Operator: United Fuel Gas Company
Farm: National Shawmut Bank of Boston
Well No.: 5810
Location: Buchanan County
15,000' N. of 37°20')
9850' W. of 81°55'') approximate
Elevation: 1263.12'
Total Depth: 5302'
Drilling Commenced: February 2, 1949
Well Completed: Completed drilling August 12, 1949
Result: Dry hole, P & A November 28, 1949
Geologic log and summary by Marshall S. Miller

This well has been logged by Williamson and Jacobsen (USGS) and Bowen (VPI).

The Mississippian cuttings were studied by microscope and a brief summary was completed during the summer, 1969. The Pennsylvanian system was studied later and is described below. The Lee quartzose sands are determined and described in detail, and all other important sand horizons have been microscopically observed and described below. If no further description is necessary, or if the descriptions by Williamson, Jacobsen and Bowen are sufficient, the lithology is noted and no further description is made.

0- 60	60'	Missing
60- 79	19'	Sandstone
79- 85	6'	Sandstone and shale
85- 95	10'	Siltstone
95-138	43'	Sandstone
138-225	87'	Shale
225-235	10'	Sandstone, Bowen cites this as the top of the Lee Formation. The sand is light gray to gray, fine to very fine grained, subangular, poorly sorted, with abundant coaly laminations, is very micaceous with abundant red and dark minerals, interstitially silty, occasionally recognizable chlorite, biotite, and phlogopite, about 50% quartz or less.

235-315	80'	Shale, mostly; some sand
315-325	10'	Sandstone
325-390	65'	Shale
390-417	27'	Sandstone
417-440	23'	Sandstone, siltstone and shale
440-486	46'	Shale
486-496	10'	Sandstone, white, to light gray, fine to very fine grained, to medium grained, subangular, moderately sorted, appears to be quartzose at first but considerable amount of muscovite throughout interval, also scattered black minerals, which occasionally appear carbonaceous, and a reddish-orange iron nodules, probably siderite. Bowen also mentions interval is slightly feldspathic which is difficult to determine, but which is probably true. Sand is too fine grained in upper interval to recognize clearly any feldspar, although feldspar can be recognized in interval (491-496). Would estimate sand to be 85% quartz, not a Lee quartzose sand
Re-ck *496-510	14'	Sandstone, white, fine grained, quartzose, over 90% quartz, well sorted, subrounded to subangular, with very rare scattered muscovite, appears to be porous, picks up more clear muscovite downward, appears to become a quartz-muscovite sand by 505', also possibly more feldspar is present, would be good interval for X-ray (505-510) and a black unidentifiable material, around 90% quartz by 505', a "border-line" sand, continues to be less quartzose downward, is no longer considered a quartzose sand by 510'
510-544	34'	Sandstone
544-560	16'	Shale
560-635	75'	Siltstone, with occasional shale stringers, some white cherty material which is called "fine-grained crystalline limestone" (Williamson) is present (584-598)

635-662	27'	Sandstone
662-722	60'	Shale
722-742	20'	Siltstone
742-754	12'	Sandstone
754-762	8'	Shale
762-805	43'	Sandstone, light tan, fine to medium grained, fairly well sorted, silty, with considerable feldspar, and dark coaly laminations present, and dark shaly, argillaceous and carbonaceous material within the sand matrix, possibly 85% quartz, rare but large scattered muscovite flakes can also be identified, and considerable clay matrix material
805-835	30'	Shale
835-837	2'	Coal, shaly, bony; thickness estimated WC
837-870	33'	Shale
870-905	35'	Sandstone
905-965	60'	Shale
965-968	3'	Coal, dull, silty, thickness estimated Ch
968-1022	54'	Shale
1022-1046	24'	Sandstone
1046-1076	30'	Shale
*1076-1141	65'	Sandstone, white, quartzose, medium to coarse grained, to conglomeratic, subangular, moderate sorting, very little matrix or cementing visible, 95 to 100% large angular white quartz, becomes occasionally very iron stained, which is probably due to the toughness of the sand and its effect on the drill bit. Increase in degree of cementing would increase the resistance of the sand, some occasional reworked coal grains included with the quartz sand, is no longer conglomeratic by 1090', and fine grained, remains quartzose throughout. Returns to a medium to coarse grained nature (1095-1113) and locally conglomeratic (1098-1102), (1107-1113); medium grained, slightly silty and iron stained (1113-1116); occasionally coarse grained (1116-1118); becomes conglomeratic and coarse grained with no matrix material, and remains close to 100% quartz (1118-1141)

*1141-1150	9'	Sandstone, white, quartzose, angular, conglomeratic, coarse grained, with interbeds of a gray to brown fine grained sand, much less quartzose, with abundant carbonaceous material and large muscovite flakes
1150-1157	7'	Sandstone, gray, fine grained, micaceous feldspathic, essentially a dirty nonquartzose sand
*1157-1174	17'	Interbedded, the two types of sand described above and black carbonaceous, micaceous shale. Progressively more quartzose sand downward; 65-85% quartzose sand by 1163'
*1174-1212	38'	Sandstone, white to orange (due to iron staining) medium to coarse grained, occasionally fine grained, but conglomeratic throughout, subangular with occasional dark bluish gray chert, little or no cementing or matrix material visible, almost 100% large, subangular quartz, occasionally some gray shaly material, and occasionally silty, extremely conglomeratic in bottom 7' (1205-1212)
1212-1217	5'	Shale
1217-1230	13'	Sandstone, light gray, gray, fine grained, poorly sorted, subangular, very micaceous with abundant reddish (siderite and hematite) and dark minerals, possibly 50% quartz
1230-1236	6'	Shale
1236-1240	4'	Sandstone, light gray, fine to medium grained, poorly sorted with reworked rounded carbonaceous material, and with abundant clay-silt matrix, also interbeds of gray shale
1240-1258	18'	Shale
1258-1260	2'	Interbedded shale and sand
1260-1331	71'	Sand mostly, gray to tan, poorly to moderately sorted, fine grained, micaceous with abundant clay, coaly laminations and dark and red minerals, about 55-75% quartz. Shale stringers present occasionally

1331-1360	29'	Sandstone, Bowen describes as being "white and clean". Sand is white to light gray to light tan, is very fine grained, very silty, with abundant clay matrix, clay and calcareous cement, has abundant coaly laminations, and coal finely dispersed throughout sand, the sand is fairly well sorted, and subround, also consistent and scattered amount of muscovite flakes, and dark argillaceous material, about 75-80% quartz. Sand approaches a moderately quartzose nature (80-90% quartz) by 1346, less mica is present, but remains very fine grained, silty, with clay matrix, with scattered coal and dark and brown minerals. The interval (1346-1350) would be a good interval for more detailed study.
1360-1381	21'	Sandstone, white, fine to medium grained, subrounded with slightly less clay and silt material, a "border-line" sand with a few coaly laminations and some dark shaly material, rare muscovite and abundant clay and calcareous cementing, a few traces of feldspar, perhaps an X-ray analysis would indicate the presence of more feldspar than can be recognized by microscope. Interval (1371-1376) would be good for analysis.
*1381-1390	9'	Sandstone, yellowish orange to white, fine to medium grained, fairly well sorted, quartzose, little clay and silt matrix visible, mostly subrounded grains
1390-1399	9'	Sandstone, light gray to light tan, fine to medium grained, subrounded, continued silty, with caly and calcareous cementing, dispersed carbonaceous material reworked with sand, and lesser amounts of brown fine grained sand quartz percentage appears to remain close to 90%, but also appears very clayey and "earthy" looking
*1399-1404	5'	Sandstone, white to orange (iron stains) mostly fine grained, subrounded, fairly well sorted and again appears quartzose but with calcareous cement
1404-1425	21'	Sandstone, like previous sand interval, only abundant clay and silt material, begins to pick up some carbonaceous reworked rounded material by 1407', traces of feldspar, but continues to remain high in quartz percentage. Some shale interbeds present 1418-1425, dark gray and carbonaceous

1425-1431	6'	Shale, gray, micaceous, silty, hard, locally carbonaceous
1431-1438	7'	Sandstone, light gray to gray, fine grained, poorly sorted, subangular with abundant clay and calcareous cementing, and red, green and dark minerals, carbonaceous rounded material, about 65% quartz
1438		Pale green slightly calcareous shale with red and black "nodules" throughout