous with crinoids and bryozoans. Residue, 20 percent, of blue, mottled, fossiliferous chert	8	1100
Limestone, as above, with some thin beds of green shale. Residue, 10 to 15 percent, of blue and white, mottled, fossiliferous chert and green shale	15	1115
Dolomitic limestone, white, fine-grained crystalline with some coarsely crystalline limestone, cherty. Residue, 20 to 50 percent, of porous, tripolitic chert, dense, flaky, fossiliferous chert and spine aggregates	22	1137
Keokuk-Burlington formations:		
Limestone, white to tan, coarse-grained, crystalline, crinoidal. Traces of glauconite occur at 1175 and 1220-1225 feet. Residue, 10 to 40 percent, of chert, white, dense, rough and crinoidal to flaky	88	1225
Dolomitic limestone, white to light tan, fine-grained crystalline. Residue, 20 to 35 percent, of white, dense chert with some pyrite and fine-grained sand	17	1242
Limestone, coarsely crystalline, crinoidal, cherty. Residue, 40 to 60 percent, of white, dense, flaky chert with quartz filled cavities	36	1278
Chouteau formation:		
Dolomitic limestone, dark gray, fine-grained crystalline, cherty. Residue, about 40 to 50 percent, of gray, rough, dense chert and some tripolitic chert	31	1309
Limestone and dolomitic limestone: limestone, gray, fine-grained, dense, smooth, sparingly fossiliferous; and dolomitic limestone, as described above. Residue, small, 10 percent or less, of gray chert, as described above	18	1327
Limestone, gray, dense, fossiliferous with many small brachiopods. Residue, very small, less than 10 percent, of gray chert, porous shale, fossil prints, worm casts and in the lower 15 feet, pyrite	42	1369
Kinderhook shale:		
Shale, gray to green, soft with black spores and traces of rounded, frosted sand grains between 1369-1375 feet	36	1405
Shale, black with brown spores occurring between 1400-1405 feet	11	1416
Devonian system:		
Shale and dolomite: shale, gray-green; and dolomite, gray, finely crystalline to granular. Residue, less than 10 percent, of sand, quartzose chert and shale	11	1427
Limestone, cream, medium crystalline to granular. Residue, 10 percent, of gray shale and white chert	13	1440
Limestone, as above, with some cream, finely crystalline dolomite. Residue, 10 percent, of fine sand	13	1453

	Thickness, feet	Depth, feet
Limestone, gray-tan, dense. Residue, less than 5 percent, of fine sand, green shale and pyrite	31	1484
Limestone, cream, medium crystalline. Residue, as above	8	1492
Limestone, gray-tan, dense. Residue, less than 10 percent, of coralline chert, green shale and pyrite	88	1580
Dolomite, brown, finely crystalline. Residue, less than 10 percent, of gray, quartzose chert	13	1593
Limestone, gray-tan, lithographic. Residue, less than 10 percent, of quartzose chert and some chalcedonic oolite	24	1617
Dolomite, cream-gray, finely crystalline. Residue, less than 10 percent, of gray, speckled chert	23	1640
Limestone, gray-tan, dense with some dolomite, as above. Residue, less than 10 percent, of gray chert and fine sand	10	1650
Dolomite, gray-tan, dense to finely crystalline. Residue, 20 percent, of tan chert and a little rounded sand	10	1660
Limestone, gray-tan, lithographic. Residue, 10 percent, of tan, quartzose chert	25	1685
Ordovician system:		
Kimmswick formation:		
Dolomite gray, medium-grained, crystalline. Residue, averages 75 percent, of blue-gray to white, smooth chert	25	1710
Dolomite, gray-brown, medium-grained, crystalline. Residue, 30 percent, of gray and tan, smooth chert with embedded spines	20	1730
Dolomite, cream-gray, medium-grained, crystalline. Residue, 50 percent, of gray-tan, smooth chert	43	1773
Dolomite, as above. Residue, 10 percent, of white-tan, smooth chert	56	1829, T.D.