The Peak Drilling Company - #1 Ohlhauser, Emmons County, North Dakota. Located: C NE SE, Section 8, T132N, R78W, (660 feet from east line, 1980 feet from south line, Section 8) Elevation: 1820 DF.

The Peak Ohlhauser #1 was spudded December 18, 1951 and 207' of 10 3/4" casing was set with 125 sacks of cement. The original hole was lost while attempting to plug back and test the top of the Madison. A new hole was drilled to a depth of 3599 feet. After testing, the following plugs were set: 3555-3570 (7 sacks), 2615-2630 (7 sacks), 2345-2470 (50 sacks), 675-692 (8 sacks). A cap was welded on the surface casing and a 2" pipe welded to the cap was left projecting 4' above the ground. The cellar was filled with cement. Plugs were set in the original hole at: 5485-5500, 4470-4485, 4195-4210, 3555-3570, and 3595-3700. The well was abandoned January 27, 1952 at a total depth of 5885'. (granite at 5881)

Cores:

3582-3599

Tests:

DST #1 (3569-3599): Open 1 hour, shut in 15 minutes, fair to good blow throughout; recovered 290' fluid; 30' mud; 260' muddy saltwater - FP 50#, BHSIP 1550#, HP 2000#.

Formation tops

Cretaceous System

Niobrara Formation 1210
Greenhorn Formation 1820
Muddy 2268
Dakota 2475

Jurassic System

Morrison Formation 2595
Sundance Formation 2660
Pipe Formation 2965

Triassic System

Spearfish Formation 3020

Mississippian System

Amsden Formation 3050
Big Showy Group 3212
Charles Formation 3366
Mission Canyon Formation 3575
Lodgepole Formation 3900
Englewood Formation 4200
### Devonian System - undifferentiated
- Interlake

### Silurian System
- Interlake

### Ordovician System
- Upper Stony Mountain
- Lower Stony Mountain
- Red River Formation
- Upper Winnipeg Sand
- Winnipeg Formation
- Winnipeg sand

### Granite

### Total Depth

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Formation tops were picked from samples and electric logs; not all lithologic formation tops were called. Colors were determined from the rock color chart.

<table>
<thead>
<tr>
<th>Depth</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>Shale, light brownish gray, micaceous, lumpy.</td>
</tr>
<tr>
<td>210</td>
<td>Shale, light olive grey, micaceous, lumpy; much yellow green film; traces of a moderate reddish brown iron rock.</td>
</tr>
<tr>
<td>300</td>
<td>Shale, light olive grey to medium grey, micaceous, pyritic; small amount of white bentonite flecked with black at 320-330.</td>
</tr>
<tr>
<td>330</td>
<td>Shale, medium grey, increasingly lumpy and calcareous.</td>
</tr>
<tr>
<td>370</td>
<td>Shale; medium grey, mostly calcareous and bentonitic.</td>
</tr>
<tr>
<td>390</td>
<td>Limestone, white with black specks.</td>
</tr>
<tr>
<td>400</td>
<td>Shale, medium grey, partly lumpy, decreasingly calcareous; scattered amounts of chalky white limestone (1410-440) as above.</td>
</tr>
<tr>
<td>440</td>
<td>Shale, light olive grey, micaceous, partly lumpy and calcareous. (Missing samples 450-480).</td>
</tr>
<tr>
<td>490</td>
<td>Shale, medium grey, partly lumpy and calcareous; traces of chalky limestone and moderate reddish brown iron rock.</td>
</tr>
<tr>
<td>510</td>
<td>Shale, light olive grey, a small amount is lumpy and calcareous.</td>
</tr>
<tr>
<td>540</td>
<td>Shale as above; plus a small amount of chalky white limestone with black specks.</td>
</tr>
<tr>
<td>550</td>
<td>Shale, medium light grey.</td>
</tr>
<tr>
<td>580</td>
<td>Shale, medium grey, somewhat brittle.</td>
</tr>
<tr>
<td>600</td>
<td>Shale, medium dark grey, greenish grey (5GY 6/1), slightly calcareous; much chalky, yellowish grey limestone.</td>
</tr>
<tr>
<td>610</td>
<td>Shale, medium grey; some greenish grey; traces of limestone.</td>
</tr>
<tr>
<td>640</td>
<td>Shale, medium light grey to medium grey.</td>
</tr>
<tr>
<td>660</td>
<td>Shale, medium grey; dense; scattered small amounts of dense, pale limestone and inoceramus fragments.</td>
</tr>
<tr>
<td>800</td>
<td>Shale, medium to medium dark grey, dense, brittle; scattered traces of inoceramus fragments, dense moderate yellow brown dolomite.</td>
</tr>
<tr>
<td>850</td>
<td>Shale; medium grey, dense and lumpy; traces of light brown (5YR 5/6), dense, dolomitic shale.</td>
</tr>
<tr>
<td>890</td>
<td>Shale, light olive grey, dense; scattered of dense moderate yellow brown dolomite, pyrite.</td>
</tr>
<tr>
<td>940</td>
<td>Missing samples.</td>
</tr>
</tbody>
</table>
950 970  Shale, medium grey and light olive grey, mottled, dense and lumpy shale; traces (950-960) of dense dolomite as above, and very fine, white sandstone.
970 980  Shale, medium light grey, dense; traces of dolomite and inoceramus fragments.
980 1010  Shale, light, olive grey, lumpy, pyritic, calcareous; traces of dense dolomite; some yellow brown, shaly siltstone (990-1000).
1010 1020  Missing samples.
1020 1120  Shale, medium grey, dense to lumpy, micaceous, pyritic, slightly bentonitic and calcareous; scattered traces of white bentonite, hard dense orange brown dolomite. Missing samples 1090-1110.
1120 1140  Shale, dark grey, micaceous to light olive grey dense and lumpy; traces of bentonite, inoceramus fragments.
1140 1160  Shale, dark grey, micaceous, dense to lumpy, pyritic; traces of white to pale yellow bentonite, calcareous and bentonitic, light olive grey shale (1150-1160).
1160 1190  Shale, medium dark grey, lumpy; calcareous, micaceous; traces of bentonite.
1190 1200  Missing samples.
1200 1250  Shaly limestone, medium dark grey, soft, white speckled; scattered traces of pyrite.
1250 1280  Shaly limestone as above; light olive grey, calcareous, micaceous shale (50%); traces of inoceramus fragments and pyrite.
1280 1290  Shaly, speckled limestone as above; traces of inoceramus prisms, pyrite, and light olive grey shale.
1290 1420  Shaly limestone, medium grey, lumpy, micaceous, pyritic; small amounts of light to dark grey shale, partly calcareous; traces of pyrite, inoceramus fragments, white bentonite.
1420 1430  Shale, medium grey, micaceous, slightly bentonitic, pyritic; traces of siderite ?
1430 1480  Shale, medium grey to light olive grey, partly calcareous and lumpy; traces of pyrite, shell fragments, siderite ?, limestone.
1480 1520  Shale, medium to medium dark grey, dense and lumpy; traces of shell fragments, limestone, bentonite.
1520 1560  Shale, medium grey to moderate greenish grey, dense to lumpy, pyritic, micaceous, traces of bentonite.
1560 1600  Shale, greenish grey, slightly silty, lumpy, calcareous and bentonitic in part.
1600 1700  Shale, light olive grey, green grey, micaceous, lumpy, partly calcareous and bentonitic; traces of pyrite, bentonite, inoceramus fragments.
1700 1730  Shale, medium grey, light olive grey, slightly calcareous and bentonitic, pyritic; traces of pyrite, bentonite, shell fragments, siderite ?
1730 1750  Shale, green grey, medium grey, lumpy, slightly bentonitic; traces of bentonite, pyrite, siderite ?
1750 1820  Shale, medium dark grey, dense to lumpy, pyritic, partly calcareous and/or bentonite, micaceous; traces of bentonite, pyrite.
1820 1830 Shale, medium light grey, medium grey, dense, hard; traces of pyrite, inoceramus fragments, limestone.
1830 1850 Limestone, sugary, fossiliferous (aragonitic); a small amount of shale as above; many inoceramus fragments.
1850 1940 Shale, dark grey; calcareous; limestone, fragmental, fossiliferous (inoceramus); some shaly, grey limestone; inoceramus fragments.
1940 2010 Shale, dark grey to grey black, partly lumpy and calcareous, micaceous; traces of inoceramus limestone, bentonite, inoceramus fragments.
2010 2060 Shale, greyish black, lumpy to dense, pyritic; some shale is light olive grey, micaceous.
2060 2070 Shale, same as above, only spotted and calcareous in part.
2070 2090 Shale, grey, black, dense, somewhat calcareous; much pale yellow to white, soft bentonite.
2090 2100 Shale, grey black, lumpy, calcareous, some bentonite.
2100 2120 Shale, light grey to grey black, partly lumpy and calcareous; some bentonite.
2120 2130 Shale, grey black, dense, micaceous, partly lumpy and limy; small amounts of bentonite and inoceramus fragments.
2130 2140 Shale, medium grey to grey black, partly lumpy slightly limy; small amounts of light olive grey, lumpy shale.
2140 2200 Shale, dark grey, micaceous, flaky; scattered traces of inoceramus limestone and fragments, pyrite.
2200 2210 Shale, medium grey to dark grey shale, partly lumpy, partly spotted; traces of pyrite and inoceramus limestone.
2210 2220 Shale, dark grey, flaky, brittle; some grey, spotted, limy shale; traces of inoceramus limestone.
2220 2240 Shale, medium dark grey to brownish grey, brittle, partly lumpy; traces of inoceramus fragments.
2240 2250 Shale, light grey to dark grey, flaky; some limy grey shale; traces of inoceramus limestone and fragments.
2250 2270 Shale, dark grey, brittle, partly light olive grey and brownish grey; scattered traces of inoceramus limestone and prisms, sugary white sandstone.
2270 2310 Shale, medium grey to dark grey, brittle, partly light olive grey, lumpy and silty.
2310 2340 Silty shale, light olive grey, lumpy; some dark shale as above; traces of light brown siderite ?
2340 2410 Shale, medium dark grey to grey black, partly lumpy and slightly limy, traces of pyrite, inoceramus prisms, bentonite; some light grey shale beginning at 2380.
2410 2440 Shale, medium dark grey to dark grey, brittle; traces of bentonite, pyrite, inoceramus prisms, spotted limy shale; a trace of glauconite sandstone and grey, sugary limestone at 2430.
2440 2480 Shale, medium dark grey to greyish black, becoming partly lighter and lumpy and slightly limy beginning at 2460.
2480 2500 Shale, greyish black to brownish black, brittle, slightly silty; small amounts of fine grained sandstone beginning at 2490.
2500 2540 Shale, medium dark gray to dark grey, brittle; small amounts of light grey shale with brown spots; scattered traces of pyrite, shale, sandstone, and radium light grey shaly siltstone.
Circulation 1 hour. Shale, dark grey, traces of green and yellow green shale, quartzose sandstone, reddish brown concretions, and pyrite.

Shale as above; some medium dark grey, slightly limy shale; traces of reddish brown concretions (quartz) and shale.

Shale, dark grey, brittle, becoming slightly brownish at 2580, slightly limy; traces of pale yellow green shale and coarse, quartzose sandstone (becoming finer) beginning at 2580.

Shale, dark grey, slightly limy; traces of coarse to fine, quartzose sandstone; traces of greenish grey shale beginning at 2600 and increasing at 2610; small amounts of shaly siltstone and silty shale beginning at 2620.

Shale, dark grey, rather brittle, becoming partly brownish at 2650; some light olive grey shale; traces of pyrite and coarse sandstone.

Shale as above; much grey, lumpy, slightly bentonitic shale; traces of bentonite and grey siltstone.

Shaly siltstone, medium grey, small amounts of shale as above; traces of pale green shale.

Shale, grey, slightly greenish and limy; some shaly siltstone as above; scattered trace of shell fragments, pyrite, pale green shale, and reddish brown shale; missing samples 2710-2720.

Shale, medium dark grey to greenish grey, brittle; traces of glauconitic sandstone, shell fragments, pyrite, and limy, reddish brown shale.

Shale as above, some moderate reddish brown, limy, somewhat silty shale; traces of grey siltstone, pale green shale and pyrite.

Shale, light grey to dark grey, firm, brittle; small amounts of moderate reddish brown shale; traces of fine to coarse sandstone and grey siltstone.

Shale, dark grey to grey black, brittle; traces of limy, reddish brown shale and siltstone.

Shale, light grey to dark grey, slightly greenish in part, partly silty; small amounts of silty, reddish brown shale.

Shale, light grey to dark grey, firm; some limy white siltstone and fine sandstone; traces of reddish shale.

Shale, greenish grey to grey green, limy, silty, lumpy; small amounts of grey and silty reddish shale; scattered traces of siltstone, sandstone and pyrite.

Shale, greenish grey and pale olive, waxey, partly lumpy; small amounts of grey and reddish shale; traces of coarse sandstone and pyrite; much silty, shaly limestone beginning at 2850.

Siltstone, light olive grey to greenish grey, shaly, limy; small amounts of greenish grey and grey shale.

Limi dolomite, almost white, chalky to dense, argillaceous; some greenish grey shale; small amounts of black shale; traces of inoceramus fragments; trace of pinkish white chert, increasing greatly at 2900.

Limi dolomite, almost white, sublithographic, tiny vugs; much black and greenish shale; small amounts of reddish brown, silty shale.
Limestone, moderate red (5YR 5/4), micro-sugary; some limy dolomite as above; some shale as above, rather poor samples.

Limestone, pearly, dense; much dense, moderate red limestone; much greenish, lumpy, silty, limy shale.

Limy shale, moderate reddish brown, soft, lumpy, silty; some chalky white limestone; small amounts of black and green shales; traces of white anhydrite, increasing somewhat at 2990.

Shale, medium grey to dark grey, firm, some grey, glauconitic, limy, sandy shale; some very pale orange, micro-sugary dolomite; small amounts of white anhydrite and moderate reddish brown shale.

Shale, medium grey to dark grey, moderate reddish brown; some dolomite as above; some dense, pinkish limestone beginning at 3060; small amounts of greenish shale; traces of anhydrite and sandstone.

Shale, moderate reddish brown, some black, small amounts of anhydrite, increasing in quantity; small amounts of dense, pale dolomite with tiny vugs, increasing greatly in quantity at 3080.

Shale, moderate reddish brown, partly silty and sandy; some dark grey, brittle shale; some pink to greyish orange pink, micro-sugary to dense, argillaceous dolomite; small amounts of white anhydrite.

Dolomite, pale, sublithographic to dense; small amounts of reddish brown and black shale, increasing greatly in quantity at 3110.

Shale, reddish brown, slightly silty; some grey, black, and green shale; much light grey to white, fine sugary to dense dolomite, increasing in quantity at 3150.

Shale as above; much pale, dense and sublithographic dolomite, decreasing in quantity and ending at 3190; small amounts of white anhydrite.

Dolomite, greyish, micro-sugary to dense; much reddish, dark grey and greenish shale; traces of white anhydrite.

Shale, red, black, grey, green, lumpy; poor sample.

Shale, red, dark grey, and greenish; some micro-sugary to dense, pale yellow brown dolomite; small amounts of white anhydrite.

Shale, black to medium grey, firm, some red, green, and brownish; much greyish, micro-sugary to dense, slightly limy dolomite; small amounts of white anhydrite.

Shale, moderate reddish brown, silty; some fossiliferous, grey shale; much micro-sugary to dense, pale yellow brown dolomite; trace of pyrite and dusky yellow shale.

Dolomite, greyish orange-pink, fine sugary to micro-sugary, some shale as above; traces of anhydrite, sand and pyrite.

Shale, red, dark grey, light olive brown to dark greenish yellow; some dolomite as above; traces of sand, pyrite, and anhydrite.

Dolomite, dark grey, fine sugary to dense; some shale as above.

Shale, red, yellow, and grey, small amounts of pink, greenish, orangish shale; small amounts of dolomite and anhydrite; traces of limestone, pyrite and sand.
Shale, light olive brown, reddish brown, reddish purple, dark grey; small amounts of dense dolomite and anhydrite; traces of pyrite.

Shale, variegated, partly silty; traces of sand, pyrite and anhydrite; small amounts of medium to coarse, pale yellow to white, limy sandstone beginning at 3550; many round, very dark red, ironstone concretions beginning at 3360.

Limestone, white to very light grey, chalky to sub-lithographic, partly oolitic (3390-3400); some shale as above; traces of anhydrite, sand and iron concretions.

Dolomite, grey, dense to sublithographic, somewhat limy; some variegated shale as above; traces of anhydrite.

Limestone, almost white, dense to micro-sugary; some red and black shale; much light olive brown shale beginning at 3430; small amounts of white anhydrite.

Limestone, white to very pale yellow brown, micro-sugary to sublithographic; much red and black shale.

Limestone, very pale yellow brown, sugary and chalky, with tiny vugs, partly fine oolitic; some red, grey and black shale.

Limestone, white to very pale yellow brown, chalky to sub-lithographic; some red, grey, and black shale, traces of anhydrite.

Limy shale and shaly limestone, medium grey, lumpy; much shale as above.

Shale, dark grey to black, moderate reddish brown, partly limy; some pale, dense limestone beginning at 3510; traces of anhydrite and pyrite.

Shale, reddish and grey, partly limy; much very pale orange to light grey, fine sugary limestone; small amounts of dolomite.

Limestone, greyish orange pink, sublithographic; some grey and red shale, increasing in quantity; some chalky, shaly, grey limestone beginning at 3600.

Shale, moderate reddish brown to moderate red, partly silty, some grey; small amounts of anhydrite and dense limestone.

Limestone, very pale yellow brown, sublithographic to pseudo-oolitic, becoming greyish orange pink; small amounts of red and grey shale.

Shale, greys, some red and green, much pale yellow brown to greyish orange pink, chalky and crystalline limestone; traces of anhydrite.

Limestone, very pale orange, oolitic, partly chalky and crystalline; much red and grey shale.

Missing samples.

Limestone, very pale orange to light yellow grey, sub-lithographic to sugary; some red and grey shale; some dense, medium blue grey dolomite beginning at 3660; missing samples 3670-3680.

Dolomite, pale yellow brown to light olive gray, fine sugary; some shale and limestone as above, small amounts of white anhydrite; traces of pyrite.

Anhydrite, white; much white, fine sugary dolomite; much red, grey, and black shale; traces of pyrite.
3700  3710 Dolomite, white to light olive grey, fine sugary to dense; some white anhydrite.
3710  3720 Dolomite, white to very pale orange, micro-sugary to chalky; partly crystalline; some white anhydrite, much limy, medium dark grey shale.
3720  3730 Dolomite, pale yellow brown, pseudo-oolitic to sugary; small amounts of white anhydrite.
3730  3740 Limestone, very pale orange to pale yellow brown, sugary to oolitic; much brittle, black shale.
3730  3780 Limestone, pale yellow brown, sugary to oolitic; small amounts of green and reddish shales; some pale yellow brown, sugary, limy dolomite beginning at 3770.
3780  3790 Limestone, pale yellow brown, sugary; some dolomite as above; small amounts of red and dark grey shale.
3790  3800 Limestone, medium grey, fine sugary; some pale yellow brown, fine sugary, dolomite to limestone; small amounts of red, grey, green and black shales; traces of anhydrite.
3800  3810 Limestone, pale yellow brown, sugary, partly dolomitic; some grey, sugary limestone; traces of shell impressions and anhydrite.
3810  3830 Limestone, medium light grey to medium grey, fine sugary to crystalline, partly chalky and very pale yellow brown; shell impressions; some fine sugary, light olive grey shale beginning at 3820; small amounts of shale.
3830  3840 Limestone, pale yellow brown to grey, fine sugary to fragmental, traces of shale.
3840  3850 Limestone, very light grey, fragmental to chalky; some grey, micro-sugary, limy dolomite; some dark grey shale.
3850  3860 Limestone, light olive grey to grey, fine sugary to fragmental; partly chalky; shell impressions; some reddish brown and medium dark grey shale; traces of anhydrite.
3860  3870 Limestone, very pale yellow brown, chalky, pseudo-oolitic, tiny vugs; much moderate reddish brown (silty) and dark grey shale; small amounts of sugary, yellow brown dolomite; traces of pyrite.
3870  3890 Limestone, medium grey to light grey, fine sugary to fragmental; some grey, green, and reddish shale, increasing in quantity; traces of pyrite and anhydrite.
3890  3970 Shale, grey, reddish brown, light olive brown, and greenish; some grey, fragmental limestone; traces of anhydrite.
3970  3980 Shale as above; much light grey, fragmental limestone and dolomite.
3980  3990 Shale, reddish brown and black, mostly; much white anhydrite and grey, fragmental limestone.
3990  4010 Shale as above; some grey, fragmental limestone; small amounts of anhydrite, pyrite, and greenish shale.
4010  4030 Shale, medium grey to dark grey, partly limy, some red; small amounts of anhydrite, pyrite, and dense limestone.
4030  4050 Shale, light grey to dark grey, reddish brown; much anhydrite, pyrite, and fine sugary, grey limestone.
4050  4060 Shale as above, much fine sugary to fragmental, grey limestone, partly dolomitic; small amounts of white anhydrite and dense dolomite; shell fragments.
<table>
<thead>
<tr>
<th>Layer 1</th>
<th>Layer 2</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4060</td>
<td>4070</td>
<td>Limestone, greyish, fragmental to chalky; much grey, red, greenish, partly silty shale, traces of anhydrite, pyrite, and medium sand.</td>
</tr>
<tr>
<td>4070</td>
<td>4130</td>
<td>Limestone, light yellow grey to greyish orange, chalky to fine sugary, becoming whiter and more chalky; some shale as above; traces of sand, pyrite, and anhydrite; traces of light grey, slightly orange chert beginning at 4120.</td>
</tr>
<tr>
<td>4130</td>
<td>4150</td>
<td>Limestone, light yellow grey to light orangish brown, fine sugary; some grey and red shale; traces of light yellow grey chert; missing samples 4140-4150.</td>
</tr>
<tr>
<td>4150</td>
<td>4160</td>
<td>Shale, medium grey to medium dark grey, firm, partly limy, pyritic.</td>
</tr>
<tr>
<td>4160</td>
<td>4170</td>
<td>Shale, dark grey and olive black, small amounts of reddish brown and pale green; some limestone as above, traces of anhydrite and dolomite.</td>
</tr>
<tr>
<td>4170</td>
<td>4180</td>
<td>Shale, red, greys, greenish, partly limy; some limestone as above; some sugary, yellow brown dolomite; traces of anhydrite.</td>
</tr>
<tr>
<td>4180</td>
<td>4190</td>
<td>Shale, as above, partly silty; pale greyish and brownish; chalky to micro-sugary limestone; traces of anhydrite and pyrite.</td>
</tr>
<tr>
<td>4190</td>
<td>4200</td>
<td>Limestone, pale, dense; some shale as above.</td>
</tr>
<tr>
<td>4200</td>
<td>4210</td>
<td>Shale, red, grey, green, partly limy; much limestone as above; traces of anhydrite.</td>
</tr>
<tr>
<td>4210</td>
<td>4220</td>
<td>Shale, light to dark grey, partly limy, small amounts of reddish and greenish; much limestone as above; small amounts of dolomite.</td>
</tr>
<tr>
<td>4220</td>
<td>4250</td>
<td>Shale, medium grey to medium dark grey, reddish brown, greenish grey, partly limy; some chalky to sugary, pale limestone and dolomite; some pyrite and white anhydrite beginning at 4230.</td>
</tr>
<tr>
<td>4250</td>
<td>4280</td>
<td>Limestone, very pale yellow brown, sugary; much of weathered chert; traces of shale; a small amount of dense, pale dolomite (4260-4270).</td>
</tr>
<tr>
<td>4280</td>
<td>4290</td>
<td>Shale, reddish, greenish, grey, some yellow brown, fine sugary to micro-sugary dolomite; traces of limestone, anhydrite, pyrite and shell fragments.</td>
</tr>
<tr>
<td>4290</td>
<td>4310</td>
<td>Limestone to dolomite, pale yellow brown, fine sugary to micro-sugary; some weathered chert and dark grey shale, traces of pyrite and anhydrite.</td>
</tr>
<tr>
<td>4310</td>
<td>4320</td>
<td>Dolomite, pale yellow brown, sugary; much pale yellow brown and light grey, micro-sugary dolomite; some weathered chert and grey shale.</td>
</tr>
<tr>
<td>4320</td>
<td>4330</td>
<td>Dolomite, pale yellow brown, dense, partly sugary; some weathered chert and dark grey shale.</td>
</tr>
<tr>
<td>4330</td>
<td>4340</td>
<td>Dolomite, pale yellow grey, fine sugary; small amounts of lithographic limestone, weathered chert, and dark grey shale.</td>
</tr>
<tr>
<td>4340</td>
<td>4390</td>
<td>Dolomite, yellow brown, fine to medium sugary, partly dense (4360-80); traces of limestone, shale, chert, pyrite, and anhydrite.</td>
</tr>
<tr>
<td>4390</td>
<td>4400</td>
<td>Dolomite, pale yellow brown to moderate red, micro-sugary to fine sugary; some moderate reddish brown, greenish, and grey shale.</td>
</tr>
</tbody>
</table>
Shale, reddish, grey to black, greenish grey; some dense to fine sugary, pale dolomite to limestone; traces of pyrite, anhydrite, coarse sandstone and moderate red dolomite.

Dolomite, very pale yellow brown to light yellow grey, fine sugary; some shale as above; small amounts of micro-sugary limestone; traces of pyrite and anhydrite.

Limestone, light brown to light grey, micro-sugary to sub-lithographic; small amounts of dolomite as above and dark grey shale.

Dolomite, pale yellow brown to yellow brown, sugary; much pale, micro-sugary to chalky; small amounts of shale.

Shale, variegated (red, grey, reddish purple, light olive brown, dusky yellow), partly silty; much dense, white to very pale yellow brown limestone; traces of rounded sand and pyrite.

Dolomite, pale yellow brown to light olive grey, dense to fine sugary; some greenish, grey, and reddish shale, increasing somewhat in quantity; traces of pyrite, anhydrite, and limestone.

Dolomite, pale yellow brown to pale yellow grey, slightly green, fine sugary to dense; traces of shale, anhydrite, and pyrite.

Limestone, greyish orange pink to very pale yellow brown, dense to fine sugary; small amounts of dolomite, some shale as above.

Shale, greenish grey, some grey and moderate, reddish brown; much dense to fine sugary, very pale orange, partly pseudo-oolitic limestone.

Dolomite, very pale orange, very fine sugary to finely oolitic; much grey and green shale, increasing in quantity.

Dolomite, very pale orange, dense to coarse sugary; some grey and green shale.

Limi dolomite, very pale orange, fine sugary to sub-lithographic; some shale.

Dolomite; very pale orange, dense, slightly limy; much greenish shale, some grey and moderate reddish brown.

Shale, grey, and greenish; some dense, very pale orange limestone; some pale pink, dense, shaly limestone; small amounts of dolomite as above.

Dolomite, very pale orange, dense; much grey, greenish, and reddish brown shale; traces of pink shale, pyrite, anhydrite and limestone.

Dolomite, pale orange, very fine sugary to sugary; much greyish green and dark grey shale; some dense limestone; traces of reddish shale and pyrite.

Shale as above; much pale orange, dense, slightly limy dolomite; some dense limestone.

Dolomite, very pale orange, dense to micro-sugary; some very pale orange, dense limestone; much shale as above.

Limestone and dolomite, pale yellow brown to pale orange brown, dense, to fine sugary, much green and grey, partly limy shale.

Dolomite as above; small amounts of limestone; some shale as above.
<table>
<thead>
<tr>
<th>Interval</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>4630-4640</td>
<td>Dolomite, pale yellow brown to pale orange, micro-sugary to chalky; some shale as above.</td>
</tr>
<tr>
<td>4640-4650</td>
<td>Shale, dark grey, moderate reddish brown, and greenish grey, much dolomite as above.</td>
</tr>
<tr>
<td>4650-4670</td>
<td>Shale as above; much very pale orange to light yellow grey to light grey, micro-sugary to sublithographic dolomite; missing samples 4660-4670.</td>
</tr>
<tr>
<td>4670-4680</td>
<td>Dolomite, greyish orange pink to white, dense to micro-sugary; some grey shale.</td>
</tr>
<tr>
<td>4680-4700</td>
<td>Dolomite, very pale orange to pale yellow grey, dense to micro-sugary; much medium dark grey shale, becoming rather greenish; traces of reddish brown shale and dense, grey limestone and bryozoan.</td>
</tr>
<tr>
<td>4700-4720</td>
<td>Dolomite, very pale orange to light olive grey, fine sugary; much shale as above; small amounts of greyish, fragmental and chalky limestone.</td>
</tr>
<tr>
<td>4720-4730</td>
<td>Shale, grey, reddish, and greenish; some medium grey to very pale orange, fine to medium sugary; traces of dolomite as above.</td>
</tr>
<tr>
<td>4730-4740</td>
<td>Limestone, medium grey to medium dark grey, fragmental; some shale and very pale orange dolomite; traces of chalky limestone, reddish shale, and pyrite.</td>
</tr>
<tr>
<td>4740-4750</td>
<td>Limestone, dark grey, chalky to fragmental; much very pale orange to yellow grey, fine sugary to micro-sugary dolomite; much shale, bryozoa.</td>
</tr>
<tr>
<td>4750-4760</td>
<td>Limestone, medium dark grey to white, fragmental and chalky; some very pale orange, micro-sugary limestone and dolomite; some green and grey shale; traces of pyrite, bryozoa and shell fragments.</td>
</tr>
<tr>
<td>4760-4770</td>
<td>Shale, dark grey to greenish grey; much very light grey, chalky to lithographic limestone.</td>
</tr>
<tr>
<td>4770-4780</td>
<td>Limestone, white to light yellow grey, chalky to sublithographic; some shale as above.</td>
</tr>
<tr>
<td>4780-4820</td>
<td>Limestone, very pale orange to very light grey, very fine sugary to sublithographic; some dark, grey and greenish shale; small amounts of pale yellow brown, fine sugary, dolomitic limestone beginning at 4800.</td>
</tr>
<tr>
<td>4820-4830</td>
<td>Limestone, white to pale orange, very fine sugary to chalky, partly vuggy; small amounts of grey, red and green shale, traces of pyrite, bryozoa, and shell fragments.</td>
</tr>
<tr>
<td>4830-4850</td>
<td>Limestone, white to pale orange to moderate reddish orange, very fine sugary, partly crystalline; traces of shale.</td>
</tr>
<tr>
<td>4850-4880</td>
<td>Dolomite, very pale orange to pale yellow grey, very fine sugary to sublithographic, becoming rather limy at 4870; traces of shale.</td>
</tr>
<tr>
<td>4880-4900</td>
<td>Limestone, light yellow grey to very pale orange, very fine sugary to dense, partly dolomitic; traces of shell fragments, pyrite, and shale.</td>
</tr>
<tr>
<td>4900-4920</td>
<td>Limestone, pale yellow grey to very pale orange, very fine sugary, slightly dolomitic; traces of dolomite, shale and pyrite.</td>
</tr>
<tr>
<td>4920-4940</td>
<td>Limestone, pale yellow brown, fine sugary to medium sugary, partly dolomitic; traces of chert and shell fragments beginning at 4930.</td>
</tr>
</tbody>
</table>
Limestone, pale yellow brown to light yellow grey, fine sugary to medium sugary; becoming partly chalky; traces of shell fragments, chert and shale.

Limestone, pale yellow brown to white, medium sugary, partly chalky, partly dolomitic, traces of shale, pyrite, chert, bryozoa, and shell fragments.

Limestone, pale orange, lithographic to micro-sugary; some pale green and black shale, decreasing in quantity.

Limestone, pale yellow brown, chalky to medium sugary; traces of pyrite, bryozoa, chert, and shale.

Limestone, white to pale yellow brown to greyish, chalky to fragmental; traces of chert, pyrite, and anhydrite.

Limestone, pale yellow brown, sugary; traces of chert and shell fragments.

Limestone, white to pale yellow brown, chalky to medium sugary; traces of pyrite.

Limestone, pale yellow brown to pale orange to white, sugary to chalky, partly dolomitic; much silty, dark greenish grey shale (5090-5100); traces of pyrite, shale, bryozoa, and shell fragments; the limestone is partly fragmental.

Limestone, very pale yellow brown to white, chalky to very fine sugary, partly fragmental, fossiliferous; traces of silty greenish shale, chert and anhydrite.

Limestone, white to pale yellow brown, chalky to medium sugary, slightly dolomitic in parts, small amounts of chert, increasing somewhat in quantity.

Limestone as above; much very light grey chert; much dark grey and greenish shale (5170-5180); traces of pyrite and shale.

Limestone, very pale yellow brown to white, chalky to micro-sugary; small amounts of chert; much greyish green, dark grey, and reddish brown shale beginning at 5210; traces of pyrite and shell fragments.

Limestone, very pale orange to light yellow grey, dense to fragmental, partly vuggy, partly fossiliferous; small amounts of grey and green shale; traces of pyrite, chert and shell fragments.

Shale, greyish black, moderate reddish brown, dark greenish grey; much white to light yellow grey, sublithographic to micro-sugary limestone, increasing in quantity at 5260; traces of chert and pyrite.

Limestone, pale, micro-sugary to sublithographic; some greenish and grey shale, decreasing in quantity; traces of pyrite and chert.

Limestone, very pale orange to light yellow grey, dense to very fine sugary; much grey black to greenish shale; traces of pyrite, chert and bryozoa.

Shale, greys and greens; some pale, micro-sugary to sublithographic limestone; traces of pyrite, bryozoa, chert and fine sandstone.

Shale, light grey to dark grey, greenish, partly silty and limy; much light grey to light yellow grey, sublithographic to micro-sugary; traces of pyrite, chert, shell fragments, and bryozoa.
| 5360 | 5380 | Shale, moderate reddish brown, grey, greenish, partly silty; much white to pale yellow brown, chalky to fine sugary limestone; traces of pyrite and chert. |
| 5380 | 5410 | Limestone, white to light yellow grey, dense to chalky to micro-sugary; much dark grey to black shale, small amounts of reddish; traces of pyrite, chert, bryozoan, sandstone and shell fragments. |
| 5410 | 5570 | Shale, greyish green, splintery; scattered traces of red and black shale, pyrite, bryozoan, and shell fragments; traces of fine sandstone beginning at 5540 and becoming coarser and greater in quantity there after. |
| 5570 | 5710 | Sandstone, rather coarse, green specked; much splintery greenish shale; small amounts of very coarse rounded, quartz sand beginning at 5630 and increasing in quantity. |
| 5710 | 5760 | Sandstone, medium, quartzose, green specked; much grey green, splintery shale, increasing greatly in quantity at 5740. |
| 5760 | 5880 | Shale, grey green, splintery; much medium, quartzose, green specked sandstone; traces of sand. |
| 5881 | Total Depth. |