

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 21

Summary of the Continental - Pure Oil Co., Paul H. McCay No. 1

Burleigh County, North Dakota

By John W. Caldwell

Continental Oil Company - Paul H. McCay No. 1, Burleigh County, North Dakota, Sec. 32, T. 137N., R. 76W., (330 feet S. of N. line, 330 feet E. of W. line, Sec. 32.) Elevation 1858 G. L. and 1869 R. B. M. The well was abandoned November 1, 1952.

Cement Plugs were set at the following depths and in the following formations.

Winnipeg	5760 - 5810 with 20 sacks
Silurian	4683 - 4720 with 15 sacks
Devonian	4413 - 4450 with 15 sacks
Mission Canyon	3686 - 3723 with 15 sacks
Lakota	2573 - 2610 with 15 sacks
Dakota	2486 - 2523 with 15 sacks
Surface Casing	381 - 341 with 25 sacks
Top of Surface Casing	with 10 sacks

The well was extensively cored, with no indication of oil shows.

CORES

- #1 3606-3660 recovered 54 feet.
- #2 3742-3756 recovered 14 feet.
- #3 3756-3810 recovered 54 feet. Probable production, water.
- #4 3810-3869 recovered 59 feet. Good porosity from 3838-3869. Probable production. Sulphur water.
- #5 3869-3929 recovered 60 feet. Good porosity. Probable production. Sulphur water.
- #6 4270-4329 recovered 59 feet. Probable production. Sulphur water.
- #7 4487-4537 recovered 50 feet.
- #8 4700-4760 recovered 60 feet.
- #9 4760-4820 recovered 50 feet.
- #10 4820-4870 recovered 50 feet.
- #11 4870-4929 recovered 59 feet.
- #12 5790-5834 recovered 38 feet.

TESTS

- DST #1 3725-3742: Tool open 1 hour, shut in 30-minutes. Recovered 180 feet muddy water, and 720 feet slightly gas cut salt water: F.P. 400#, S.I.P. 1425#, H.P. 2000#.
- DST #2 5606-5658: Tool plugged.
- DST #3 5604-5658: Tool open 2 hours, shut in 30 minutes. Recovered 100 feet muddy water, and 1100 feet slightly gas cut, slightly salty water. F.P. 650#, S.I.P. 900#, H.P. 3200#.

Formation tops determined from sample and electric logs, not all lithologic formation tops called in following list. Colors determined from rock color chart.

	<u>Tops</u>
Cretaceous System	<u>Depth</u>
Niobrara	1331
Greenhorn	1893
Muddy (?)	2220
Dakota	2522
Jurassic System	
Morrison	2897
Sundance	2957
Piper	3025
Triassic System	
Spearfish	3196
Mississippian System	
Amsden	3250
Big Snowy	3310
Charles	3515
Mission Canyon	3723
Lodgepole	3920
Englewood	4363
Devonian System	
Nisku	4438
Ireton	4468
Beaverhill Lake	4576
Ashern	4695
Silurian System	
Interlake	4716
Ordovician System	
Upper Stony Mountain	4862
Stoney Mountain Shale	4928
Red River	5022
Winnipeg Formation	
Upper Winnipeg Sand	5605
Winnipeg Shale	5752
Winnipeg Sand	5830
Pre-Cambrian	6160

Continental - Paul McCay No. 1

<u>From</u>	<u>To</u>	<u>Formation</u>
1000	1010	Shale, medium gray.
1010	1020	Shale, medium gray, slightly calcareous, inoceramus.
1030	1050	Shale, medium gray.
1050	1055	Shale, color as above, pyrite.
1055	1060	Shale as above, pyrite, micaceous.
1060	1065	Shale, medium gray, bentonitic.
1065	1070	Shale, medium gray, slightly bentonitic.
1070	1075	Shale, medium gray, slightly bentonitic, slight amount bentonite.

<u>From</u>	<u>To</u>	<u>Formation</u>
1075	1080	Shale, medium gray, slightly bentonitic, micaceous.
1080	1050	Shale, medium gray, slightly bentonitic.
1090	1095	Shale, medium gray, bentonitic, slightly calcareous, pyrite.
1095	1105	Shale, medium gray, bentonitic, slightly calcareous, pyrite.
1105	1110	Shale, medium gray, bentonitic, slightly calcareous.
1110	1115	Shale, medium gray, slightly bentonitic, pyrite.
1115	1120	Shale, medium gray, bentonitic, slightly calcareous, inoceramus fine crystalline limestone nodules.
1120	1125	Shale, medium gray, slightly bentonitic, micaceous.
1125	1130	Shale, medium gray, bentonitic, fine crystalline limestone nodules, inoceramus.
1130	1135	Shale, medium gray, bentonitic, fine crystalline limestone nodules, pyrite.
1135	1140	Shale, medium gray, bentonitic, slightly calcareous, iridescent shell.
1140	1145	Shale, medium gray, bentonitic, inoceramus, micaceous.
1145	1150	Shale, medium gray, slightly bentonitic, slightly calcareous.
1150	1155	Shale, medium gray, bentonitic, slightly calcareous, inoceramus.
1155	1160	Shale, medium gray, bentonitic, slightly calcareous.
1160	1165	Shale, medium gray, fine crystalline limestone.
1165	1170	Shale, medium gray, bentonitic, slightly calcareous, inoceramus.
1170	1175	Shale, medium gray, bentonitic, slightly calcareous.
1175	1180	Shale, medium gray, micaceous.
1180	1185	Shale, medium gray, pyrite.
1185	1190	Shale, medium gray, bentonitic, slightly calcareous, inoceramus, fine crystalline limestone.
1190	1195	Shale, medium gray, bentonitic, slightly calcareous, inoceramus.
1195	1200	Shale, medium gray, bentonitic, slightly calcareous.
1200	1210	Shale, medium gray, bentonitic, slightly calcareous, inoceramus.
1210	1215	Shale, medium gray, bentonitic, slightly calcareous.
1215	1220	Shale, medium gray, bentonitic, slightly calcareous, shell fragments.
1220	1225	Shale, medium gray, bentonitic, slightly calcareous, iridescent shell fragments, inoceramus.
1225	1230	Shale, medium gray, bentonitic, slightly calcareous.
1230	1235	Shale, medium gray, bentonitic, slightly calcareous, fine crystalline limestone.
1235	1240	Shale, medium gray, bentonitic, slightly calcareous.
1240	1245	Shale, medium gray, slightly calcareous, fine crystalline limestone, inoceramus mica.
1245	1250	Shale, medium gray, slightly calcareous, fine crystalline limestone.
1250	1255	Shale, medium gray, bentonitic, slightly calcareous, fine crystalline limestone.
1255	1260	Shale, medium gray, slightly calcareous, pyrite.

<u>From</u>	<u>To</u>	<u>Formation</u>
1260	1265	Shale, medium gray, bentonitic, slightly calcareous, fine crystalline limestone, inoceramus.
1265	1270	Shale, medium gray, bentonitic, slightly calcareous, fine crystalline limestone, inoceramus, iridescent shell fragments.
1270	1275	Shale, medium-dark gray, bentonitic, slightly calcareous.
1275	1280	Shale, medium-dark gray, slightly calcareous, fine crystalline limestone.
1280	1285	Shale, medium-dark gray, slightly calcareous, fine crystalline limestone, pyrite.
1285	1290	Shale, dark gray, black, bentonitic, shell fragments, carbonaceous remains, slightly calcareous.
1290	1295	Shale, medium-dark gray, bentonitic, calcareous, mica, fine crystalline limestone.
1295	1300	Shale, dark gray-black, bentonitic, calcareous, fine crystalline limestone.
1300	1305	Shale, dark gray-black, bentonitic, calcareous, fine crystalline limestone, inoceramus.
1305	1310	Shale, dark gray-black, bentonitic, calcareous, inoceramus.
1310	1315	Shale, dark gray-black, bentonitic, calcareous, carbonaceous remains.
1315	1320	Shale, dark gray-black, bentonitic, calcareous, pyrite.
1320	1330	Shale, medium-dark gray, bentonitic, calcareous.
Niobrara 1331		
1330	1335	Shale, medium-dark gray, calcareous, bentonitic.
1335	1340	Shale, medium-dark gray, bentonitic, calcareous.
1345	1350	Shale, medium-dark gray, bentonitic, calcareous.
1350	1360	Shale, medium-dark gray, bentonitic, calcareous, fine crystalline limestone, inoceramus, pyrite, shell fragments.
1360	1370	Shale, medium gray, bentonitic, pyrite, white spots, calcareous.
1370	1380	Shale, medium gray, pyrite.
1380	1390	Shale, medium gray, pyrite, fine crystalline limestone, mica, calcareous.
1390	1400	Shale, medium to dark gray, calcareous, fine crystalline limestone, white spots, pyrite, inoceramus, shell fragments.
1400	1410	Shale, medium to dark gray, bentonitic, white spots, inoceramus, pyrite, calcareous.
1410	1420	Shale, medium gray, bentonitic, white spots, pyrite, calcareous.
1420	1430	Shale, medium gray, bentonitic, white spots, calcareous.
1430	1440	Shale, medium gray, bentonitic, pyrite, inoceramus, calcareous, white spots.
1440	1450	Shale, medium to dark gray, bentonitic, pyrite, fish (?) spines, white spots, calcareous.
1450	1460	Shale, medium to dark gray, bentonitic, inoceramus, white spots, calcareous.
1460	1470	Shale, medium gray, bentonitic, pyrite, calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
1470	1480	Shale, medium to dark gray, bentonitic, inoceramus, pyrite, calcareous.
1480	1490	Shale, medium to dark gray, sandy bentonite, inoceramus.
1490	1500	Shale, medium gray, sandy bentonite, pyrite, calcareous.
1500	1520	Shale, medium gray, bentonitic, inoceramus, white spots, calcareous.
1520	1540	Shale, medium gray, bentonitic, pyrite, white spots, calcareous.
1540	1560	Shale, medium gray, bentonitic, pyrite, white spots, calcareous, shell fragments.
1560	1570	Shale, medium gray, bentonitic, pyrite, white spots, inoceramus, calcareous.
1570	1580	Shale, medium gray, bentonitic micaceous, inoceramus, white spots, pyrite, calcareous.
1580	1600	Shale, medium gray, bentonitic, inoceramus, pyrite, calcareous.
1610	1620	Shale, medium gray, bentonite, pyrite, calcareous.
1620	1630	Shale, medium gray, bentonite, white specks, calcareous.
1630	1640	Shale, medium gray, bentonite, pyrite, inoceramus, calcareous, white specks.
1640	1650	Shale, medium gray, bentonite, pyrite, white specks, calcareous.
1650	1660	Shale, medium gray, bentonite, pyrite, inoceramus, white specks, calcareous.
1660	1670	Shale, medium gray, bentonite, pyrite, shell fragments, pyrite, calcareous.
1670	1690	Shale, medium gray, bentonite, white specks, inoceramus, calcareous.
1690	1700	Shale, medium gray, bentonite, micaceous, pyrite, calcareous.
1700	1710	Shale, medium gray, bentonite, pyrite, fish spines (?), calcareous.
1710	1720	Shale, medium gray, bentonite, white specks, calcareous.
1720	1730	Shale, medium gray, bentonite, pyrite, calcareous, shell fragments, inoceramus.
1730	1740	Shale, medium gray, bentonite, pyrite, shell fragments, inoceramus, calcareous.
1740	1750	Shale, medium gray, bentonite, pyrite, iridescent, shell fragments, inoceramus, calcareous.
1760	1770	Shale, medium gray, bentonite micaceous, pyrite, shell fragments, inoceramus, calcareous.
1770	1780	Shale, medium gray, bentonite micaceous, pyrite, calcareous, white specks.
1780	1790	Shale, medium gray, bentonite, shell fragments, inoceramus, calcareous, white specks.
1790	1800	Shale, medium gray, bentonite, inoceramus, white specks, shell fragments, calcareous.
1800	1830	Shale, medium gray, bentonite, calcareous.
1830	1840	Shale, medium gray, calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
Greenhorn 1893		
Samples missing	2000	Shale, medium-dark gray, bentonite, pyrite, calcareous.
Samples missing		
2200	2210	Shale, dark gray-black, silty in part, shell fragments.
2210	2220	Shale, dark gray-black, silty in part, inoceramus, carbonaceous wood, pyrite, bentonitic, slightly calcareous, silty.
Muddy (?)	2220	
2220	2230	Shale, dark gray-black, bentonitic, slightly calcareous, silty.
2230	2240	Shale, dark gray-black, bentonitic, silty, calcareous, pyrite.
2250	2260	Shale, dark gray-black, bentonite, slightly calcareous, silty in part.
2270	2280	Shale, dark gray, bentonitic, calcareous, inoceramus, fish spines (?).
2300	2320	Shale, dark gray, inoceramus, shell fragments, pyrite, slightly calcareous, silty in part.
2320	2330	Shale, dark gray, inoceramus.
2340	2350	Shale, dark gray, pyrite, bentonite, inoceramus, light gray siltstone, white limestone.
	2350	Shale, dark gray, silty, light light gray siltstone with calcareous cement, inoceramus. Circulation 20 minutes.
2350	2360	Shale, dark gray, bentonite micaceous and sandy, silty, light gray siltstone.
2360	2370	Shale, dark gray, bentonitic, light gray-brown siltstone, slightly calcareous.
2370	2380	Shale, dark gray, silty, light gray-red brown siltstone, inoceramus.
2380	2390	Shale, dark gray, silty, gray-red brown siltstone, bentonite, pyrite, inoceramus.
2390	2400	Shale, dark gray, silty, bentonitic.
2400	2410	Shale, dark gray, silty, bentonite, inoceramus, pyrite.
2410	2420	Shale, dark gray, silty, bentonite, inoceramus, shell fragments, slightly calcareous.
2420	2440	Shale, dark gray, bentonitic, silty, slightly calcareous.
2440	2450	Shale, medium-dark gray, silty, bentonitic, slightly calcareous pyrite, gray-red brown siltstone calcareous cement.
2450	2460	Shale, medium-dark gray, silty bentonitic, slightly calcareous, inoceramus.
2470	2480	Shale, medium-dark gray, silty, bentonite, slightly calcareous.
2480	2490	Shale, medium-dark gray, silty, calcareous, inoceramus, white to red brown siltstone.
2490	2500	Shale, medium-dark gray, silty, bentonite, slightly calcareous, white-red brown siltstone, pyrite.
2500	2510	Shale, medium-dark gray, silty, bentonite micaceous, inoceramus, slightly calcareous.

<u>From</u>	<u>To</u>	<u>Formation</u>
2510	2520	Shale, medium-dark gray, silty, bentonitic, inoceramus, light gray-red brown siltstone, pyrite, slightly calcareous.
Dakota 2522		
2520	2530	Shale, medium-dark gray, silty, pyrite, inoceramus, white-red brown very fine to fine grained sandstone with calcareous cement.
2530	2540	Shale, medium-dark gray, silty, pyrite, white-red brown very fine to fine grained sandstone with calcareous cement.
2540	2550	Shale, medium-dark gray, silty, pyrite bentonite, white-red brown siltstone.
	2550	Shale, medium gray with white very fine to fine grained sandstone angular to subangular, inoceramus, pyrite, slightly calcareous. Circulation 30 minutes.
2540	2550	Shale, medium gray, inoceramus, sandstone as above, slightly calcareous.
2550	2560	Shale, medium gray, inoceramus, bentonite, pyrite, sandstone as above, slightly calcareous.
2560	2570	Shale, medium gray, inoceramus, bentonite, pyrite, shell fragments, sandstone as above, slightly calcareous.
2570	2580	Shale, medium gray sandy and silty, pyrite, sandstone as above, slightly calcareous, bentonitic.
2580	2590	Shale, medium gray, bentonite, pyrite, sandstone as above, slightly calcareous.
2590	2600	Shale, medium gray sandy and silty, sandstone as above, pyrite, inoceramus.
2600	2610	Shale, medium gray sandy and silty, sandstone as above, pyrite, crystalline calcite large amount.
Samples missing		
2770	2780	Sandstone, white medium grained subround to round well sorted loose frosted, pyrite, medium gray silty shale.
2780	2790	Sandstone, white fine to medium grained subround to round well sorted loose frosted, pyrite, medium gray silty shale.
2790	2800	Sandstone, as above, pyrite, shale as above.
2800	2810	Sandstone, as above, pyrite, large amount shale, coarse rounded quartz grain, inoceramus.
2810	2820	Sandstone, white fine to medium grained subround to round well sorted loose frosted, pyrite, inoceramus, some shale as above.
2820	2830	Shale, light-medium gray calcareous, pyrite, sandstone as above.
2830	2840	Sandstone, light gray, very fine grained calcareous, shale as above.
2840	2850	Sandstone, white fine to medium grained subround to round well sorted frosted, sandstone as above, pyrite, shale as above.
2850	2860	Sandstone, light gray very fine grained calcareous, some medium gray shale, pyrite, fine to medium quartz grains.

<u>From</u>	<u>To</u>	<u>Formation</u>
2860	2870	Sandstone, as above, medium gray shale, fine to medium quartz grains, inoceramus.
2870	2880	Sandstone, as above, large amount medium gray shale, pyrite, inoceramus, frosted fine to medium quartz grains.
2880	2890	Sandstone, white fine to medium grained frosted subround to round, sand and shale as above.
2890	2900	Shale, medium gray sandy, with sandstone as above, calcareous, pyrite.
Morrison 2897		
2900	2910	Shale, medium gray sandy, sandstone as above, bentonite, calcareous, pyrite.
2910	2920	Shale, medium gray, sandstone as above, bentonite, calcareous, pyrite.
2920	2930	Shale, medium gray, some sandstone as above, calcareous, pyrite, bentonite.
2930	2940	Shale, medium gray sandy, bentonite, calcareous, pyrite.
2940	2950	Shale, medium gray sandy, bentonitic, calcareous, pyrite, fine to medium round frosted quartz grains.
2950	2960	Shale, medium gray sandy, bentonitic, calcareous, pyrite, some very fine white-light gray sandstone calcareous.
Sundance 2957		
2960	2970	Sandstone, light gray very fine grained silty calcareous, some shale as above, shell fragments, bentonitic.
2970	2980	Shale, medium gray sandy calcareous, sandstone as above, shell fragments, bentonitic.
2980	2990	Shale, medium gray sandy calcareous, some fine to medium grained subround to round quartz grains frosted, some white fine crystalline limestone, bentonitic, pyrite.
2990	3000	Sandstone, light gray, very fine grain silty calcareous tight, shale as above.
3000	3010	Shale, medium gray sandy calcareous, sandstone as above, shell fragments medium gray dolomite oolitic.
3010	3020	Shale, medium gray sandy calcareous, white crystalline limestone, some sandstone as above.
Piper 3025		
3020	3040	Limestone, white-light gray, crystalline, sandstone and shale as above.
3040	3050	Limestone, white-light gray, sugary sandy.
3050	3060	Limestone, white-light gray, sugary silty and sandy, calcareous medium gray sandy shale.
3070	3080	Limestone, white-light gray, sandy crystalline.
3085	3090	Limestone, white and pink, sandy crystalline, medium gray shale, fine grained white sandstone, calcareous.
3090	3095	Shale, medium-dark gray sandy, limestone as above, shell fragments, pyrite.
3100	3110	Shale, medium-dark gray, some limestone as above, angular to round quartz fragments fine to medium grained.
3130	3140	Shale, medium gray, some limestone as above, calcareous very fine grained silty sandstone.

<u>From</u>	<u>To</u>	<u>Formation</u>
3140	3150	Limestone, white dolomitic earthy, shale as above.
3150	3152	Siltstone, red-brown calcareous sandy, some shale as above, limestone as above.
3150	3160	Limestone, white to light gray earthy.
3160	3170	Limestone, as above, siltstone as above, medium gray shale sandy.
3170	3180	Limestone, white to light gray earthy dolomitic silty.
3180	3190	Anhydrite, white with limestone and siltstone as above.
3190	3200	Anhydrite, white with some siltstone as above, limestone as above.
Spearfish 3196		
3200	3205	Shale, red-brown, slightly calcareous sandy, anhydrite, limestone as above.
3205	3215	Anhydrite, white with shale as above.
3215	3220	Anhydrite, white with red and gray shale calcareous.
3220	3230	Anhydrite, white with red and gray shale calcareous, light brown dolomite.
3230	3235	Limestone, white crystalline abundant shell fragments, inoceramus, brown dolomite, gray shale.
3235	3240	Shale, medium gray and red-brown calcareous, anhydrite.
Amsden 3250		
3240	3245	Shale, medium gray calcareous, anhydrite.
3245	3250	Shale, medium gray, anhydrite, red-brown.
3250	3255	Dolomite, brownish limy, red-brown shale.
3255	3260	Sandstone, brown very fine grained calcareous, brown dolomite.
3260	3265	Sandstone, brown very fine grained calcareous, red brown and gray shale, pyrite, limestone, anhydrite.
3265	3275	Sandstone, fine to medium grained sub-round to round frosted, loose, gray shale, anhydrite, pyrite.
3275	3280	Sandstone, as above, large amounts anhydrite and gray shale, dolomitic limestone white-brown, pyrite.
3280	3285	Shale, medium gray, large amounts anhydrite and sandstone as above, dolomitic limestone white-brown, pyrite.
	3285	Shale, medium gray, large amounts anhydrite, dolomitic limestone white-brown. Circulation 20 minutes.
3285	3290	Limestone, light brown dolomitic sandy, large amount anhydrite, red shale.
3290	3295	Limestone, pink to red-brown dolomitic silty sandy, gray and red shale, anhydrite.
3295	3300	Shale, pink to red-brown calcareous sandy, pyrite, gray shale, anhydrite fine to medium frosted quartz grains.
3300	3305	Shale, pink to red-brown calcareous sandy, gray shale, anhydrite, pyrite, pink silty and sandy limestone.
3305	3310	Shale, medium gray sandy calcareous, red shale as above, pyrite.
3310	3315	Limestone, pink to red-brown very silty and sandy dolomitic, red and gray shale, anhydrite, fine to medium frosted quartz grains.
3315	3320	Shale, red and gray sandy, calcareous, anhydrite.

<u>From</u>	<u>To</u>	<u>Formation</u>
3320	3325	Shale, medium gray sandy, some red shale, pyrite, shell fragments, anhydrite.
3325	3330	Shale, medium gray, sandy, red shale, anhydrite.
3330	3340	Shale, medium-dark gray carbonaceous, anhydrite.
Big Snowy 3310		
3340	3345	Shale, medium-dark gray, carbonaceous, anhydrite, grayish brown dolomite.
3345	3355	Shale, medium-dark gray carbonaceous, brownish gray dolomite.
	3357	Shale, medium gray, dark gray-black fine grained silty dolomite, brown gray dolomite. Circulation 35 minutes.
3355	3360	Shale, medium gray, dolomite as above, white fine grained sandstone.
3360	3365	Shale, medium gray, dolomite as above, yellow-brown and brown shale.
3365	3370	Shale, medium gray, yellow-brown and brown shale, dolomite as above, slight amount.
3370	3375	Shale, medium gray, yellow-brown and brown shale, dark gray-brown silty dolomite.
3375	3380	Shale, medium gray, yellow-brown and brown shale, dolomite as above, gypsum unidentified microfossil.
3380	3385	Shale, medium gray, large amounts anhydrite pyrite, yellow-brown shale, brown dolomite, gypsum.
3385	3390	Shale, red and gray, anhydrite, pyrite, brown dolomite, gypsum.
3390	3395	Shale, medium gray, large amount red shale, anhydrite.
3395	3400	Shale, medium gray, large amount red shale, yellow-brown shale.
3400	3405	Shale, medium gray, some red shale, yellow-brown shale, iridescent shell fragments.
3405	3410	Shale, medium gray, some red shale, yellow-brown shale, white fine crystalline limestone.
3410	3415	Shale, medium gray, some red shale, yellow-brown shale, dark gray silty dolomite.
3415	3420	Shale, medium gray, some red shale, yellow-brown shale.
3420	3425	Shale, medium gray, red shale, yellow-brown shale, dark brown-gray silty dolomite.
3425	3430	Shale, red, some medium gray shale, yellow-brown shale.
3430	3435	Shale, red, medium gray shale, yellow-brown shale.
3435	3440	Shale, red, some gray shale, yellow-brown shale.
3440	3445	Shale, medium gray, some red shale, yellow-brown shale.
3445	3450	Shale, medium gray, large amount red shale, yellow-brown shale.
	3440	Circulated 15 minutes; shale, medium gray, some red shale, some yellow-brown shale.
	3440	Circulated 15 minutes; shale, medium gray, some red shale, some yellow-brown shale.
	3450	Circulated 15 minutes; shale, medium gray, some red shale, some yellow-brown.
	3445	Circulated 15 minutes; shale, red-brown, gray shale, yellow-brown shale, anhydrite, white-gray fine grained calcareous sandstone with pyrite.

<u>From</u>	<u>To</u>	<u>Formation</u>
	3455	Circulated 15 minutes; shale, medium gray, red shale, yellow-brown shale.
	3455	Circulated 15 minutes; shale, red-brown, some gray shale, yellow-brown shale, carbonaceous remains white-gray fine grained calcareous sandstone with pyrite.
3450	3455	Shale, medium gray, some red shale, yellow-brown shale.
3455	3460	Shale, medium gray, some red shale, yellow-brown shale, pyrite.
3460	3465	Shale, medium gray, some red shale, yellow-brown shale.
	3467	Circulated 15 minutes; shale, medium gray, large amount red shale, yellow-brown shale, pyrite.
	3467	Circulated 15 minutes; shale, medium gray, large amount red shale, yellow-brown shale.
3465	3470	Shale, medium gray, some red shale, yellow-brown shale.
3470	3475	Shale, medium gray, red shale, yellow-brown shale.
3475	3480	Shale, medium gray, large amount red shale, shell fragments.
3485	3490	Shale, medium gray, red shale, yellow-brown shale, anhydrite, fine white gray calcareous sandstone, pyrite.
3490	3495	Shale, medium gray, red shale, yellow-brown shale.
3495	3500	Shale, medium gray, 3500 has circulation for 30 minutes.
3500	3505	Shale, medium gray, some red shale, pyrite, white, fine grain sandstone.
3505	3510	Shale, medium gray, red shale, yellow-brown shale.
3510	3515	Shale, medium gray, red shale, yellow-brown shale, fine to medium iron stains, quartz grains angular to rounded.
3515	3520	Shale, medium gray, quartz grains as above, limestone, white fine grain, medium gray, large amount limestone, fine grain, white. Circulated 30 minutes.
3520	3525	Shale, medium gray, limestone as above.
3525	3530	Limestone, white earthy to fine crystalline, large amount of gray shale.
3530	3535	Shale, medium gray, limestone as above.
3535	3540	Limestone, white earthy to fine crystalline, large amount of gray shale. Circulation 35 minutes.
3540	3545	Limestone as above, gray and red shale.
Charles 3548		
3545	3550	Limestone as above, big amount of gray shale.
3550	3555	Shale, dark gray and black, limestone as above.
3555	3560	Shale, medium gray, red-yellow-brown limestone as above.
3560	3570	Limestone, white-brown gray crystalline, some shale as above, slight oil cut with acid.
3570	3575	Shale, medium gray large amount of limestone as above, slight oil cut with acid.
3575	3585	Limestone, white-brown gray, fine crystalline, shale as above, slight oil cut with acid.
3585	3590	Limestone as above, large amount medium gray shale, slight oil cut with acid.
3590	3595	Limestone as above, sandy fine grain dolomitic limestone, gray shale, slight oil cut with acid.
3595	3600	Dolomite, medium gray sandy limy, some limestone as above.

<u>From</u>	<u>To</u>	<u>Formation</u>
3600	3605	Dolomite, gray sandy, fine grain, large amount white-medium gray limestone.
	3605	15 minute circulation. Dolomite as above. Limestone, white to medium gray.
	3606	15 minute circulation. Dolomite as above. Limestone as above.
3605	3610	Dolomite, medium gray, fine grain, sandy and silty, white medium gray crystalline limestone.
	3610	15 minute circulation. Limestone - white medium gray, some dolomite as above.
Cores		
3680	3685	Shale, medium gray, red, gray dolomite, white-brown gray limestone, some anhydrite.
3685	3690	Shale, medium gray, some limestone, pyrite and anhydrite.
3690	3695	Shale, medium gray, some red shale, some anhydrite, white-gray limestone.
3695	3700	Shale, medium gray, some red shale, anhydrite, white-gray limestone.
3700	3705	Limestone, white to light gray, oolitic, red and gray shale as above.
3705	3715	Limestone, white to light gray, oolitic, crystalline fine grain, oolitic, red and gray shale.
3715	3720	Limestone, white to light gray, crystalline-fine grain, slightly oolitic, large amount red and gray shale.
Mission Canyon 3723		
3720	3725	Shale, medium gray, red shale, some limestone as above.
3725	3740	Limestone, white-light gray, fine grain, gray shale.
Lodgepole 3920		
3930	3935	Limestone, light gray, fine grain, medium gray shale.
3935	3940	Shale, medium gray, limestone as above, large amount.
3940	3945	Limestone, light gray silty, slightly porous, fine grain, pinpoint porosity, medium gray shale, few oolites.
3945	3950	Limestone, light gray, silty, slightly porous, fine grain, gray shale, pyrite.
3950	3955	Limestone as above, dolomitic, some gray shale.
3955	3970	Limestone, light brown gray, medium gray, silty dolomitic, slightly porous, gray shale.
3970	3980	Limestone, white-light gray, earthy to fine grain, slightly porous, gray shale.
3980	3985	Limestone as above, oolitic.
3985	3990	Limestone white-light gray, oolitic, slightly porous, earthy and fine grain.
3990	3995	Limestone as above, few oolites.
3995	4005	Limestone as above, few oolites, gray shale.
4005	4010	Limestone as above, few oolites, large amount gray shale.
4010	4015	Limestone as above, few oolites, some gray shale.
4015	4025	Limestone as above, few oolites, gray shale.
4025	4030	Limestone, light gray oolitic fine grain, slightly porous, gray shale.

<u>From</u>	<u>To</u>	<u>Formation</u>
4030	4035	Limestone, white earthy, porous, large amount gray shale.
4035	4050	Limestone, white to light gray, slightly porous, earthy to fine gray, some gray shale.
4050	4060	Limestone, light gray-brown gray, slightly porous, earthy to fine grain, medium gray shale.
4060	4075	Limestone, light gray, slightly porous, earthy fine grain, few oolites, some gray shale.
4075	4080	Limestone, as above, gray shale, few oolites, shell fragments.
4080	4105	Limestone as above, few oolites 80-85, gray shale.
4110	4120	Limestone, light gray, slightly porous, earthy fine grain, silty, gray shale.
4120	4130	Limestone as above, shell fragments.
4130	4140	Shale, medium gray, some limestone as above.
4140	4155	Limestone, light gray, slightly porous, earthy fine grain, silty, some gray shale.
4155	4160	Shale medium gray, some limestone as above, earthy.
4160	4170	Limestone, light gray, slightly porous, earthy fine grain, silty, some gray shale.
4170	4175	Limestone as above, ostracods, some gray shale.
4175	4180	Limestone as above, some gray shale.
4180	4185	Limestone as above, big amount gray shale.
4185	4190	Limestone as above, some gray shale.
4190	4205	Limestone as above, oolitic, gray shale.
4205	4210	Limestone as above oolitic.
4210	4215	Limestone as above, oolitic, shell fragments.
4215	4220	Limestone as above, oolitic.
4220	4225	Limestone as above, gray shale.
4225	4230	Limestone as above, brachiopods, gray shale.
4230	4255	Limestone as above, gray shale.
4260	4265	Shale, medium dark gray, limestone as above.
4265	4270	Shale, medium dark gray, limestone as above, shell fragment.
4330	4335	Shale, medium gray, white, slightly porous earthy fine grain silty limestone.
4335	4340	Shale, medium gray, limestone as above.
4340	4345	Limestone, light gray, slightly porous, earthy-fine grain, silty, brown chert.
4345	4355	Limestone, light medium gray, fine crystalline, tight, brown gray chert.
4355	4365	Limestone as above, brown gray chert, gray shale.
Englewood 4363		
4365	4380	Limestone as above, light gray chert.
4380	4390	Limestone as above, light gray chert, gray shale.
4390	4400	Limestone as above, light gray chert.
4400	4405	Limestone as above, dolomitic in part.
4405	4410	Limestone, light medium gray, fine crystalline, light gray chert.
4410	4415	Limestone as above, some light gray chert.
4415	4430	Limestone as above, some light brown, very silty, fine grain dolomite, gray and brown chert.

<u>From</u>	<u>To</u>	<u>Formation</u>
Nisku 4438		
4445	4450	Dolomite, white-light gray fine crystalline, some very fine, fine grain quartz, dark gray shale.
4450	4455	Dolomite, light brown-gray crystalline-fine grain, white porous earthy limestone, some dark gray shale, few very fine sand grains.
Ireton 4468		
4465	4470	Dolomite, light brown, crystalline, fine grain.
4470	4475	Dolomite as above, light gray crystalline limestone, few very fine sand grains.
4475	4480	Dolomite as above, some gray shale, limestone as above, few very fine sand grains, pyrite.
4535	4540	Dolomite, light brown crystalline fine grain, gypsum and anhydrite.
4540	4550	Dolomite as above, few very fine sand grains, slightly intergranular porosity.
4550	4555	Dolomite, as above, limy in part, few pieces isolated pinpoint porosity, slight intergranular porosity.
4555	4560	Dolomite, medium brown, fine grain, slight pinpoint porosity.
4560	4565	Dolomite, medium brown, fine grain, intergranular porosity.
4565	4570	Dolomite as above and fine crystalline.
4570	4580	Dolomite, medium brown, dense, fine crystalline, tight.
4580	4585	Dolomite as above, light gray fine crystalline limestone.
4585	4590	Dolomite, light-medium brown, light gray earthy crystalline limestone.
4590	4595	Dolomite as above, limestone as above, few very fine sand grains.
4595	4600	Dolomite, light medium brown and medium gray tight, limestone as above, very fine sand grains, gray shale.
4605	4610	Dolomite, light brown, dense, fine crystalline fine grained, large amount light gray limestone, few very fine sand grains.
4610	4615	Limestone, light gray earthy crystalline, dolomite as above, microfossils (ostracod, gastropod) few oolites.
4615	4620	Limestone, light gray, earthy crystalline.
4620	4625	Limestone as above, some light brown crystalline fine grain dolomite, pyrite crystals.
4625	4630	Limestone, light gray earthy crystalline, dolomite as in 4620-25.
4630	4635	Limestone as above, some dolomite as above.
4635	4640	Limestone as above, large amount dolomite as above.
4645	4650	Dolomite, light gray to brown, crystalline fine grain, slightly porous limestone as above.
4650	4655	Dolomite, light gray-light brown, fine grain, slightly porous.
4655	4660	Dolomite as above, white-light gray, crystalline limestone.
4660	4665	Dolomite as above, white-light gray, earthy crystalline limestone.

<u>From</u>	<u>To</u>	<u>Formation</u>
4665	4670	Dolomite as above, limestone as above, some gray shale, pyrite.
4670	4675	Dolomite as above, white-light gray, earthy-crystalline limestone, pyrite.
4675	4685	Dolomite, light gray-light brown, slightly porous, white-light gray earthy crystalline limestone.
4685	4690	Limestone, light gray crystalline, with very fine quartz grains in limestone, some dolomite as above.
Ashern 4695		
4690	4700	Limestone, white-light gray earthy-crystalline, with very fine quartz grains in limestone, light gray-brown fine grain dolomite, gray shale.
Interlake 4716		
4755	4760	Dolomite, medium brown, fine grain, large amount medium dark gray shale, some limestone, earthy crystalline, white-gray.
Upper Stony Mountain 4862		
Stony Mountain 4928		
4935	4940	Dolomite, white-light brown, earthy crystalline, gray shale, white crystalline limestone.
4940	4950	Dolomite as above, white-light gray crystalline limestone, pyrite.
4950	4955	Dolomite and limestone as above.
4955	4960	Dolomite and limestone as above, pyrite, shell fragments.
4960	4965	Dolomite as above, white-light gray crystalline limestone, pyrite coral.
4965	4970	Dolomite as above, limestone as above, pyrite, bryozoa.
4970	4975	Limestone, light gray crystalline dolomitic, dolomite as above.
4975	4980	Limestone and dolomite as above, bryozoa.
4980	4990	Dolomite, light gray-brown crystalline fine grained limy, limestone as above.
4990	5000	Dolomite and limestone as above, bryozoa.
5005	5010	Limestone, light medium gray, crystalline, dolomite as above, bryozoa.
5010	5015	Limestone as above, dolomite, light gray-brown, coral.
5015	5020	Limestone, light gray-light brown, dolomite, white-light gray and brown bryozoa, coral.
Red River 5022		
5020	5025	Shale, dark gray, some dolomite and limestone as above, bryozoa and coral.
5025	5035	Limestone, white-light gray, earthy to crystalline, large amount dark gray shale, dolomite as above, coral.
5035	5040	Limestone as above, some dark gray shale.
5040	5045	Limestone, white-light gray, earthy to crystalline, slightly porous, gray shale.
5045	5050	Limestone as above, dolomitic in part, bryozoa.

<u>From</u>	<u>To</u>	<u>Formation</u>
5050	5060	Limestone as above, dolomitic in part, white-light gray dolomite in 50.
5060	5065	Limestone, white-gray very fine grains slightly porous.
5065	5075	Limestone, white-pale yellow brown, very fine grain, slightly porous.
5075	5085	Limestone, white-light gray, very fine grain, slightly porous.
5085	5095	Limestone, light gray, very fine grain, slightly porous, carbonaceous residue on bedding planes.
5095	5100	Limestone, white-pale yellow brown, very fine grain, slightly porous.
5100	5105	Limestone as above, very fine grain, slightly porous, dolomitic in part.
5100	5110	Limestone as above, very fine grain, slightly porous, dolomitic in part.
	5110	30 minute circulation. Dolomite, white-light gray, very fine grain limy, limestone as above.
	5110	30 minute circulation. Limestone, white-pale yellow brown, very fine grain, slightly porous.
5110	5120	Limestone as above, very fine grain, slightly porous.
5120	5130	Limestone as above, very fine grain, slightly porous, dolomitic in part.
5130	5135	Limestone, white to light gray, very fine grained.
5135	5140	Limestone, white to light gray, dolomitic in part.
5140	5145	Limestone white, very fine grain, slightly porous, carbonaceous residue on bedding planes.
5150	5155	Dolomite, white to light gray, very fine grain, large amount limestone as above, slightly porous.
5155	5170	Dolomite, white-light gray, limey, very fine grain, limestone as above, slightly porous.
5170	5175	Dolomite, white to light gray, very fine grain, slightly porous, limy.
5175	5180	Dolomite as above, limy, slightly porous.
5180	5185	Dolomite, white to light gray, very fine grain, slightly porous, limy.
5185	5195	Dolomite as above, limestone, white to light gray and fine grain sand, porous. No sand 90-95.
5195	5200	Dolomite, white to light gray, very fine grain, limey, slightly porous.
5200	5205	Limestone, pale yellowish brown-white, very fine grain and dolomitic, some dolomite as above.
5205	5210	Dolomite, white to light gray, very fine grain, dolomite, fine grain, light brown, slightly porous, some limestone as above.
5210	5215	Dolomite, white to light gray, very fine grain, limy, light brown fine grain dolomite, slightly porous, some limestone as above, bryozoa.
5215	5220	Dolomite, white to pale yellowish brown, very fine grain, limy, slightly porous, some limestone, white to pale yellow brown, calcitic.
5220	5230	Dolomite as above, with some light brown, fine grain dolomite some limestone as above, slightly porous.

<u>From</u>	<u>To</u>	<u>Formation</u>
5230	5240	Dolomite, light brown gray, fine grain, slightly porous, silty, limestone and dolomite at 5215-20.
5240	5245	Limestone, very light gray, slightly porous, very fine grain, dolomite as above.
5245	5250	Limestone, white to very light gray, slightly porous, very fine grain, dolomite, light brown gray, slightly porous, fine grain, silty.
5250	5255	Limestone as above, dolomite as above, bryozoa.
5255	5265	Limestone and dolomite as above, medium gray shale.
5265	5270	Limestone, white to very light gray, slightly porous, very fine grain, bryozoa.
5275	5285	Limestone as above, calcitic.
5285	5295	Limestone as above, some dolomite white to very light gray, very fine grain, bryozoa, some fine grain light brown dolomite.
5295	5300	Limestone, white to very light gray, very fine grain, slightly porous.
5300	5310	Limestone as above, medium gray shale.
5310	5315	Limestone as above, light brown, fine grain dolomite.
5315	5325	Limestone and dolomite as above, medium gray shale, coral, bryozoa.
5325	5330	Limestone, white to very light gray, very fine grain, slightly porous, light brown, fine grain dolomite, possible oil stain slight cut with HCL.
5330	5335	Limestone as above, dolomite as above.
5335	5345	Dolomite, light brown, fine grain, slightly porous, limestone as above.
5345	5355	Dolomite as above, some white-light gray limestone, very fine grain.
5355	5360	Dolomite, light brown, fine grain, slightly porous, dolomite crystals.
5360	5370	Dolomite as above, dolomite crystals, white to very light gray very fine grain crystalline limestone.
5370	5375	Dolomite and limestone as above. Dolomite crystals. Bryozoa.
5375	5385	Dolomite, light brown, fine grain, slightly porous, dolomite crystals, white to very light gray very fine crystalline limestone.
5390	5400	Dolomite as above, limestone, earthy to crystalline, white to very light gray.
5405	5410	Dolomite as above and limestone as above, dolomite crystals.
5410	5415	Dolomite as above, some limestone as 5390-5400.
5415	5425	Dolomite as above, large amount of limestone as 90-5400.
5425	5430	Limestone, white to very light gray, earthy-crystalline, porous, dolomite as above.
5430	5435	Dolomite, light brown, fine grain, slightly porous, limestone as above.
5435	5440	Dolomite and limestone of above, dolomite crystals.
5440	5455	Dolomite as above, some limestone as in 5425-30.
5455	5460	Limestone, white to light yellow brown, fine grain to crystalline, dolomite as above.

<u>From</u>	<u>To</u>	<u>Formation</u>
5460	5480	Limestone, white to very light gray, earthy to fine grain, silty, slightly porous, dolomitic in part.
5485	5490	Limestone, white to light gray, silty, earthy to crystalline, slightly porous.
5490	5500	Limestone as above, dolomitic in part.
5500	5505	Limestone as above, dolomitic in part, chert, very light gray.
5505	5510	Limestone as above, chert.
5515	5520	Limestone, white to very light gray, crystalline to fine grain, slightly porous.
5520	5525	Limestone as above, slightly porous, dark gray shale.
5525	5530	Limestone as above, dolomitic in part, slightly porous.
5530	5535	Limestone as above, slightly porous.
5540	5550	Limestone, white to very light gray, earthy to crystalline, slightly porous.
5550	5555	Limestone as above, medium gray shale.
5555	5575	Limestone as above, slightly porous.
5575	5590	Limestone, white to very light gray, earthy to crystalline, slightly porous. Chert at 80-85.
5590	5595	Limestone, white to light gray, dense, crystalline.
	5596	1 hour circulation. Limestone as 5575-5580.
5595	5600	Shale, medium dark gray, large amount limestone as above.
5600	5610	Limestone, white to light gray, dense, crystalline, shale as above.
Upper Winnipeg Sand 5605		
5610	5615	Limestone, pinkish gray, dense crystalline, some shale as above.
5615	5620	Limestone, white to light gray, dense, crystalline, medium dark gray shale.
5620	5625	Limestone as above, some medium dark gray shale.
	5625	Circulation. Limestone, white to light gray, crystalline to fine grain, sandy.
	5625	15 minutes circulation. Limestone, light olive gray, some medium gray shale.
5630	5635	Limestone as above, large amount medium dark gray shale.
	5635	Circulation. Limestone, white to olive gray crystalline to fine grain, large amount light to medium dark gray shale.
5635	5640	Limestone as above, shale as above, chert.
5640	5645	Limestone, very light gray to yellowish gray crystalline to fine grain, sandy.
5645	5650	Limestone as above, medium gray shale, pyrite, bryozoa.
5650	5655	Limestone as above, some medium gray shale, few frosted quartz grains.
	5658	Circulation. Limestone as above, some medium gray shale.
	5658	30 minutes circulation. Limestone as above, some medium gray shale, very light gray rounded friable sandstone, fine grain.
5655 15 min.	5660	Limestone as above, medium gray shale, sandstone as in 5658.

<u>From</u>	<u>To</u>	<u>Formation</u>
5655	5660	30 minutes circulation. Limestone, very light gray, to yellowish gray earthy to fine grain, sandy, medium gray shale, sandstone as 5658.
5665	5670	Limestone as above, medium gray shale, loose medium to coarse frosted, rounded sand.
5670	5675	Limestone as above, large amount medium gray shale, sand as above.
5675	5680	Sandstone, loose medium to coarse frosted subrounded, large amount limestone as above, some gray shale.
5680	5695	Sandstone as above, poorly sorted, some limestone as above and gray shale.
5695	5700	Shale, medium dark gray, splintery, some sandstone and limestone as above.
5700	5705	Shale, greenish gray, splintery, some shale as above, limestone and sandstone as above.
5705	5710	Shale as above, large amount medium dark gray shale.
5710	5715	Shale, 5G6/1 and medium dark gray, large amount sand as above, some limestone as above.
5715	5720	Shale as above, some sand and limestone as above.
5720	5725	Sandstone, medium to coarse frosted rounded, poor sorting, large amount shale as above, some limestone.
5725	5730	Shale, greenish gray, splintery, medium dark gray shale, some sand as above.
5730	5735	Shale, greenish gray, medium dark gray shale.
5735	5745	Shale as above, sand as above.
5745	5750	Shale as above, large amount medium dark gray shale.
Winnipeg Shale 5752		
5750	5760	Shale as above, gray shale as above.
5760	5765	Shale, medium dark gray, some medium to coarse frosted, round loose sand.
5765	5770	Shale as above, some greenish gray shale, sand as above.
5770	5775	Shale as above, some greenish gray shale.
5775	5780	Sandstone, medium to coarse frosted round loose, large amounts green and gray shale as above.
5780	5790	Shale, greenish gray, some medium dark gray shale, some sand as above.
5790	5795	Core. Shale, greenish gray.
5795	5800	Core. Shale as above.
5800	5805	Core. Shale as above.
5805	5812 1/2	Core. Shale as above.
5812	5815	Core. Sandstone, fine to medium, very light gray, fair sorting, angular - subround, porous.
5815	5819	Core. Sandstone as above, greenish gray shale.
5819	5822 1/2	Sandstone as above, porous calcite cement.
5828	5830	Core. Shale, dark greenish gray.
5830	5831 1/2	Shale as above. Core.
Winnipeg Sand 5830		
5831 1/2	5834	Core. Limestone, very light gray, very fine, fine grain, tight, sandy.
5830	5840	Shale, dark greenish gray, limestone as above.

<u>From</u>	<u>To</u>	<u>Formation</u>
5840	5850	Shale as above, medium gray shale.
5850	5855	Shale as above, some white to light gray limestone, earthy fine grained.
5855	5860	Shale as above, medium gray shale, limestone as above.
5860	5865	Shale as above, limestone as above, sandstone, fine grain, porous, calcite cement.
5865	5870	Shale as above, medium gray shale, limestone and sandstone as above, loose medium to coarse sand.
5875	5880	Shale as above, medium gray shale, some fine grain light gray porous sandstone.
5880	5885	Sandstone, light gray, fine grained, porous, shale as above, angular to round.
5885	5890	Sandstone as above, green and gray shale.
5890	5895	Sandstone as above, some green and gray shale.
5895	5900	Sandstone, loose fine to medium round shale and sand as above.
5900	5905	Sandstone, light gray fine grain, porous, shale and sand as above.
5905	5910	Sandstone as above, large amount loose fine to medium round, frosted sand, green and gray shale.
5910	5920	Sandstone, very fine to medium grain, poor sorted round frosted, loose gray and green shale.
5920	5925	Sandstone, fine grain, light gray angular to subrounded, porous, gray and green shale.
5925	5930	Sandstone as above, gray and green shale.
5930	5945	Sandstone as above, loose fine to medium grain sand, gray and green shale.
5945	5950	Sandstone, loose fine to medium, poor sort, frosted sand as above.
5950	5955	Sandstone as above, large amount sand as above, some gray and green shale.
5955	5960	Sandstone, fine grain, light gray, angular to subround porous sand as above, some green and gray shale.
5960	5965	Sandstone, fine to medium grain, loose, frosted, poor sort, round sand as above, green and gray shale.
5965	5970	Sandstone as above, large amount sand as in 55-60, green and gray shale.
5970	5980	Sandstone, fine grain, light gray, angular to subrounded, porous sand as above, large amount green and gray shale.
5980	5985	Shale, dark greenish gray, medium gray shale, sand as above.
5985	5990	Shale, dark greenish gray, medium gray, sandstone as above.
5990	5995	Shale as above, medium gray shale, large amount sandstone as above.
5995	6025	Shale and sandstone as above.
6025	6030	Shale, dark greenish gray.
6030	6035	Shale as above, sandstone as in 5970-75.
6035	6040	Shale, olive gray.
6040	6045	Shale, greenish gray, olive gray shale as above, large amount fine to medium poor sorted angular to round frosted sandstone.

<u>From</u>	<u>To</u>	<u>Formation</u>
6045	6050	Shale, greenish gray, large amount sand as above.
6050	6060	Sandstone, fine to medium grain, poor sorted, subrounded to round frosted, large amount greenish gray shale.
6060	6065	Shale, greenish gray, medium gray, some sand as above.
6065	6070	Sandstone, fine grain subangular, porous, glauconitic, large amount green and gray shale.
6070	6095	Sandstone, fine to medium, subangular to rounded porous, glauconitic, large amount green and gray shale.
6095	6105	Sandstone as above, some green shale.
6105	6130	Sandstone as above, some green and gray shale.
6130	6135	Shale, dark greenish gray, medium gray, large amount of sandstone as above, round.
6135	6140	Shale, dark gray, shale and sand as above.
6140	6145	Shale, dark greenish gray and medium gray.
6178	6179	Shale, dark greenish gray and medium gray, granite, reddish brown quartz feldspar and biotite.
	6180	1 hour circulation. Granite, gray to reddish brown quartz feldspar and biotite.
Total Depth.		

CORES

3606	3608 1/2	Limestone, medium gray, fine grained, tight.
3608 1/2	3609	Limestone, yellowish gray, fine grain, sandy, slightly porous.
3609	3610	Limestone, medium gray, fine grain, tight.
3610	3611	Limestone, light gray, fine grain.
3611	3613	Shale, light gray, slightly calcareous.
3613	3615	Shale, medium gray, slightly calcareous.
3615	3619	Limestone, light olive gray, medium grain, calcareous, possible fluorescence.
3619	3621	Limestone, light gray, fine grain, shale medium grain.
3621	3625	Shale, very light gray with anhydrite, light olive gray, medium grain, sandy dolomite.
3625	3630	Limestone, fine grain, olive gray.
3630	3635	Anhydrite, white, sugary.
3635	3640	Limestone, light gray, fine grain.
3640	3645	Limestone, very light gray, fine grain, stylolites, dolomitic, silty.
3645	3650	Limestone, light gray, fine grain, dolomitic, silty.
3650	3655	Limestone as above.
3655	3660	Limestone as above with anhydrite.
3742	3750	Limestone, light yellowish gray, oolitic, coarse grain.
3750	3756	Dolomite, light gray, medium grain, with anhydrite crystals.
3756	3760	Limestone, light gray, medium to coarse grain.
3760	3765	Limestone, yellowish gray, medium grain.
3765	3770	Anhydrite, crystalline, brownish gray.
3770	3775	Limestone, white to very light gray, medium grain, anhydrite crystals, brownish gray.
3775	3780	Limestone, yellowish gray, medium grain with anhydrite.

<u>From</u>	<u>To</u>	<u>Formation</u>
3780	3785	Limestone, yellowish gray, medium grain.
3785	3790	Dolomite, light gray, fine grain with limestone as above.
3790	3793	Anhydrite, white sugary.
3793	3800	Dolomite, light olive gray, fine grain.
3800	3802	Dolomite as above.
3810	3815	Dolomite, light olive gray, fine grain.
3815	3820	Anhydrite, white to gray sugary with calcite, light gray shale.
3820	3825	Dolomite, medium gray, fine grain.
3825	3830	Dolomite, medium gray, fine grain.
3830	3833	Anhydrite, light brownish gray .
3833	3835	Anhydrite, white sugary with calcite, light gray shale.
3835	3840	Anhydrite, white with silty yellowish gray dolomite.
3840	3845	Dolomite, yellowish gray fine grain, silty.
3845	3850	Dolomite as above.
3850	3855	Limestone, yellowish gray, coarse grain, fair porosity, oolitic.
3855	3860	Limestone, light olive gray, fine grain, silty fair to good porosity.
3860	3865	Limestone, yellowish gray, fine to medium grain, silty, fair porosity.
3865	3869	Limestone, yellowish gray, coarse grain, fair porosity, oolitic.
3869	3875	Limestone, yellowish gray, coarse grain, slightly porous, oolitic.
3875	3880	Limestone, yellowish gray, coarse grain, fair porosity, oolitic.
3880	3885	Limestone, yellowish gray, fine to medium grain, slightly porous.
3885	3890	Limestone, yellowish gray, coarse grain, fair porosity, oolitic.
3890	3895	Limestone, yellowish gray, medium to coarse grain, oolitic, fair porosity.
3895	3900	Limestone, yellowish gray, fine to medium grain, slightly porous.
3900	3905	Dolomite, yellowish gray, fine grain, slightly porous.
3905	3910	Limestone, yellowish gray, fine grain, slightly porous.
3910	3915	Limestone, yellowish gray, coarse grain, oolitic, fair porosity.
3915	3920	Limestone, light olive gray, fine grain, sandy, fair porosity.
3920	3925	Limestone, light gray, fine to medium grain.
3925	3929	Dolomite, medium light gray, fine grain.
4270	4275	Limestone, very light gray, fine grain, shell fragments.
4275	4280	Limestone, light gray, dolomitic.
4285	4290	Chert, very light gray.
4290	4295	Limestone, light olive gray, dolomitic, fine grain, sandy.
4295	4300	Limestone as above.
4300	4305	Limestone as above.
4305	4310	Limestone, very light gray, dolomitic, argillaceous.
4310	4315	Dolomite, very light gray, fine grain, argillaceous, salty taste.

<u>From</u>	<u>To</u>	<u>Formation</u>
4315	4320	Dolomite, white to very light gray, argillaceous, fine grain.
4320	4325	Dolomite as above, very fine salt stringer.
4325	4329	Limestone, light gray, fine grain.
4487	4490 1/2	Limestone, light gray, dolomitic with anhydrite, tight.
4490 1/2	4491	Dolomite, greenish gray, fine grain, sandy, pyritic.
4491	4495	Dolomite, light gray fine grain, salty taste.
4495	4499	Dolomite, yellowish gray, fine grain.
4499	4504	Dolomite, light olive gray, fine grain, vuggy.
4504	4510	Dolomite, light olive gray, fine grain.
4510	4512	Dolomite, light gray, fine grain.
4512	4518	Dolomite, yellow gray, medium grain, good porosity, vuggy.
4518	4521	Dolomite, yellow gray, fine grain.
4523 1/2	4530	Dolomite, light olive gray, fine grain.
4530	4535	Shale, greenish gray, calcareous.
4535	4537	Limestone, yellowish gray fine grain, slightly porous with anhydrite.
4700	4702	Limestone, light gray, fine grain, dolomitic.
4702	4705	Limestone, very light gray, fine grain, dolomitic, sandy.
4705	4710	Sandstone, fine to medium grain, light gray, well rounded frosted, large amount calcareous cement.
4710	4713	Dolomite, pinkish gray, fine grain.
4716	4717	Shale, light gray, dolomitic.
4717	4718 1/2	Dolomite, yellowish gray, fine grain.
4718 1/2	4725	Dolomite, yellowish gray, medium grain, good porosity, calcareous.
4725	4730	Dolomite, yellowish gray, fine grain.
4730	4733	Dolomite as above.
4733	4739	Dolomite, very light gray, fine grain, argillaceous, earthy texture.
4739	4745	Dolomite, white, fine grain, argillaceous, earthy texture.
4745	4750	Dolomite as above.
4750	4755	Dolomite, white, medium grain, argillaceous, calcareous, good porosity, earthy texture.
4755	4760	Dolomite as above.
4760	4765	Limestone, white fine grain, argillaceous, earthy texture.
4765	4770	Limestone, white, fine grain, argillaceous, dolomitic, earthy.
4770	4775	Dolomite, white, fine grain, argillaceous.
4775	4780	Dolomite as above.
4780	4785	Limestone, white, fine grain, argillaceous, dolomitic, earthy.
4785	4790	Limestone, white, fine grain, argillaceous, earthy texture.
4790	4794	Limestone, white, fine grain, argillaceous, dolomitic, earthy.
4794	4796 1/2	Dolomite, white, fine grain, argillaceous.
4796 1/2	4798	Dolomite as above, calcareous.
4798	4805	Dolomite, pinkish gray, fine grain, calcareous, argillaceous.

<u>From</u>	<u>To</u>	<u>Formation</u>
4805	4810	Dolomite, grayish pink, fine grain, argillaceous.
4810	4812 1/2	Dolomite as above.
4812 1/2	4815	Dolomite, pinkish gray, fine grain, argillaceous.
4815	4820	Dolomite, white, fine grain, argillaceous, earthy texture.
4820	4825	Dolomite as above.
4825	4830	Dolomite as above.
4830	4835	Dolomite, white, fine grain, argillaceous, earthy texture.
4835	4840	Dolomite, yellowish gray, fine grain.
4840	4845	Dolomite, white, fine grain.
4845	4847 1/2	Dolomite as above.
4847 1/2	4849	Shale, light greenish gray, calcareous.
4849	4853	Dolomite, white, fine grain, silty.
4853	4857	Dolomite, yellowish gray, fine grain, sandy.
4857	4860	Dolomite, gray orange pink, fine grain.
4860	4865	Dolomite as above.
4865	4870	Dolomite, light gray, fine grain.
4870	4875	Dolomite, gray orange pink, fine grain.
4875	4879	Dolomite, medium light gray, fine grain.
4879	4883	Dolomite, white, fine grain, sandy.
4883	4886	Dolomite, white, fine grain.
4886	4890	Dolomite, white, fine grain, sandy.
4890	4895	Dolomite, white, fine grain.
4895	4900	Dolomite, yellowish gray, fine grain.
4900	4905	Dolomite, light olive gray, fine grain.
4905	4910	Dolomite as above.
4910	4919	Dolomite, yellowish gray, fine grain.
4919	4930	Limestone, light gray, fine grain, slightly dolomitic.

End of Cores.