

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 18

Summary of the McLean County No. 1 Well

July, 1953

By Sidney B . Anderson

Stanolind Oil and Gas Company - McLean County No. 1, McLean County, North Dakota, SW 1/4, SW 1/4, Section 28, T. 150N., R. 80W. (960 feet N. of S. line and 460 feet E. of W. line, Section 28). Elevation R.D.B. 2100.

Rotary drilling operations commenced February 11, 1952 at 59 feet and 958.67 feet of 10 3/4 inch casing was set at 971.61 feet with 600 sacks.

TESTS

- DST #1 4917' - 5178' Shut in 45 minutes. Recovered 314' mud at top. Lost tool in hole - no pressures.
- Dst #2 5335' - 5367' 1 3/4 hours. S.I. 15' Weak steady blow throughout. Recovered 330' fluid; 90' salty muddy water, 240' salty water. F.P. 250#, S.I.P. 1850#, H.P. 3000#.
- DST #3 6223' - 6256' 2 hours 5 minutes, shut in 30 minutes. Good blow for 90 minutes. Died after 2 hours and 5 minutes. Recovered 4183' mud-bottom 1000' cut with salt water. F.P. 1260-2500#, S.I.P. 2900#, H.P. 3200#.
- DST #4 6325' - 6420' 1 hour, shut in 15 minutes. Weak blow for 20 minutes and died. Recovered 30' mud. F.P. -0, S.I.P. 250#, H.P. 3500#.
- DST #5 6960' - 7013' Open 3 hours, shut in 30 minutes. Weak blow throughout. Recovered 450' fluid, 1/2 drilling mud and 1/2 salt water. F.P. -0, S.I. 1900#, H.P. 3400#.
- DST #6 7017' - 7030" Open 1 hour, shut in 30 minutes. Weak blow for 10 minutes and died. Recovered 117' mud. F.P. -0, S.I. 200#, H.P. 3600#.

FORMATION TOPS

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

	<u>Depth</u>
Cretaceous System	
Pierre Formation	1130
Niobrara Formation	2281
Greenhorn Formation	2787
Dakota	3412
Jurassic System	
Morrison Formation	3600
Sundance Formation	3630
Piper Formation (Sawtooth)	4220

Triassic System	
Spearfish Formation	4400?
Mississippian System	
Amsden Formation	4542
Heath Formation	4565
Kibbey Formation	4712
Charles Formation	4875
Mission Canyon Formation	5520
Lodgepole Formation	5653
Englewood Formation	6330
Devonian System	
Lyleton Formation	6370
Ashern Formation	7460
Silurian System	
Stonewall Formation	7490
Ordovician System	
Stony Mountain Formation	7830?
Stony Mountain Shale	
Member	7920
Red River Formation	8005
Winnipeg Formation	8630
Winnipeg Sand	8795
Total Depth	8900

Stanolind McLean County #1

100-110	Shale, light olive gray, silty.
110-120	Shale as above, calcareous, medium grained sandstone, little coarse sandstone.
120-130	Shale as above and yellow gray, dense limestone, shale coating, round concretionary, pellets, limonite.
130-190	Shale, yellow gray 5Y8/1 calcareous, lignite.
190-210	Shale as above and little lignite.
210-260	Shale as above.
260-290	Shale, light gray N7.
290-300	Shale as above and some limey sandstone.
300-310	Shale as above.
310-320	Shale, medium gray N5, little lignite.
320-340	Shale, medium light gray, silty.
340-400	Sandstone, fine to medium grained, mostly very fine; light gray.
400-450	Very fine grained sandstone as above.
450-480	Very fine grained sandstone or siltstone.
480-500	Siltstone as above, medium light gray shale.
500-510	Silty shale.
510-560	Shale, medium light gray to very light olive gray.
560-570	Very fine grained sandstone or siltstone, light gray.
570-590	Sandstone, fine grained, light gray.
590-620	Shale, medium gray, silty.
620-630	Shale, medium light gray.
630-650	Shale, medium light gray, silty. (50 very silty or very fine sandstone.)
650-660	Shale, light olive gray 5Y6/1.
660-860	Shale as above, sand, fine sand.

860-930 Shale as above and lignite.
 930-970 Sandstone, fine to medium grained, quartz sand and some sandy shale as above.
 970-1010 Shaley sand as above.
 1010-1020 Shale as above and lignite.
 1020-1030 Shale, medium light gray, slight gray tinge, silty.
 1030-1040 Shale, medium dark gray.
 1040-1070 Sandstone, fine grained, shaley.
 1070-1080 Shale, light gray silty.
 1080-1090 Shale as above and sandy shale

Pierre Formation

1090-1130 Shale as above and little white silty limestone, some fine to medium sandstone.
 1130-1160 As above and much fine to medium sandstone.
 1160-1170 Shale as above, silty and white silty limestone.
 1170-1180 As above and some fine to medium sandstone.
 1180-1200 Shale, light olive gray silty to sandy and some sandstone as above.
 1200-1510 Shale, light olive gray.
 1510-1610 Shale, medium gray.
 1610-2150 Shale, medium light gray to green gray (little hard light olive gray shale).
 2150-2200 Shale, medium gray.
 2200-2210 Medium gray shale and some fine to medium free quartz.
 2210-2220 Medium gray shale, few pieces of bluish bentonite.
 2220-2250 Medium gray shale and little fine to medium free quartz.

Niobrara 2281

2250-2330 Medium gray shale to green gray.
 2330-2339 Circulation 30 minutes. Medium gray shale and fine grained free quartz.
 2339-2360 Shale as above and little sandstone as above.
 2360-2370 Shale as above.
 2370-2380 Shale as above and little sandstone.
 2380-2730 Shale as above.
 2730-2740 Shale, medium dark gray to medium light gray.

Greenhorn 2787

2740-2800 Shale as above and some fine to medium sandstone (50-60 little glauconite).
 2800-2830 Shale as above.
 2830-2880 Shale as above and some medium dark gray N4, white specks.
 2880-2900 Same as above, little quartz sand.
 2900-2950 Shale as above.
 2950-3300 Shale, medium dark gray N5, some medium light gray, very few white specks, piece of calcareous sandstone 200-210;50-60.
 3300-3380 Shale, medium dark gray and medium light gray.
 3380-3400 Shale, medium dark gray.

Dakota 3412

3400-3420 Medium dark gray shale and fine grained white calcareous sandstone.

3420-3430 Medium dark gray shale and medium light gray; very little light gray, to medium dark gray sandstone.

3430-3440 Shale, medium dark gray and little light fine grained sandstone.

3440-3450 Medium dark gray shale and some light gray sandstone, fine grained.

3450-3480 As above and brown sandstone pellets.

3480-3490 Mostly shale as above, very little sandstone.

3490-3497 Shale as above and little light gray sandstone.

3497-3510 Shale as above and little light gray sandstone, few brown sandstone pellets.

3510-3520 Shale as above.

3520-3530 Shale as above and very little light gray sandstone.

3530-3550 Shale as above, little sandstone as above and little medium grained free quartz.

3550-3567 Shale as above and much medium grained free quartz.

Core #1

3567-3583 Sandstone, medium grained, rounded quartz sand, medium light gray, good porosity.

3583-3593 Sandstone as above.

3593-3597 As above to very light gray.

Morrison 3600

3597-3601 As above with lignite inclusions, medium gray.

3601-3604 As above, but slightly coarser.

3604-3606 As above, very pyritic with lignite inclusions.

3606-3607 Some sandstone as above, very light gray shale with pyrite.

3607-3608 Shale, medium light gray, waxy.

3608-3612 Shale, medium light gray.

3612-3617 Shale, medium light gray to medium gray, pyrite, interbedded coal.

End of Core #1

Sundance Formation 3630

3620-3630 Shale, medium light gray to medium dark gray, (medium grained sandstone cave?) as above and pyrite.

3630-3640 As above, medium to coarse sandstone.

3640-3650 Shale as above and much whitish medium grained round sandstone.

Core #2

3650-3653 Sandstone, very light gray to whitish medium grained.

3653-3655 1/2 Sandstone, whitish fine grained calcareous, much coal.

3655 1/2-3666 Shale, very light gray to light gray.

3666-3673 Very light gray siltstone and medium light gray waxy shale, interbedded.

3673-3680 Sandstone, very fine grained, very light gray, not calcareous.

3680-3692 Sandstone as above and green gray waxy shale, interbedded.

3692-3693.3 Siltstone, gray orange pink to buff or very fine sandstone, and interbedded green gray shale.

36993.3-3700 Siltstone, very light gray or very fine sandstone, little interbedded green gray shale.

End of Core #2

3700-3710 Sandstone, very light gray very fine grained; shale as above and some medium grained sandstone; piece of fine grained glauconitic light gray sandstone.

3710-3720 Shale, green gray to medium dark gray.

3720-3730 As above, some sandy shale.

3730-3785 Shale as above, little medium grained sandstone, glauconitic shale.

3785-3795 Shale as above and some gray orange pink siltstone.

3795-3805 Shale as above, some silty, and some pink anhydrite.

3805-3840 Shale, medium dark gray and some light olive gray.

3840-3850 Shale as above and few pieces of whitish to pink anhydrite.

3850-3870 Shale as above.

3870-3880 Shale as above, little sandy shale.

3880-3920 Shale as above, few pieces green gray silty shale.

3920-3980 Shale, dark gray to green gray; some green gray glauconitic.

3980-4020 Shale, to gray to green gray; few pieces of red siltstone, little pink anhydrite.

4020-4040 As above and little reddish silty shale and pink anhydrite.

4040-4080 As above, few pieces of fine grained sandstone glauconitic.

4080-4090 Same as above and very few pieces of fine grained calcareous sandstone, few pieces of pink anhydrite.

4090-4110 Same as above, very few pieces of fine grained calcareous sandstone, some glauconitic.

4110-4120 Variegated shale, little free quartz sand rounded.

4120-4130 Variegated shale, few pieces of white fine grained glauconitic sandstone, little pink anhydrite.

4130-4140 Variegated shale, sandstone as above but not glauconitic.

4140-4150 Variegated shale, very light gray to whitish fine grained sandstone, slightly calcareous.

4150-4170 Shale and sandstone as above and some white dense limestone.

Piper Formation

4170-4220 Shale and sandstone as above, limey.

4270-4280 As above.

4280-4290 Limestone, whitish, dense, crystalline; variegated shale.

4290-4330 Limestone, whitish, dense and variegated shale.

4330-4340 Shale, mostly gray and green gray; little red shale; very little limestone.

4340-4380 Variegated shale, little limestone as above.

4380-4390 Variegated shale, little dolomitic limestone, dense, white.

Spearfish

4390-4400 Variegated shale, mostly green gray and very little white dense limestone.

4400-4410 Much red shale, little gray and green gray shale, dense white limestone and white anhydrite.

4410-4440 Much gray shale; little red and green gray shale, little white anhydrite.

4440-4450 Red shale, little gray and green gray, little light gray limestone and white anhydrite.

4450-4460 Shale, mostly red and green gray, little medium gray, little light gray limestone and white anhydrite.

4460-4490 Variegated shale, little fine to medium quartz sand.

4490-4530 Variegated shale, and much red sandstone, fine grained.

Amsden 4542 Heath 4665

4530-4590 Much red very fine grained sandstone and variegated shale.
4590-4610 Much red very fine to medium grained sandstone, variegated shale.
4610-4670 Variegated shale and little sandstone.
4670-4680 Variegated shale and some red medium grained sandstone.
4680-4690 As above, very little sandstone.
4690-4710 Much reddish sandstone, little gray and green gray shale, white dense limestone.

Kibbey 4712

4710-4720 Reddish fine grained sandstone.
4720-4730 Reddish fine grained sandstone and little light gray limestone.
4730-4740 Limestone, light gray and very light brown gray and very light red, dense, crystalline; little gray shale.
4740-4760 Limestone as above, little white very light brown fine grained sandstone and medium gray shale.
4760-4770 Sandstone, little pale red brown and moderate red orange, fine to medium and free quartz, little limestone as above and variegated shale.
4770-4780 Variegated shale mostly medium gray, and lime moderate red orange sandstone or siltstone.
4780 Circulation. Variegated shale, little sandstone as above, little fine to medium free quartz. Mostly medium gray shale.
4780-4810 Shale, medium dark gray, green gray and little red shale; moderate red orange sandstone or siltstone, little limestone.
4810-4830 Medium gray shale.
4830-4850 Variegated shale and reddish siltstone or very fine grained sandstone.
4850-4860 Variegated shale and little pinkish dense dolomite.
4860-4870 Variegated shale.

Charles 4875

4870-4890 Shale, light gray, medium gray and reddish.
4890-4900 Medium gray shale.
4900-4920 Variegated shale, few pieces white anhydrite.
4920-4930 Variegated shale, little pale red dolomite, dense and white anhydrite.
4930-4940 Limestone, buff, dense, crystalline fragmental; much gray red shale and some medium gray shale.
4940-4950 Limestone, very light olive gray to buff, fragmental to oolitic, little sandy limestone, variegated shale.
4950-4970 Limestone, fragmental to oolitic as above and some pinkish dense limestone, variegated shale.
4970-5010 Variegated shale and little white anhydrite few pieces of pink anhydrite.
5010-5020 Variegated shale, mostly medium gray N5.
5020-5030 Limestone, pale yellow brown, dense, crystalline to fragmental and variegated shale, mostly gray.
5030-5040 Variegated shale and white anhydrite.
5040-5050 Limestone, whitish to very light gray dense, variegated shale.
5050-5060 Variegated shale, very little limestone as above.
5060-5080 Dolomite, whitish to buff sandy, gray shale and little red shale; white anhydrite 70-80.

5080-5084 Circulation. Whitish to very light gray dense limestone and gray shale.

5080-5090 As above.

5090-5100 Shale, reddish and medium to light gray, few pieces white anhydrite.

5100-5110 Shale and limestone as above.

5110-5120 Dolomite, light gray dense crystalline, gray shale.

5120-5130 As above and some white anhydrite.

5130-5140 Variegated shale, little white anhydrite.

5140-5150 Variegated shale and some white anhydrite.

5150-5160 Limestone, very pale yellow brown oolitic, variegated shale.

5160-5170 Limestone, very pale yellow brown fragmental; variegated shale.

5170-5178 Dolomite, medium gray N5, dense; variegated shale.

5378-5180 Shale, medium dark gray and little medium light gray and reddish; little white anhydrite.

5180 Medium dark gray, medium light gray and little reddish shale; pale yellow brown limestone, dense.

5180-5190 Shale as above and medium gray dense dolomite.

5190-5220 Dolomite, medium gray, dense crystalline.

5220-5225 Circulation 30 minutes. Dolomite as above and little very pale yellow brown to yellow gray, dense limestone.

5225 Circulation 40 minutes. Dolomite as above and little yellow gray dense limestone.

5225-5230 Limestone and dolomite as above, mostly limestone.

5230-5240 Limestone, yellow gray dense, fragmental.

5240-5250 Yellow gray to pale yellow brown limestone as above and some gray dolomite as above.

5250-5260 Dolomite, medium gray dense, fine crystalline.

5260-5270 Dolomite as above, little light brown gray dense limestone and white anhydrite.

5270-5280 Limestone, light brown gray, dense crystalline to buff dense; little dolomite and white anhydrite as above.

5280-5290 Dolomite as above.

5290-5300 Dolomite as above, little white anhydrite and limestone as above.

5300-5310 Dolomite very light gray, medium gray shale; little white anhydrite and reddish shale.

5310-5320 Dolomite, pale red dense, some sandy.

5320-5330 Dolomite, palered dense, much white anhydrite and some medium gray dolomite.

5330-5340 Dolomite, medium gray dense, white anhydrite.

5340-5346 Circulation 1 hour. Dolomite, medium gray to light gray, dense: white, anhydrite.

5346-5351 Circulation 1 hour. As above and very pale yellow brown dense dolomite, some fine granular.

Core #3

5357-5358 Limestone, oolitic, dense, few pinpoint vugs, tan. Salt and anhydrite.

5358-5359 Limestone, dense, few pinpoint vugs, tan, salt and anhydrite.

5359-5360 Limestone, dense, few pinpoint vugs.

5360-5361 Limestone, dense, oolitic, tan, few pinpoint vugs.

5361-5362 Limestone, dense, few pinpoint vugs, tan.

5362-5363 Limestone, dense, very salty and anhydrite, tan.

5363-5364 Limestone as above, tan.
 5364-5365 Limestone as above and salt.
 5365-5366 Limestone as above and salt inclusions.
 5366-5367 Limestone as above and salt inclusions.
 End of Core #3
 5367-5380 Limestone, very pale yellow brown to buff, dense.
 5380-5400 Limestone as above, oolitic.
 5400-5430 Limestone, color as above, fragmental, saccharoidal.
 5430-5460 Limestone, color as above, fragmental, dense.
 5460-5480 Limestone color as above, oolitic to fragmental, dense.
 5480-5490 Limestone, color as above, mostly crystalline, some oolitic to fragmental, dense.
 5490-5500 Shale, medium dark to medium light gray; some limestone as above and medium gray dolomite.
 5500-5510 Limestone, color as above, dense; some shale as above, white to light gray anhydrite and medium light gray dolomite.
 5510-5515 Limestone as above; very pale yellow brown anhydrite.

 Mission Canyon
 5515-5520 Dolomite, medium light gray, dense, fine crystalline, limey; dense limestone as above.
 5520-5525 Gray shale and limestone as above, some pale brown crystalline dense limestone; little dolomite as above.
 5525-5527 Circulation 1 hour. Buff dense limestone.
 5527-5560 Limestone, whitish to very pale buff dense.
 5560-5565 Limestone, yellow gray to buff oolitic to fragmental.
 5565-5590 Limestone, light olive gray, fine granular dolomitic to oolitic.
 5590-5615 Limestone as above and much gray shale; much buff limestone.
 5615-5625 Shale as above, light olive gray to buff, oolitic to fine granular limestone, mostly fine granular.
 5625-5630 Limestone, light olive gray, slightly saccharoidal dolomitic some oolitic to fragmental; shale as above.
 5630-5635 Limestone, light olive gray, fine granular to fragmental, some oolitic.
 5635-5650 Limestone, buff fragmental to oolitic.

 Lodgepole 5653
 5650-5675 Limestone, pale yellow brown oolitic to fragmental.
 5675-5680 Some limestone as above, medium light gray hard limey shale.
 5680-5685 Shale and limestone as above, some medium light gray oolitic limestone.
 5685-5695 Shale as above and pale yellow brown to buff limestone as above; little medium light gray limestone as above.
 5695-5700 Little shale as above and medium light gray to medium gray limestone as above.
 5700-5705 Limestone, pale yellow brown to gray as above, some shale.
 5705-5710 Limestone, pale yellow brown to medium light gray, fragmental.
 5710-5715 Limestone, pale yellow brown oolitic, some medium light gray dense; much medium light to medium dark gray shale.
 5715-5720 Limestone, medium light gray, fragmental; little pale yellow brown oolitic.
 5720-5725 Limestone, medium light gray, dense; little pale yellow brown fragmental.

5725-5730 Limestone, medium light gray, fragmental, little pale yellow brown, oolitic.

5730-5740 Limestone, medium light gray oolitic to fragmental.

5740-5750 Limestone, little medium light gray and mostly very pale yellow brown oolitic to fragmental.

5750-5760 Limestone, medium light gray and very pale yellow brown oolitic to fragmental.

5760-5785 Limestone, medium light gray oolitic to fragmental, little pale yellow brown.

5785-5790 Mostly gray shale and some limestone as above.

5790-5795 Gray shale and limestone as above.

5795-5845 Limestone, medium light gray, oolitic to fragmental.

5845-5855 Limestone, medium light gray, fragmental.

5855-5870 Limestone, medium light gray, oolitic to fragmental.

5870-5915 Limestone, medium light gray, fragmental.

5915-5920 Limestone as above to very pale brown fragmental limestone.

5920-5950 Limestone, medium light gray, fragmental.

5950-5960 Limestone as above to granular.

5960-5980 Limestone, medium light gray, fragmental to oolitic.

5980-5981 Circulation. Limestone as above and little very pale yellow brown oolitic limestone.

5981-5990 Limestone as above and much very pale yellow brown oolitic limestone.

5990-6010 Limestone, medium light gray and very pale yellow brown, oolitic to fragmental.

6010-6015 Limestone as above and little reddish, gray and green shale.

6015-6020 Limestone, mostly medium light gray; little shale as above.

6020-6035 Limestone, medium light gray as above to dense crystalline; little shale as above.

6035-6045 Limestone as above to very pale yellow brown fragmental.

6045-6050 Limestone, medium light gray to very pale yellow brown fragmental.

6050-6055 Limestone, medium light gray, fragmental.

6055-6060 Limestone as above and much medium gray shale.

6060-6065 Shale, medium dark gray and little limestone as above.

6065-6075 Shale and limestone as above.

6075-6090 Limestone, medium dark gray, dense, crystalline and little shale as above.

6090-6105 Limestone as above.

6105-6130 Limestone, color as above, dense, fine granular.

6130-6230 Limestone, color as above, dense, crystalline, little fragmental, dolomitic.

6230-6235 Limestone, medium light gray, dense, crystalline.

6235-6240 Limestone as above and much gray shale, some red shale.

6240-6245 Limestone as above and some gray shale.

6245-6290 Limestone as above. (Some tan limestone, cave?, gray and red shale and some quartz sand. Mostly medium light gray limestone.

Englewood

6290-6330 Limestone, medium light gray, dense, crystalline, few pieces of shale, mostly gray.

6330-6345 Limestone as above and few pieces of medium dark gray shale.

Lyleton 6370

6345-6405	Limestone as above, some medium dark gray shale. 6360-65 - brachiopod fragments.
6405-6430	Limestone as above and dark gray shale N3.
6430-6435	Limestone as above, medium light gray to dark gray shale N3.
6435-6465	Limestone, medium light gray to very light gray, dense, crystalline; shale as above.
6465-6475	Limestone and shale as above, few pieces of red shale and pink anhydrite.
6475-6485	As above and few pieces of light brown gray limestone.
6485-6500	As above and some very pale yellow brown, dense crystalline, few round quartz grains.
6500-6505	Limestone as above and some very pale yellow brown, dense crystalline to slightly saccharoidal.
6505-6520	Limestone, very pale yellow brown saccharoidal; light gray dense crystalline limestone; gray shale.
6520-6530	Limestone, mostly very pale yellow brown saccharoidal, little light gray, some medium gray shale.
Core #4	
6525-6526	Limestone, fine granular, light tan, dense.
6526-6527	Limestone as above.
6527-6536	Limestone, yellow gray dense, fine granular.
6536-6537	Limestone, brown gray, anhydritic, dense; limestone as above, dense.
6537-6538	Limestone as above.
6538-6539	Dolomite, brown gray, anhydritic, fine granular, dense.
6539-6542	Green gray shale.
6542-6543	Green gray shale and brownish to pinkish anhydrite.
6543-6546	Green gray shale and pink anhydrite.
6546-6547	Pink anhydrite, reddish shale, hard.
6547-6551	Pink anhydrite and green gray shale.
6551-6552	Dolomite, light gray, dense.
6552-6553	Dolomite, light gray, dense and pink anhydrite.
6553-6554	Anhydrite, pink to light gray dolomite.
6554-6555	Pale brown to colorless anhydrite.
6555-6556	Pale brown anhydrite to tan dense dolomite.
6556-6557	Light gray dolomite, brown anhydrite, white, slight pink tinge and medium dark gray hard shale.
6557-6558	Pale yellow brown anhydrite.
6558-6559	Pale yellow brown anhydrite and gray brown anhydrite.
6559-6560	Pale brown anhydrite.
6560-6561	Light gray dolomite, pale brown anhydrite.
6561-6562	Light gray dolomite, pinkish to pale brown anhydrite and medium gray shale.
6562-6563	Limestone, buff to tan very fine granular dense, with pale brown crystalline limestone inclusions.
6563-6564	Pale brown dense limestone.
6564-6565	Limestone, buff to tan, dense, pale brown dolomite inclusions.
6565-6566	Limestone, buff to tan and very pale yellow brown dense very fine grained limestone.
6566-6567	Limestone, light olive gray dense, fine grained.
6567-6568	Limestone, very pale yellow brown, dense, crystalline.
6568-6569	Limestone, very pale yellow brown, dense, crystalline.

6569-6570 Limestone, very pale yellow brown, fine granular, and dolomite.
6570-6571 Limestone as above.
6571-6572 Dolomite, pale yellow brown, fine granular dense.
6572-6573 Limestone, light olive gray, fine granular, dense.
6573-6574 Dolomite, light olive gray, fine granular, dense.
End of Core #4

Core #5

6574-6575 Dolomite, light olive gray, fine saccharoidal, dense (dead oil stain?).
6575-6576 Dolomite, light olive gray, fine granular, dense.
6576-6577 Dolomite, very light olive gray, fine granular, dense.
6577-6578 Dolomite, very light olive gray, very fine granular, dense.
6578-6579 Dolomite, light gray, fine granular, dense.
6579-6580 Dolomite, same as above.
6580-6581 Limestone, brown gray to pale yellow brown, fine granular, dense.
6581-6582 Limestone, medium gray, very fine granular, dense.
6582-6583 Limestone as above.
6583-6584 Dolomite, very light olive gray, very fine granular, dense.
6584-6585 Dolomite, light gray, fine crystalline, dense and anhydrite inclusions.
6585-6593 Missing.
6593-6594 Limestone, buff dense crystalline with some anhydrite and green gray shale.
6594-6595 Limestone, buff dense fragmental, carbonaceous film.
6595-6596 Limestone as above and buff dolomite with coarse crystals.
6596-6597 Limestone as above and pale brown anhydrite.
6597-6598 Limestone anhydrite, pale brown anhydrite, little pinpoint porosity.
6598-6599 Limestone, buff fragmental, dense.
6599-6000 Limestone as above and dark yellow brown anhydrite inclusions.
6600-6601 Dolomite, tan to pale yellow brown, fine crystalline to crystalline, dense.
6601-6602 Dolomite, pale yellow brown, fine saccharoidal, dense.
6602-6603 Dolomite, pale yellow brown, very fine saccharoidal, dense.
6603-6604 Limestone, pale yellow brown, very fine saccharoidal and pale yellow brown very fine saccharoidal dense.
6604-6605 Limestone, pale yellow brown, very fine granular and some pale crystalline dolomite, dense.
6605-6606 Limestone, pale yellow brown fragmental, little pinpoint porosity.
6606-6607 Limestone, pale yellow brown fragmental.
6607-6608 Limestone, pale yellow brown fragmental, dense, shell fragments.
6608-6609 Limestone, pale yellow brown, fragmental, dense.
6609-6610 Limestone, pale yellow brown, fragmental and fine granular, dense; light to medium gray anhydrite.
6610-6611 Dolomite, pale yellow brown, fine granular, dense.
6611-6612 Dolomite, pale yellow brown to light gray, dense.
6612-6613 Dolomite, light gray dense, slight gray tinge.
6613-6614 Dolomite as above.
6614-6615 Dolomite, medium light gray, dense.

6615-6616 Dolomite, medium light gray, dense with colorless anhydrite inclusions.

6616-6617 Dolomite, light gray, dense.

6617-6618 Dolomite, very light gray to light green gray, dense.

6618-6619 Limestone, dark yellow brown, crystalline with anhydrite inclusions.

6619-6620 Limestone, very pale yellow brown, fine granular with colorless anhydrite.

6620-6621 Limestone, very pale yellow brown to dark yellow brown, fine granular, dense.

6621-6622 Limestone, pale yellow brown, fine granular, dense.

End of Core #5

6622-6645 Limestone, very pale yellow brown, saccharoidal, little dense very pale yellow brown anhydritic limestone.

6645-6675 Limestone, very pale yellow brown, saccharoidal and little buff dense, few pieces anhydritic limestone.

6675-6677 Dolomite, very pale yellow brown saccharoidal to buff dense crystalline limestone.

Core #6

6677-6678 Dolomite, dark yellow brown, fine granular, dense, some black carbonaceous material.

6678-6679 Dolomite, gray brown dense and light olive gray fine granular.

6679-6680 Dolomite, light olive gray, fine granular.

6680-6681 Dolomite, light olive gray, fine granular, and colorless anhydrite.

6681-6682 Dolomite as above.

6682-6683 Dolomite, gray brown, fine granular, some pinpoint porosity.

6683-6684 Dolomite as above, some colorless anhydrite, anhydritic dolomite.

6684-6685 Dolomite, dark yellow brown, fine granular, fair pinpoint porosity.

6685-6686 Dolomite, light olive gray, slightly saccharoidal, little pinpoint porosity.

6686-6687 Dolomite, dark yellow brown, fine granular, dense; little colorless anhydrite.

6687-6688 Dolomite, light olive gray, fine granular, dense.

6688-6689 Dolomite, dark yellow brown, fine granular, dense, little colorless anhydrite.

6689-6690 Dolomite, light gray, dense, very fine crystalline.

6690-6691 Dolomite, light gray dense and dark gray shale, hard.

6691-6692 Dolomite, light gray to medium dark gray, dense, some argillaceous streaks.

6692-6693 Dolomite as above.

6693-6694 Dolomite, medium dark gray, dense and very light olive gray, fine crystalline.

6694-6695 Dolomite, light olive gray, crystalline, little pinpoint porosity, anhydrite inclusions.

6695-6696 Dolomite, color as above, dense, crystalline.

6696-6697 Dolomite, color as above, crystalline, fair pinpoint porosity, some anhydrite inclusions.

6697-6699 Dolomite, light olive gray, crystalline, dense and very light olive gray, crystalline dolomite, dense.

6699-6700 Dolomite, light olive gray, crystalline, little pinpoint porosity, anhydrite crystals.

6700-6701 Dolomite, light olive gray, crystalline, dense and anhydrite crystals.

6701-6702 Dolomite, light olive gray, crystalline, dense.

6702-6703 Dolomite, light olive gray, crystalline, dense.

6703-6704 Dolomite, light olive gray, dense, crystalline and few anhydrite inclusions.

6704-6705 Dolomite, light olive gray, dense, crystalline, fair pinpoint porosity and few anhydrite inclusions.

6705-6706 Dolomite as above, little pinpoint porosity.

6706-6707 Dolomite as above, fair pinpoint porosity.

6707-6708 Dolomite, tan, dense, argillaceous.

6708-6709 Dolomite, tan, dense with gray shale streaks.

6709-6710 Dolomite, pale brown, dense crystalline; with anhydrite inclusions and gray shale.

6710-6711 Dolomite, pale yellow brown, crystalline, fair pinpoint porosity, pale brown crystalline dense, anhydritic dolomite.

6711-6712 Dolomite, pale yellow brown, crystalline to medium saccharoidal, little pinpoint porosity.

6712-6713 Dolomite as above, dense and anhydrite inclusions.

6713-6720 Dolomite as above, dense.

6720-6721 Dolomite as above, dense, fair pinpoint porosity.

6721-6722 Dolomite as above, dense, some pinpoint porosity, anhydrite inclusions.

6722-6723 Dolomite as above, dense, little porosity, anhydrite inclusions.

6723-6724 Dolomite as above, dense little porosity.

6724-6725 Dolomite as above, little pinpoint porosity.

6725-6726 Dolomite as above, very little pinpoint porosity.

6776-6727 Dolomite as above, little pinpoint porosity.

6727-6728 Dolomite, pale yellow brown, slightly saccharoidal, little pinpoint porosity.

6728-6730 Dolomite same as above.

End of Core #6

6730-6775 Dolomite, pale yellow brown, saccharoidal, some pinpoint porosity, few pieces of gray shale and light gray limestone.

6775-6780 Dolomite as above, few pieces pale yellow brown dense crystalline limestone.

6780-6800 As above and whitish to very pale brown floury limestone.

6800-6805 Limestone, pale yellow brown, dense to whitish floury limestone and dolomite as above.

6805-6810 Limestone, pale yellow brown, dense, crystalline.

6810-6815 Limestone, color as above and pale yellow brown dolomite.

6815-6820 As above, mostly limestone, little dolomite as above, saccharoidal, little anhydrite limestone.

6820-6825 Limestone, pale yellow browns to buff dense, little dolomite as above, saccharoidal.

6825-6854 Limestone, very light gray to slight buff, dense.

6854-6870 Limestone, buff to pale yellow brown, dense, crystalline.

6870-6873 Limestone as above to very light gray, dense.

6873-6880 Limestone, buff, very fine granular, dense.

6880-6905 Limestone, light gray to buff as above.

6905-6910 Dolomite, buff to very light gray, fine granular, dense.

6910-6915 Limestone, buff dolomitic limestone as above and light gray as above.

6915-6935 Dolomite, buff to light gray, dense, fine granular limey.

6935-6950 Limestone, buff, dense and light gray dolomitic.

6950-6960 Limestone, buff, dense, and little light gray dolomitic.

6960-6975 Limestone as above, some dolomitic.

6975-6980 Limestone as above and much medium light gray shale.

6980-6985 Dolomite, yellow gray to light olive gray, dense, slightly limey, much gray shale.

6985-6995 Limestone, yellow gray to pale yellow brown, fine granular to crystalline; much gray shale and light olive gray fine granular dolomite.

6995-7007 Limestone, buff to light olive gray, fine granular, dense, some dolomitic.

7007-7074 Limestone, buff to pale yellow brown, crystalline to fine granular, dense; some dolomite; much gray shale.

7074-7080 Limestone pale yellow brown to light gray, crystalline to fine granular, dense, much gray shale.

7080-7090 Limestone pale yellow brown to buff, fine granular to crystalline, dense.

7090-7093 Circulation. Limestone, buff, dense; much gray shale, little pale brown saccharoidal dolomite.

7093-7095 Limestone, buff, dense and pale brown saccharoidal dolomite; much gray shale.

7095-7100 Limestone, buff, dense and medium light gray, dense; pale brown saccharoidal dolomite; much gray shale.

7100-7160 Limestone, pale brown saccharoidal dolomitic; same as above, and gray shale, fair porosity in dolomite.

7160-7170 Limestone, pale yellow brown to light gray, dense, little pale brown saccharoidal as above; dolomitic.

7170-7180 Limestone, pale yellow brown to light gray dense, pale brown saccharoidal dolomitic.

7180-7190 Limestone, mostly pale yellow brown to light gray, dense; little saccharoidal dolomitic limestone.

7190-7195 Limestone, light gray to very pale yellow brown, dense, dolomitic.

7195-7215 Limestone as above and brown gray crystalline dense; much medium to medium dark gray shale.

7215-7229 Limestone, light gray and very pale yellow brown dense and some shale as above; buff and brown gray crystalline, dense limestone.

7229-7240 Limestone as above and some pale brown saccharoidal dolomitic limestone as above, shale as above.

7240-7256 Limestone, very light gray, light gray, brown gray, dense; little dolomitic saccharoidal limestone as above, shale as above. Very pale brown, fine granular slightly dolomitic limestone.

7265-7280 Limestone, medium light gray, crystalline, dense, mostly medium light gray and pale yellow brown, fine granular limestone.

7280-7305 Limestone as above and little brown gray crystalline, dense.

7305-7325 Limestone, medium light gray and brown gray, dense, crystalline.

7325-7345 Limestone, very light gray to buff, dense and brown gray dense crystalline.

7345-7380 Limestone, brown gray (mottled) dense, crystalline and some light gray as above.

7380-7405 Limestone, brown gray, dense, crystalline, some light gray and buff limestone.

7405-7410 Limestone, brown gray, dense, crystalline and medium to medium light gray shale.

7410-7415 Buff dense limestone, some brown gray as above and medium dark to medium light gray shale.

7415-7425 Limestone, brown gray as above, little light gray to buff, cave? Much shale as above.

7425-7430 Limestone, brown gray as above, gray shale as above and some gray red silty shale, calcareous.

Ashern 7460 Limestone, brown gray as above, some buff dense and light gray dense crystalline; gray and gray red shale.

Stonewall 90'

7430-7497 Missing.

7497-7530 Dolomite, white, fine granular, dense to coarsely saccharoidal. Medium light to medium dark gray shale.

7530-7560 Dolomite, white crystalline to some saccharoidal. Much shale as above.

7560-7615 Dolomite as above, some with slight brown tinge: shale as above.

Reaming 7585-7615

7615-7625 Dolomite, yellow gray to slight brown tinge, crystalline, dense. Some saccharoidal 7620-25. White dolomite. Some fine granular shale as above.

7625-7635 Dolomite and shale as above, some gypsum (satin spar?).

7635-7660 Anhydrite, pale brown to white; crystalline to fine granular dense dolomite; few pieces of gypsum 7655-60.

7660-7675 Dolomite as above and few pieces of brown gray dolomite, fine granular.

7675-7710 Dolomite, yellow gray, dense, crystalline, little saccharoidal, fair porosity.

7710-7715 Dolomite, white crystalline and yellow gray, dense; some very fine silty dolomite, slightly limey.

Stony Mountain 7830

7715-7840 Dolomite, yellow gray, crystalline to very finely granular, dense, some saccharoidal, slightly limey.

7840-7845 Dolomite as above and light olive gray shale.

7845-7850 Dolomite as above and some green gray shale and gray shale.

7850-7855 Dolomite as above and few pieces of medium light gray dolomite; shale as above.

7855-7860 Same as above, gray shale, little light olive gray and green gray, rounded medium grained quartz grains imbedded in dolomite.

7860-7865 Dolomite, yellow gray as above to medium gray; sandy limestone, little shale as above.

7865-7870 As above and few pieces of pale red waxey shale.

7870-7875 As above but no red shale.

7875-7880 Sandstone, yellow gray dense and medium gray limey; some medium dark gray shale; little green gray shale.

7880-7885 Dolomite as above, light gray fine to medium grained sandstone, limey sand to sandy lime, calcareous cement.

7885-7900 Dolomite, light gray sandy, fine to coarse rounded sand grains; shale as above and yellow gray dolomite as above.

7900-7905 Dolomite, light gray to yellow gray, some sandy light gray.

7905-7910 Dolomite, yellow gray, dense, fine crystalline, little light gray sandy.

Stony Mountain Shale 7920

7910-7930 Dolomite, yellow gray dense, some sandy, little light gray sandy dolomite.

7930-7935 Dolomite as above and medium gray to medium light gray shale. Some light olive gray shale.

7935-7940 Dolomite and little shale as above.

7940-7950 Dolomite, mostly yellow gray as above, some sandy, little light gray sandy.

7950-7965 As above and little green gray, hard limey shale, silty; some medium light gray shale.

7965-7980 As above and little gray red shale.

7980-7990 As above, more shale, bryozoa stem.

7990-7995 As above, some light gray fragmental limestone; shale as above.

Red River

7995-8005 As above, more limestone as above; some shale and dolomite as above.

8005-8020 Limestone, light to medium gray, fragmental, dense, shaley, fossiliferous.

8020-8045 Limestone as above and pale yellow brown dense crystalline.

8045-8055 Limestone, pale yellow brown dense crystalline.

8055-8060 Limestone, pale yellow brown, dense, crystalline, slightly dolomitic.

8060-8065 Limestone as above, some slightly dolomitic.

8065-8110 Limestone, pale yellow brown to pale brown, dense, crystalline.

8110-8115 Limestone, yellow gray, dense, crystalline, some slightly fragmental and pale brown fragmental as above.

8115-8130 Limestone, yellow gray dense, crystalline; slightly dolomitic; pale brown dense crystalline limestone.

8130-8190 Limestone, yellow gray dolomitic, fine grained.

8190-8220 Limestone, yellow gray, fine grained to fine sugary; dense.

8220-8240 Limestone as above and few pieces of fine saccharoidal.

8240-8275 Limestone as above and pale yellow brown saccharoidal, dolomitic.

8275-8335 Limestone, pale yellow brown, fine saccharoidal, dolomitic, dense and limestone as above.

8335-8375 Limestone as above and little very pale yellow brown fragmental, dense and yellow gray dense dolomitic limestone.

8375-8405 Limestone as above and some light olive gray fragmental, dense.

8405-8430 Limestone, very pale yellow brown, fragmental, dense.

8430-8500 Limestone, very pale yellow brown, medium saccharoidal, slightly dolomitic, very pale yellow brown fragmental to crystalline, dense; little green gray calcareous shale.

8500-8525 Limestone, pale yellow brown, fine granular, dense dolomitic to very pale yellow brown, fragmental, dense.

8525-8540 Limestone, pale yellow brown, fine saccharoidal.

8540-8595 Limestone, pale yellow brown, fine saccharoidal to fragmental. Crinoid button? 8560'-65'.

8595-8610 Limestone as above to crystalline, dense.

Winnipeg Formation

8610-8630 Limestone, same as above and little light olive gray, crystalline.

8630-8635 Limestone same as above and few pieces of gray shale.

8635-8645 Limestone as above, no shale.

8645-8650 Limestone as above and few pieces of green shale.

8650-8735 Limestone as above and few pieces of green and gray shale and pyrite.

8735-8755 Limestone as above and dark green gray waxey shale.

Winnipeg Sand 8795

8755-8800 Limestone and shale as above and little medium gray shale.

8800-8805 Limestone and shale as above and little medium grained sandstone.

8805-8810 Limestone and shale as above and much fine to medium free quartz.

8810-8895 As above and piece of medium grained quartz sandstone, not calcareous, some gray shale.

8895-8900 Same as above and little white glauconitic sandstone and limestone.

8900 Total Depth.