

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 161

Summary of the Stanolind Oil and Gas Company - N.W.I. (N.P.) No. 1  
Billings County, North Dakota  
Well No. 555 - Permit No. 568

By James D. Peterson  
January, 1957

Stanolind Oil and Gas Company - N.W.I. (N.P.) No. 1, Billings County,  
North Dakota. Location: SE SE Section 17, T. 143N., R. 100W. Elevation: 2815  
A.D.B. Total Depth, 13,888 feet.

The Stanolind Oil and Gas Company - N.W.I. (N.P.) No. 1 was spudded  
April 27, 1954, drilled to a total depth of 13,888 feet, plugged and abandoned  
as a dry hole August 31, 1954.

Logs:

Electric, Laterolog, Microlog, Limestone Log, Caliper Survey, Micro-  
laterlog. Run by Schlumberger. Radioactivity Log by Lane Wells Company.

Drill Stem Tests:

DST #1 13,489 to 13,528. Open 15 minutes, SI 15 minutes, 3/4" choke.  
Weak blow for 10 minutes, then died. Mud dropped in annulus after tool was  
open 8 minutes. Estimated loss 50 barrels mud in annulus. Recovered 3,000'  
water cushion and 1,674' of drilling mud. Bottom Hole Temperature 330°; BHPF-  
3,000 to 4,475, BHPSI-6,950, HP-7,580, PB-9,711.

Test Data:

Perforated 9,640-89 with 4 shots per foot. Packer set at 9,631. Swabbed  
sulphur water and little gas, salt water with rainbow oil, small amount of  
gas. Squeezed perforated 9640-89. Reperforated 9590-9620 with 4 shots per  
foot. Packer set at 9420. Swabbed salt water with rainbow oil, 2 barrels water  
per hour, squeezed perforations 9590-9620. Reperforated 9540-70, filled up  
fluid level 4500'. Swabbed 1500' salt water, 1/2 barrels oil per hour, 8  
hours, swabbed dry. Acidized with 2000, swabbed 54 barrels fluid salt water  
and 1 barrel oil, 4 hours, plugged back 8100. Perforated 8118-40 with 4 shots  
per foot. Swabbed 45 barrels salt water per hour, 10 hours. Squeezed  
perforations.

Casing Record:

13 3/8" at 379' with 360 sacks of cement.  
9 5/8" at 6918' with 300 sacks of cement.  
7" at 9756' with 335 sacks of cement.

Plugging Record:

13878 to 13743        50 sacks of cement  
13135 to 13000        50 sacks of cement  
11200 to 11065        50 sacks of cement  
9971 to 9700        100 sacks of cement  
75 sacks with top of cement at 7650  
50 sacks with top of cement at 6830  
50 sacks with bottom of cement plug at 1821  
50 sacks cement 342 to 410. Bottom of 13 3/8" casing.

20 sacks placed in top of 13 3/8" casing with top of plug approximately 3' below surface.

Formation tops were picked from samples and electric logs. Doubtful or obscure formation tops were not picked. Color names and identifying numbers were taken from the 1948 Rock-Color Chart distributed by the National Research Council, Washington, D.C.

#### FORMATION TOPS

Cretaceous System	
Pierre formation	2142
Niobrara formation	4326
Greenhorn formation	4860
Muddy formation	5495
Basal Cretaceous Sands	5836
Jurassic System	
Jurassic shale	5990
Piper formation	6849
Triassic System	
Spearfish formation	7010
Permian System	
Minnekahta formation	7510
Opeche formation	7620
Pennsylvanian System	
Minnelusa formation	7904
Mississippian System	
Big Snowy Group	8397
Kibby Lime	8803
Charles formation	8951
Base of Last Salt	9470
Lodgepole formation	10100
Englewood formation	10915
Devonian System	
Lyleton formation	10950
Nisku formation	11177
Duperow	11268
Silurian System	
Interlake group	12147
Ordovician System	
Upper Stony Mountain	12923
Lower Stony Mountain	13038
Red River formation	13115
Winnipeg shale	13745
Winnipeg sand	13872
400-490	Shale, light olive gray to olive gray, earthy, calcareous, silty, lignite
490-520	Shale as above, bentonite, lignite.
520-550	Shale, light gray, slightly bentonitic.
550-640	Shale, light olive gray, earthy, lumpy, calcareous; lignite inclusions.

640-700 Shale, light gray to light brown, calcareous, lumpy, silty, lignite inclusions.

700-730 Shale, as above, light brown shale, very calcareous.

730-760 Shale as above, lignite.

760-790 Shale as above, lignite inclusions.

790-820 Shale, very light gray to light brown, calcareous, earthy.

820-970 Shale, very light gray to light brown, calcareous, lumpy, shell fragments, lignite.

970-1000 Shale, light olive gray, calcareous, interbedded lignite, slightly bentonitic, shell fragments.

1000-1030 Shale as above; much lignite, shell fragments.

1030-1120 Shale, light olive gray to medium dark gray, calcareous, lumpy, lignite, few pyrite crystals, slightly bentonitic.

1120-1180 Shale, light gray, calcareous, lignite

1180-1210 Shale as above, lignite, light gray sandstone, fine to medium grained.

1210-1240 Shale, light gray to light brown, calcareous, lumpy, lignite.

1240-1300 Shale as above, slightly bentonitic, light brownish gray, calcareous sandstone, lignite.

1300-1390 Shale, light olive gray to light brown, lumpy, calcareous, slightly bentonitic, small pyrite crystals; lignite; sandstone as above.

1390-1450 Shale as above.

1450-1510 Shale as above; lignite; shell fragments.

1510-1540 Shale, light olive gray to light brown, calcareous, bentonitic interbedded lignite.

1540-1570 Shale, light olive gray to light brown, lumpy to hard, dense; poorly consolidated light gray sandstone.

1570-1600 Sandstone, very light gray, fine grained; calcareous, shale as above.

1600-1660 Shale, light olive gray, interbedded lignite, lumpy.

1660-1750 Shale, light olive gray, lumpy.

1750-1780 Shale, olive gray, lumpy, calcareous, sand grain inclusions.

1780-1810 Shale, medium light gray, lumpy.

1810-1840 Shale as above; sandstone, angular, light gray, calcareous.

1840-1870 Shale, as above, lignite.

1870-1900 Shale as above.

1900-1930 Shale, medium light gray to light brownish gray, lumpy.

1930-1990 Shale, light olive gray to pale yellowish brown, fine to sandy, white bentonitic, lumpy.

1990-2080 Shale, light gray to medium gray, calcareous, white bentonite specks.

2080-2110 Shale, light gray to medium gray, fine to silty; limestone, light olive gray, sharp fragments; greenish gray to very light gray fine grained sandstone, lignite.

2110-2140 Shale as above, calcareous; limestone as above.

2140-2170 Shale, medium dark gray, lumpy; white bentonite inclusions; limestone light olive gray, angular, sublithographic.

2170-2260 Shale, medium light gray, lumpy, soft; yellowish gray, shaley limestone.

2260-2290 Shale, medium light gray, lumpy.

2290-2320 Shale as above; slightly bentonitic.

2320-2410 Shale, medium light gray to light brown, slightly bentonitic.

2410-2470 Shale as above, limestone inclusions; light brown siltstone.

2470-2680 Shale, medium light gray to light brown, lumpy.  
 2680-2710 Shale as above; lignite.  
 2710-2740 Shale, as above; slightly bentonitic.  
 2740-2770 Shale, light gray; limestone, medium gray, sublithographic.  
 2770 Shale as above, white bentonite specks.  
 2890-2950 Shale, medium light gray to light brown, lumpy to flaky, white bentonite specks.  
 2950-3010 Shale and bentonite as above, lignite.  
 3010-3070 Shale, medium light gray to light brown, white bentonite specks.  
 3070-3220 Shale, as above, shell fragments, inoceramus prisms.  
 3220-3310 Shale as above,, pale yellowish orange to white calcite.  
 3310-3370 Shale, medium light gray, lumpy to platy, white bentonite specks, calcite crystals, pyrite crystals; shell fragments.  
 3370-3430 Shale, medium light gray to light brown, calcite crystals, white bentonite specks; lignite; dense, medium dark sublithographic limestone.  
 3430-3520 Shale as above.  
 3520-3580 Shale, medium light gray, earthy.  
 3580-3610 Shale as above, dense medium dark gray sublithographic limestone; shell fragments.  
 3610-3670 Shale, medium light gray, lumpy; white bentonite specks; lignite inclusions.  
 3670-3730 Shale, medium light gray, white bentonite specks, pyrite, lignite; shell fragments.  
 3730-3820 Shale as above; sublithographic limestone; shell fragments, calcite.  
 3820-3910 Shale, light gray to medium dark gray, white bentonite; sublithographic limestone, shell fragments.  
 3910-3940 Shale, medium light to medium dark gray, bentonitic.  
 3940-3970 Shale as above; lignite.  
 3970-4030 Shale as above.  
 4030-4060 Shale as above, bentonitic, lithographic limestone.  
 4060-4210 Shale as above.  
 4210-4270 Shale, medium gray, white calcareous specks; calcite.  
 4270-4330 Shale, medium light gray to medium dark gray, calcareous white specks, bentonitic.  
 4330-4390 Shale, medium gray to dark gray, calcareous, white specks.  
 4390-4420 Shale, medium gray to medium dark gray, calcareous.  
 4420-4450 Shale, medium light gray; bentonite.  
 4450-4510 Shale, medium gray to medium dark gray; shell fragments, bentonite.  
 4510-4660 Shale as above, calcareous, non-calcareous.  
 4660-4720 Shale, light olive gray, shell fragments.  
 4720-4810 Shale, light brown to medium dark gray.  
 4810-4840 Shale as above; bentonite.  
 4840-4870 Shale, light olive gray; some bentonite.  
 4870-4930 Shale, medium light to medium dark gray, white calcareous specks; sublithographic limestone.  
 4930-4960 Shale, medium light gray to dark gray, in part calcareous; limestone, argillaceous to sublithographic.  
 4960-4990 Shale and limestone as above; bentonite.  
 4990-5010 Shale, medium gray; fine to coarse grained sublithographic limestone, pyrite; bentonite.

5010-5020 Shale, medium gray to dark gray, in part calcareous, bentonitic; sublithographic limestone; pyrite; shell fragments.

5020-5080 Shale as above; shell fragments.

5080-5090 Shale, medium gray to medium dark gray; sublithographic limestone, bentonite; calcite; pyrite; shell fragments.

5090-5110 Shale, grayish black to medium dark gray, sublithographic limestone pyrite.

5110-5120 As above; grayish yellow calcite.

5120-5130 Shale, greenish gray to medium dark gray; bentonite.

5130-5160 Shale, dark gray to medium dark gray; calcite as above; bentonite.

5160-5180 Shale as above; grayish yellow calcite, pyrite.

5180-5210 Shale as above; bentonite; grayish yellow calcite.

5210-5220 Shale as above.

5220-5250 Shale, medium dark gray to dark gray; pyrite; grayish yellow calcite, bentonite.

5250-5310 Shale as above; argillaceous limestone; shell fragments.

5310-5330 Bentonite; shale, medium gray to medium dark gray.

5330-5360 Bentonite; shale, medium dark gray.

5360-5370 Shale, medium dark gray; bentonite.

5370-5390 Shale, light olive gray to medium dark gray, fine to silty; calcite.

5390-5410 Shale, light gray to medium dark gray.

5410-5460 Shale as above; bentonite, calcite.

5460-5490 Bentonite; shale, dark gray.

5490-5510 Shale, dark gray; white bentonite,

5510-5520 Shale as above, and shale moderate red, calcareous; light gray siltstone.

5520-5530 Shale, dark gray to medium gray; sandstone, medium gray, fine grained.

5530-5550 Sandstone, very light gray, fine to medium grained.

5550-5560 Sandstone as above; shale, medium dark gray.

5560-5590 Shale, medium gray to medium dark gray.

5590-5670 Shale as above; shell fragments; bentonite; pyrite.

5670-5700 Shale, light olive gray to medium dark gray; bentonite.

5700-5740 Shale, medium dark gray, fissile, splintery.

5740-5760 Shale as above; sandstone, very light gray, medium grained.

5760-5790 Shale as above.

5790-5820 Shale, medium light gray to medium dark gray; sandstone, very light gray, fine grained; bentonite.

5820-5850 Sandstone, very light gray, fine to medium grained; shale, medium dark gray; bentonite.

5850-5930 Shale, medium light gray to medium dark gray; bentonite.

5930-5950 Sandstone, very light gray, medium grained, sub-angular to sub-rounded; shale as above.

5950-5990 Sandstone, medium to coarse grained, sub-angular, coated to vitreous, friable.

5990-6010 Shale, light olive gray to medium dark gray, lumpy to fissile.

6010-6070 Shale, medium dark gray, fissile.

6070-6090 Shale, light olive green to medium dark gray; some white bentonite; shell fragments.

6090-6100 Shale, medium dark gray, fissile.

6100-6130 Shale as above; calcite.

6130-6220 Sandstone, very light gray, fine grained, silty, calcareous; shale as above.

6220-6290 Shale, medium dark gray, fissile, sandstone as above.

6290-6440 Shale, medium light gray to medium dark gray, some white bentonite; siltstone, very light gray.

6440-6530 Sandstone, very light gray, fine grained, silty, calcareous, some glauconite; shale, greenish gray, subwaxy fissile, glauconitic, very slightly calcareous.

6530-6550 Shale as above; white bentonite.

6550-6620 Shale as above.

6620-6690 Shale as above; siltstone, very light gray to light greenish gray, fine grained, calcareous, parts glauconitic; sublithographic limestone.

6690-6720 Shale and siltstone as above.

6720-6740 Shale, grayish red, calcareous.

6740-6770 Shale, greenish gray to grayish red, calcareous; sandstone, very light gray, silty, calcareous.

6770-6830 Shale as above; very light gray calcitic dolomite and some white limestone.

6830-6840 Shale as above; limestone, white, sublithographic.

6840-6850 Shale, medium gray, calcareous.

6850-6860 Shale, greenish gray to grayish red, calcareous; limestone, very light gray to light gray, sublithographic, silty.

6860-6870 Limestone, greenish gray, subcrystalline.

6870-6890 Limestone, very light gray, subcrystalline.

6890-6910 Calcitic dolomite, very light gray to light brownish gray, subcrystalline.

6910-6950 Calcitic dolomite, as above; medium gray calcareous shale.

6950-6970 Shale, pale brown, calcareous, calcitic dolomite as above.

6970-6990 Calcitic dolomite, very light gray to light brownish gray; shale as above, silty.

6990-7020 Anhydrite; light gray dolomite, shale as above.

7020-7100 Shale, pale reddish brown to greenish gray; anhydrite.

7100-7250 Shale, grayish red to greenish gray; siltstone, pale reddish brown; anhydrite.

7250-7380 Siltstone as above; shale as above; anhydrite.

7380-7610 Shale, grayish red to greenish gray; siltstone, pale reddish brown; anhydrite.

7610-7640 Shale, siltstone as above. Few traces of limestone anhydrite.

7640-7670 Limestone, white to light brownish gray, sublithographic to chalky.

7670-7740 Limestone, white to pale red, subcrystalline to micro-sucrosic; shale as above.

7740-7770 Shale, pale reddish brown to grayish red, silty; limestone as above.

7770-7800 Shale as above; dolomite; moderate reddish orange; anhydrite.

7800-7840 Shale, pale reddish brown, silty. Anhydrite, dolomite, limestone.

7840-7870 Shale as above; anhydrite.

7870-7920 Shale as above; gypsum, anhydrite.

7920-7960 Shale as above; limestone, pale to grayish red; dolomite, grayish to moderate pink, subcrystalline.

7960-8020 Sandstone, moderate pink, medium grained.

8020-8030 Sandstone as above; shale, pale reddish brown to grayish red, silty.

8030-8050 Shale, pale reddish brown to grayish red, silty; sandstone as above.

8050-8090 Shale as above; dolomite, moderate orange pink to pale red limestone.

8090-8100 Shale, sandstone as above; white earthy dolomite, some limestone.

8100-8110 Dolomitic limestone, pale red, fragmental.

8110-8120 Dolomite, mottled grayish pink to pale red.

8120-8130 Shale, moderate reddish brown, dolomitic, silty.

8130-8150 Siltstone, pale red, dolomitic; light gray dolomite.

8150-8190 Dolomite, pale red, slabby, subcrystalline; shale as above.

8190-8230 Dolomite, very light gray to pale red; shale as above.

8230-8240 Dolomite, very light gray.

8240-8250 Shale, pale reddish brown, dolomitic, silty; dolomite as above.

8250-8280 Dolomite, very light gray to grayish red; shale as above.

8280-8360 Shale as above; dolomite as above; anhydrite.

8360-8410 Limestone, brownish gray, finely crystalline; dolomite, grayish red, finely crystalline.

8410-8420 Shale, dark gray, sooty luster, platy.

8420-8430 Shale as above; limestone, medium gray; shale, pale reddish brown, silty, calcareous,

8430-8450 Shale, pale reddish brown, silty, calcareous; limestone, medium gray, dense.

8450-8470 Shale, dark gray, sooty.

8470-8480 Shale, pale reddish brown, calcareous, silty.

8480-8500 Shale as above; shale, brownish gray and dense, medium dark gray limestone.

8500-8530 Shale, light olive gray, splintery, waxy luster and grayish red to dark gray, splintery shale.

8530-8540 Shale as above; limestone, medium light gray, finely crystalline.

8540-8570 Shale, light olive gray to medium gray, splintery.

8570-8590 Shale as above; limestone, light to medium light gray.

8590-8650 Shale, medium gray to medium dark gray, fissile to splintery. Much cavings.

8650-8670 Sandstone, white, fine grained quartz.

8670-8680 Sandstone and shale as above.

8680-8710 Shale as above.

8710-8820 Shale, light olive green to medium dark gray, variegated, splintery; some sandstone fragments. Much caving.

8820-8850 Siltstone, light brown (5YR6/4), calcareous.

8850-8870 Limestone, olive gray (5Y4/1), subcrystalline, dense.

8870-8890 Limestone as above; shale, grayish red purple (5RP4/2), calcareous.

8890-8968 Shale as above.

8968-9140 Salt indicated on logs. Samples very poor throughout this section.

9140-9170 Limestone, medium gray, dense, sublithographic. Anhydrite.

9170-9230 Salt.

9230-9312 Limestone, medium dark gray, dense. Anhydrite.

9312-9325 Salt.

9325-9400 Limestone as above.

9400-9420 Anhydrite, light gray to white, dense.

9420-9450 Limestone, as above.

9450-9500 Salt.

9500-9510 Limestone, light gray to medium gray, sublithographic, microsucrosic.

9510-9515 Anhydrite, white to very light gray, fine grained, dense.

9515-9535 Anhydrite as above; limestone, medium gray, subcrystalline, dense.

9535-9540 Anhydrite as above.  
 9540-9550 Limestone, medium dark gray, dense.  
 9550-9605 Limestone, light gray to medium dark gray, dense.  
 9605-9620 Limestone, light brownish gray to very light gray, medium grained, fragmental.  
 9620-9650 Limestone as above plus dense medium dark gray sub-crystalline limestone.  
 9650-9660 Limestone, medium gray to light brownish gray, medium grained.  
 9660-9715 Limestone as above plus dense medium light gray to medium gray, subcrystalline limestone.  
 9715-9725 Limestone as above; dolomite, very light gray to light gray.  
 9725-9735 Limestone, medium to medium dark gray, dense.  
 9735-9745 Limestone as above; dolomite, very light gray to medium light gray, dense.  
 9745-9805 Limestone, light brownish gray to medium dark gray, medium to fine grained, dense.  
 9805-9850 Limestone, very light gray to medium light gray, granular.  
 9850-9865 Limestone, medium dark gray, subcrystalline, dense.  
 9865-9880 Limestone as above plus light brownish gray, medium grained limestone.  
 9880-9895 Limestone, light brownish gray, dolomitic in part.  
 9895-9950 Limestone, medium gray to light brownish gray, dolomitic in part, medium grained.  
 9950-9960 Limestone as above; a few fragments show oolitic texture.  
 9960-9970 Limestone, medium dark gray, fine to medium grained.  
 9970-10025 Limestone, medium light gray to medium gray, argillaceous.  
 10025-10055 Limestone, very light gray to light brownish gray, granular, parts argillaceous.  
 10055-10070 Limestone, light to medium dark gray, fine grained, dense.  
 10070-10080 Limestone, medium gray to light brownish gray, some dolomite.  
 10080-10120 Limestone, white to light brownish gray, argillaceous, granular. Some medium dark gray, dense limestone.  
 10120-10175 Limestone, very light gray to light brownish gray, fine to crystalline, some argillaceous; shell fragments.  
 10175-10190 Limestone, medium light gray to medium gray, crystalline, argillaceous.  
 10190-10210 Limestone, very light gray to medium gray, crystalline, fair porosity.  
 10210-10250 Limestone as above, fine to crystalline, some shell fragments, parts argillaceous, fair to good porosity.  
 10250-10255 Limestone, very light gray to medium light gray.  
 10255-10260 Limestone, medium gray, mostly fine grained.  
 10260-10275 Limestone, medium to medium dark gray, crystalline, shell fragments.  
 10275-10285 Limestone as above, fine to crystalline.  
 10285-10310 Limestone, light to medium light gray, crystalline, shell fragments.  
 10310-10320 Limestone, light to medium gray, crystalline, fair to good porosity, shell fragments.  
 10320-10365 Limestone, light to medium gray, fine to crystalline.  
 10365-10390 Limestone, medium light gray to medium gray, fine with some crystalline.  
 10390-10420 Limestone as above, crystalline.  
 10420-10510 Limestone, medium to medium dark gray, finely crystalline to crystalline, shell fragments.

10510-10530 Limestone, medium to medium dark gray, finely crystalline to crystalline, parts microsucrosic, shell fragments.  
 10530-10735 Limestone, medium light to medium gray, fine grained to finely crystalline, dense, brachiopod fragments.  
 10735-10750 Limestone, medium dark gray to dark gray, somewhat dolomitic, dense; shale, dark gray, dolomitic, fissile.  
 10750-10770 Shale as above.  
 10770-10780 Limestone, medium light gray, dense.  
 10780-10790 Shale, dark gray, dolomitic, fissile,  
 10790-10845 Limestone, medium light to medium gray, fine to finely crystalline, argillaceous.  
 10845-10915 Limestone, light gray to medium gray, parts argillaceous, dense.  
 10915-10935 Limestone, light gray to medium gray, fine grained to very finely crystalline, argillaceous in part.  
 10935-10945 Limestone, medium dark gray; limestone as above.  
 10945-10960 Shale, dark gray, organic, fissile.  
 10960-10970 Shale as above; limestone, medium dark gray, fine grained, dense, argillaceous.  
 10970-11010 Limestone, medium light gray to medium dark gray.  
 11010-11030 Dolomite, light bluish gray (5B7/1), subcrystalline; limestone as above.  
 11030-11045 Dolomite, light gray to pinkish gray, crystalline, argillaceous in part.  
 11045-11065 Dolomite, pinkish to light bluish gray, fine to crystalline.  
 11065-11090 Dolomite, very light gray to pinkish gray, finely crystalline.  
 11090-11150 Dolomite as above, also greenish gray (5G6/1) dolomite.  
 11150-11175 Dolomite as above; limestone, medium dark gray. Much caving.  
 11175-11195 Dolomite, light gray, light brownish gray, greenish gray (5GY6/1), pinkish gray.  
 11195-11210 Dolomite, very light gray, subcrystalline to crystalline, limestone, medium light gray to medium gray.  
 11210-11240 Dolomite, very light gray; limestone, very light gray to medium gray.  
 11240-11245 Dolomite, medium gray, fine grained to crystalline.  
 11245-11255 Dolomite as above; limestone, medium light gray to medium gray, subcrystalline.  
 11255-11285 Limestone, medium gray to medium dark gray, subcrystalline. Some shale fragments.  
 11285-11300 Dolomite, medium light gray, finely crystalline.  
 11300-11320 Limestone, medium dark gray, subcrystalline, some dolomite.  
 11320-11340 Dolomite, very light gray, fine to crystalline, calcitic, limestone as above.  
 11340-11355 Limestone, medium dark gray, dense.  
 11355-11380 Limestone, medium light gray to medium gray, microsurosic to crystalline. Some argillaceous limestone.  
 11380-11430 Limestone, medium light gray, argillaceous, crystalline. Some medium to medium dark gray, subcrystalline, dense limestone.  
 11430-11450 Limestone, dark gray, subcrystalline, dense.  
 11450-11460 Limestone, light gray to medium gray, subcrystalline.  
 11460-11470 Limestone, medium dark to dark gray, dense.  
 11470-11485 Limestone, medium light to medium gray, fine to finely crystalline. Some grayish pink to pale red dolomite.

11485-11575 Limestone, medium light to medium dark gray, dense; some dark gray limestone.

11575-11605 Limestone, medium dark to dark gray, subcrystalline; some medium light gray, dense limestone.

11605-11630 Limestone, medium dark to dark gray, subcrystalline.

11630-11640 Limestone as above, also medium gray.

11640-11650 Limestone as above; some medium light gray dolomite.

11650-11660 Dolomite, medium light to medium gray.

11660-11675 Limestone, medium light to medium gray, subcrystalline.

11675-11690 Limestone, medium light to dark gray, subcrystalline.

11690-11720 Limestone, medium dark to dark gray, subcrystalline. Some dark gray shale.

11720-11730 Limestone, medium light gray to medium dark gray, subcrystalline.

11730-11750 Limestone, very light gray to light gray, subcrystalline.

11750-11760 Limestone, medium light gray to medium gray, subcrystalline.

11760-11780 Limestone, medium dark gray, subcrystalline, dense.

11780-11785 Limestone, dark gray, subcrystalline, dense.

11785-11810 Limestone, medium gray to medium dark gray, subcrystalline, dense.

11810-11850 Limestone, medium gray to medium dark gray, subcrystalline.

11850-11940 Limestone medium dark to dark gray, subcrystalline, dense; shale fragments, dark gray.

11940-11960 Limestone as above.

11960-11970 Dolomite, light gray, crystalline, calcitic; limestone, medium gray, finely crystalline.

11970-11980 Limestone, light to medium light gray.

11980-12020 Limestone, medium dark to dark gray, subcrystalline; shale fragments.

12020-12040 Limestone, light to medium gray, limestone as above.

12040-12075 Limestone, light to dark gray; light brown dolomite.

12075-12130 Limestone, medium dark to dark gray, dense, subcrystalline, dark gray shale fragments.

12130-12150 Limestone, medium to medium dark gray, dense, subcrystalline.

12150-12190 Limestone, white to pinkish gray, sublithographic; very light gray dolomite; shell fragments.

12190-12245 Limestone, white to light brownish gray; very light gray calcitic dolomite, usually sublithographic.

12245-12285 Limestone, white to grayish pink; pale red dolomite (10R6/2).

12285-12335 Limestone, white to grayish pink; dolomite, white to pale red (10R6/2).

12335-12355 Calcitic dolomite, white to very light gray, crystalline, angular fragments, semi-translucent.

12355-12375 Calcitic dolomite as above; limestone, very light gray, dense.

12375-12400 Calcitic dolomite as above, fine to coarse crystalline; limestone as above.

12400-12440 Calcitic dolomite, white to light gray, subcrystalline to fine crystalline.

12440-12460 Calcitic dolomite, white to light gray, subcrystalline to finely crystalline.

12460-12500 Dolomite, light gray to light brownish gray (5YR6/1).

12500-12555 Dolomite, very light gray to medium gray, subcrystalline to finely crystalline.

12555-12590 Dolomite, medium light gray to medium gray, subcrystalline to medium crystalline.

12590-12605 Dolomite, very light gray to light brownish gray, mostly subcrystalline.

12605-12615 Dolomite, very light gray to medium light gray. Some chert fragments.

12615-12740 Dolomite as above, subcrystalline to microcrystalline.

12740-12790 Limestone, medium dark gray, subcrystalline; dolomite, dark gray.

12790-12805 Dolomite, medium dark to dark gray, subcrystalline. Dark gray shale fragments.

12805-12865 Dolomite, medium dark to dark gray, subcrystalline, dense. Parts calcitic.

12865-12880 Dolomite, medium light gray, subcrystalline.

12880-12925 Dolomite, dark gray, subcrystalline, dense.

12925-12945 Dolomite, dark gray to grayish black, subcrystalline, dense, siliceous.

12945-12960 Dolomite, medium dark gray, dense.

12960-12975 Dolomite, medium dark gray to dark gray, as above; some medium gray limestone.

12975-12995 Limestone, medium to medium dark gray, subcrystalline.  
Dolomite as above,

12995-13020 Dolomite, light brownish gray, finely crystalline, argillaceous.  
Dolomite as above.

13020-13035 Dolomite, medium to medium dark gray.

13035-13055 Limestone, medium to medium dark gray, subcrystalline.

13055-13065 Dolomite, medium dark gray, subcrystalline; limestone as above.

13065-13070 Dolomite, light brownish gray to medium dark gray.

13070-13100 Limestone, medium to medium dark gray, dense; dolomite, medium dark gray.

13100-13110 Dolomite, medium dark gray.

13110-13140 Limestone, medium dark gray, subcrystalline, dense.

13140-13190 Limestone, dark gray, subcrystalline, dense.

13190-13205 Limestone, medium to dark gray, parts crystalline.

13205-13255 Limestone, dark gray, subcrystalline, dense.

13255-13274 Dolomite, light brownish gray, subcrystalline.

13274 Circulation. Dolomite as above.

13280-13300 Dolomite, light brownish to brownish gray (5YR4/1), subcrystalline to finely crystalline. Parts calcitic.

13300-13325 Dolomite, brownish gray, crystalline, argillaceous.

13325-13380 Dolomite as above. Medium dark gray, subcrystalline to finely crystalline dolomite.

13380-13425 Limestone, medium dark gray, subcrystalline, dense.

13425-13480 Limestone as above, also medium gray, crystalline limestone.

13480-13520 Limestone, medium to medium dark gray, subcrystalline.

13520-13745 Limestone, medium dark to dark gray, subcrystalline. Some dark gray dolomite fragments.

13745-13800 Shale, dark gray, slightly calcareous, limestone as above.

13800-13875 Shale, dark gray, fissile.

13880-13888 Shale as above; sandstone, white to light gray, quartz grains rounded to subrounded, medium to coarse grained.

13888 Circulation one hour - sandstone as above.