

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 106

Summary of the Union Oil Company of California Skjervheim #1
Cavalier County, North Dakota
Well #27 - Permit #45

By Stanley P. Fisher

Union Oil Company of California - Los Nietos - Chris Skjervheim #1 well,
Cavalier County, North Dakota. C-NW 1/4, NW 1/4, NW 1/4 Section 28, T. 159N.,
R.63W. (330 feet from N. line, 330 feet from W. line, Section 28.) Elevation
1562 K.B.

The Union Oil Company of California - Los Nietos - Chris Skjervheim #1
was spudded May 26, 1951 and 10 3/4" casing was run to 158'. The drilling was
completed July 4, 1951 and the well abandoned. T.D. 3409.

TESTS:

DST #1 1581-1661

Packer set at 1581, open 1 hour, shut in 15 minutes. Recovered 865'
fluid, 175' mud, 700' slightly salty water. Hydrostatic pressure 790 psi,
flowing pressure 460 psi, shut in pressure 760 psi. Fair blow throughout
test.

DST #2 2148-2185

Packer set at 2148, open 1 hour, shut in 15 minutes. Recovered 1650'
fluid, 600' mud, 1050' (salt water. Hydrostatic pressure 1120 psi -
flowing pressure 750 psi - shut in pressure 760 psi. Strong blow
diminishing to moderately weak at end of 1 hour.

The well was extensively cored, with cores being taken from the
following intervals:

1589-1661	2206-2213
1661-1677	2213-2603
1710-1730	2715-2733
1745-2154	2870-2910
2154-2157	3352-3378
2165-2185	3395-3409
2195-2201	

Electrical logs, micrologs, and velocity curves were run, well was
abandoned with plugs set at the following intervals:

#1	2130-2095	with	10	sacks
#2	1525-1455	with	20	sacks
#3	1290-1255	with	10	sacks
#4	175- 145	with	12	sacks
#5	18- 8	with	5	sacks

Formation tops picked from sample and electrical logs, not all
lithologic tops called in following list. Colors determined from rock color

chart.

Cretaceous System	
Niobrara Formation	528
Greenhorn Formation	911
Dakota	1270
Jurassic System	1370
Mississippian ? (Lodgepole)	1477
Devonian System	
Nisku Formation	1600
Duperow Formation	1645
Ashern Formation	2270
Silurian System	
Interlake Group	2287
Ordovician System	
Upper Stony Mtn.	2507
Lower Stony Mtn.	2584
Red River Formation	2680
Winnipeg Formation	3221
Winnipeg Sandstone	3395
Pre-Cambrian	3404

<u>Depth</u>	<u>Lithology</u>
0-10	Light medium gray shale, some angular to subround quartz.
10-20	Shale ditto; some angular quartz; dolomitic limestone.
20-30	Shale ditto; siltstone and quartz; few fine dolomite, more glauconite ovals.
30-40	Shale, ditto; yellow and white dolomite with minute staining; micro conglomerate.
40-50	Shale ditto; sub-angular quartz, some dolomitic limestone.
50-60	Shale ditto; buff to white dolomitic limestone, few black stains.
60-70	Shale ditto; splintery.
70-130	Shale ditto.
130-140	Shale ditto; calcareous, shell.
140-158	Shale ditto.
158-170	Shale ditto; calcareous; quartz grains cemented by calcite.
170-180	Shale ditto; slightly calcareous, quartz grains.
180-190	Shale ditto.
190-200	Medium gray shale, slightly calcareous.
200-230	Light gray shale.
230-240	Shale, ditto; slightly calcareous; buff calcareous shale; pyritized shell fragments.
240-250	Light medium gray shale; few tan stains, tan dolomite with black stain.
250-260	Shale ditto; angular to subround quartz.
260-270	Shale ditto; rare tan limy dolomite.
270-280	Shale ditto.
280-290	Shale ditto; some tan limy specks in shale.
290-300	Shale ditto; shell and pyrite.
300-310	Medium gray shale.
310-320	Shale ditto; with pyrite scale; some siltstone, shell.
320-330	Shale ditto with pyrite scale, rare tan dolomite.
330-340	Light medium gray shale, tan dolomite.

340-370 Shale ditto.
 370-390 Shale ditto; rare pyrite crystals, and shell.
 380-390 Shale ditto; rare pyrite scale.
 390-430 Shale ditto.
 430-440 Shale ditto; few calcareous specks; pyrite scale.
 440-450 Shale ditto.
 450-460 Shale ditto; few quartz.
 460-470 Shale ditto, rare quartz.
 470-480 Shale ditto, few calcareous specks, rare green shale.
 480-490 Medium gray shale, pyrite scale.
 490-500 Shale ditto, calcareous specks; few brown siltstones and quartz grains.
 500-520 Shale, ditto.
 520-530 Light medium calcareous gray shale, small calcareous specks.
 530-540 Shale ditto; small calcareous specks.
 540-550 Shale ditto; small calcareous specks.
 550-560 Shale ditto; few calcareous specks.
 560-570 Missing.
 570-580 Dark calcareous gray shale, few calcareous specks.
 580-590 Medium gray calcareous shale, few calcareous specks.
 590-600 Shale ditto; few calcareous specks, rare pyrite scale.
 600-610 Shale ditto; few calcareous specks.
 610-640 Medium gray shale.
 640-650 Shale light medium gray.
 650-660 Shale, medium gray calcareous.
 660-670 Shale ditto; few pyrites, rare brown siltstone.
 670-680 Missing.
 680-710 Shale, medium dark gray.
 710-720 Shale, medium gray, slightly calcareous, shells.
 720-730 Shale, light medium gray, rare buff-pink limestone, pyrite.
 730-740 Shale, medium gray slightly calcareous.
 740-780 Shale ditto.
 780-790 Shale ditto; pyrite.
 790-800 Shale ditto; pyrite, some sand grains and rare limestone.
 800-810 Shale ditto; more calcareous; few pyrite and sand.
 810-820 Shale, medium gray, few tan siltstones.
 820-830 Shale, medium dark gray, some quartz; few pyrite.
 830-840 Shale, medium gray calcareous, few pyrite.
 840-850 Shale, medium dark gray.
 850-860 Shale ditto; pyrite.
 860-870 Shale, medium gray, slightly calcareous, shells.
 870-880 Shale ditto; siltstone and quartz; pyrite.
 880-900 Shale, medium light gray, slightly calcareous.
 900-910 Shale ditto; quite calcareous.
 910-920 Missing.
 920-930 Shale, dark gray, calcareous, white specks; calcite prisms and shells.
 930-940 Shale ditto; few calcite prisms.
 940-950 Shale ditto; few calcite prisms; few frosted sands.
 950-960 Shale ditto.
 960-970 Shale, medium gray calcareous; some small calcareous specks; many calcite prisms; few pyrite and round quartz.
 970-980 Shale ditto; considerable quartz; pyrite, calcite prisms.

980-990 Sandstone, round frosted, rare red on green quartz grains; gray calcareous shale; pyrite and calcite prisms.

9490-1000 Sandstone ditto; rare amethyst quartz; more shale.

1000-1010 Missing.

1010-1020 Shale medium gray calcareous; some angular to round frosted quartz; few calcite prisms.

1020-1030 Shale ditto; little quartz.

1030-1040 Shale ditto; considerable subround quartz; rare amethyst, calcite prisms.

1040-1050 Shale ditto with iron stain; quartz and calcite prisms.

1050-1060 Shale ditto; quartz and calcite prisms.

1060-1070 Shale ditto; fewer quartz; calcite prisms.

1070-1080 Shale ditto; few quartz.

1080-1090 Shale ditto; more quartz.

1090-1100 Shale ditto; less quartz.

1100-1110 Missing.

1110-1120 Shale ditto; some quartz.

1120-1130 Shale ditto; some quartz; rare shell, calcite prisms.

1130-1140 Shale ditto; fine subround quartz; white dolomite, rare shell.

1140-1150 Shale ditto; few quartz; few white to pink limestone and dolomite.

1150-1160 Shale ditto; few calcareous prisms and plant specks.

1160-1170 Shale medium gray; gray sandstone fragments; pyrite scale.

1170-1180 Shale ditto; gray sandstone.

1180-1190 Shale ditto; somewhat calcareous; rare white dolomite.

1190-1200 Shale ditto; non-calcareous; rare gray sandstone and white dolomite. Prisms.

1200-1210 Shale ditto; calcite prisms; rare pyrite.

1210-1220 Shale, medium dark gray calcareous shale; pink and clear quartz; pyrite and calcite prisms; minute black fish tooth.

1220-1230 Shale ditto; rare shell, pyrite and calcite prisms.

1230-1240 Shale ditto; some pyrite and quartz.

1240-1250 Shale ditto.

1250-1260 Shale ditto; rare quartz.

1260-1270 Shale ditto.

1270-1280 Sandstone, fine angular to subround clear to frosted; pyrite.

1280-1290 Sandstone more rounded grains.

1290-1300 Sandstone; increase in shale chips.

1300-1310 Shale, medium gray; subround quartz and siltstone; pyrite, few prisms.

1310-1320 Shale ditto; subround quartz; some pyrite; rare calcite prisms.

1320-1330 Same as above; increase in pyrite and prisms; belemnites fragments.

1330-1340 Same as above; much pyrite and quartz, calcite prisms.

1340-1350 Shale, medium and light gray; siltstones; rare creamy dolomite.

1350-1360 Shale ditto; calcareous, rare quartz.

1360-1370 Shale as above; some gray green chips; few siltstones and calcite prisms.

1370-1380 Shale ditto.

1380-1390 Shale ditto; some gray green shale; some quartz and shells, rare white limestone and amethyst.

1390-1400 Missing.

1400-1410 Shale ditto; rare pyrite.

1410-1420 Shale ditto; some buff dolomite.

1420-1430 Shale ditto; tan granular limestone; some quartz.

1430-1440 Missing.
 1440-1450 Shale ditto; few quartz and tan limestone; some gray green shale.
 1450-1460 Shale ditto; and gray granular limestone; few quartz; cylindrical silty fossil.
 1460-1470 Shale, medium gray large chips; and mottled vugular limestone, tan crystalline, limestone; few calcareous siltstone; rare pyrite.
 1475 Circ. Limestone, pink, finely crystalline, locally vuggy, with maroon seams; some mottled and tan limestone; rare white to pink dolomite.
 1470-1480 Shale, medium light gray, vuggy gray to tan crystalline limestone; micro oolites.
 1480-1490 Anhydrite white; tan to dirty crystalline limestone.
 1490-1495 Shale; medium to light gray, evaporates.
 1495-1500 Dolomite, limy white; some gray shale and dirty vuggy limestone; few red siltstones. TR residuals?
 1500-1515 Ditto, no red siltstone.
 1515-1520 Limestone; white and pink; white dolomite.
 1520-1525 Limestone ditto; dolomitic limestone with fair point porosity; some gray vuggy limestone; quartz; pyrite.
 1525-1535 Limestone, white and rose; also dolomitic limestone; some very gray limestone, gray shale and pyrite, few quartz.
 1535-1540 Limestone and dolomite; white to pink, white dashes on many fragments.
 1540-1555 Ditto; point porosity; rare vugs; maroon seams.
 1555-1560 Ditto; with considerable pyrite.
 1560-1565 Limestone, white to lavender; few pyrite.
 1565-1570 Limestone, white, rose, lavender.
 1570-1575 Limestone ditto; crystalline porosity and few vugs; little shale.
 1575 Circ. Limestone ditto; some white dolomite.
 1575-1580 Limestone ditto; some medium gray shale, pyrite.
 1580-1585 Limestone, white crystalline; some dirty with fair point porosity, few vugs.
 1585-1590 Limestone ditto; some tan, good point porosity; rare gray shale.
 1589 Circ. Limestone ditto.
 Core 1-1
 1589-1628 Limestone, pink and buff, coarse to medium crystalline; some pits.
 Core 1-2 Limestone ditto.
 Core 1-3 Limestone ditto.
 Core 1-4 Limestone ditto; white to pink.
 Core 1-5 Limestone ditto; more pits, rare vugs.
 Core 1-6 Limestone ditto; several larger vugs.
 Core 2-1
 1628-1661 Limestone buff to pink, moderate crystalline, vuggy seams.
 Core 2-2 Limestone brownish pink.
 Core 2-3 Limestone ditto.
 Core 3-1
 1661-1677 Dolomite white to buff pink, sugary, point porosity.
 Core 3-2 Dolomite ditto; pin point porosity in white sugary type.
 Core 3-3 Dolomite limey, white, good point and vuggy porosity; finely crystalline.
 Core 3-4 Dolomite limey buff-pink, sugary; good point porosity; brown point stains.
 Core 3-5 Dolomite limey white to pink, sugary, good point porosity brown point stains.

1677 Circ. Shale, gray, dolomite buff to pink, some limestone white.
 1677-1680 Dolomite pink to purple, limey, saccharoidal.
 1680-1685 Dolomite ditto; good porosity; rare pyrite and gypsum.
 1685-1690 Dolomite ditto; orange stain, good porosity; rare oolitic dolomite; rare gypsum.
 1690-1695 Dolomite white to tan and pink, limey, saccharoidal to vuggy; rare gypsum.
 1695-1700 Dolomite, pink and orange; porous points.
 1700 Circ. Dolomite ditto and gypsum.
 1700-1705 Limestone, white finely crystalline; dolomite pink; rare dark gray shale.
 1705-1710 Limestone ditto; few gypsum, quartz, dolomite.
 Core 4-1
 1710-1730 Limestone ditto; fine porosity.
 Core 4-2 Limestone ditto.
 Core 4-3 Limestone pale pink; sugary and finely porous.
 Core 4-4 Limestone, white, finely crystalline.
 1730-1735 Limestone mottled pink, white; gray shale; rare gray, siltstone.
 1735-1740 Limestone ditto; fairly porous to rarely vuggy.
 1740-1745 Gypsum; some limestone.
 Core 5-1
 1745-1762 Limestone, dolomitic; pale buff, porous.
 Core 5-2 Dolomite buff dense.
 Core 6-1
 1762-1781 Limestone dolomitic purple to white; dense.
 Core 6-2 Dolomite, limey white to pink, dense to sugary and vuggy.
 Core 7-1
 1781-1801 Dolomite limey orange-brown sugary.
 Core 7-2 Dolomite ditto.
 Core 7-3 Dolomite ditto.
 Core 8-1
 1801-1822 Dolomite limey buff sugary, several good vugs. Brachiopod? cast.
 Core 8-2 Dolomite ditto; orange buff.
 Core 8-3 Dolomite ditto; some pale gray dolomite.
 Core 8-4 Dolomite ditto; orange.
 Core 8-5 Dolomite limey pink and purple, banded with white limestone; sugary; fair point porosity.
 Core 9-1
 1822-1847 Limestone, white very finely crystalline.
 Core 9-2 Limestone buff to rose-brown, saccharoidal, banded, some good zones of point porosity; some dolomitic lime zones.
 Core 9-3 Limestone dolomitic; one rose and one tan chip; fair point porosity.
 Core 9-4 Dolomite buff limey finely crystalline, few small vugs.
 Core 10-1
 1847-1857 Dolomite ditto; also some dense chips of creamy limestone.
 Core 10-2 Limestone, dense creamy to mottled pink.
 Core 11-1
 1857-1868 Limestone dense, mottled, buff to pink and purple; sparse radial calcareous oolites.
 Core 11-2 Limestone ditto; brachiopod cast.
 Core 11-3 Limestone ditto; locally vuggy.
 Core 12-1
 1868-1876 Limestone ditto.

Core 12-2 Limestone ditto; no oolites.
 Core 12-3 Limestone ditto.
 Core 13-1
 1876-1883 Limestone ditto.
 Core 13-2 Limestone ditto.
 Core 14-1
 1883-1908 Limestone ditto; buff, orange, purple.
 Core 14-2 Limestone ditto; red and light green shaley limestone.
 Core 15-1
 1908-1931 Limestone, white saccharoidal.
 Core 15-2 Limestone ditto.
 Core 15-3 Limestone ditto.
 Core 16-1
 1931-1946 Limestone, white fine crystalline.
 Core 16-2 Limestone, white dense.
 Core 16-3 Dolomite pinkish brown saccharoidal, good point porosity and considerable vugs.
 Core 16-4 Siltstone mauve banded; red sandy and limey dolomite and white limestone.
 Core 17-1
 1946-1952 Dolomite limey rose; some vuggy white limestone.
 Core 18-1
 1952-1968 Dolomite white with some local pink, finely crystalline, vuggy.
 Core 18-2 Limestone, white finely crystalline.
 Core 18-3 Limestone saccharoidal pink, and white porous dolomitic.
 Core 18-4 Limestone pink and buff finely crystalline to saccharoidal.
 Core 19-1
 1968-1993 Dolomite limey pinkish buff, banded, iron stain?
 Core 19-2 Dolomite ditto.
 Core 19-3 Dolomite ditto; purple to buff,
 Core 19-4 Dolomite limey, finely crystalline, dusty rose.
 Core 19-5 Limestone, banded, creamy and pale green, finely crystalline.
 Core 19-6 Limestone, pale gray-buff, finely crystalline, few vugs, oil stains fluorescent; red to rose dolomite and calcareous red shale.
 Core 20-1
 1993-2014 Limestone, dolomitic, mottled pink and buff, fine.
 Core 20-2 Limestone ditto.
 Core 20-3 Shale and dolomite, red banded.
 Core 20-4 Shale red, calcareous, iron streaks.
 Core 20-5 Shale purple with mottled white spots, calcareous.
 Core 20-6 Limestone buff to light pink-brown, finely crystalline.
 Core 21-1
 2014-2039 Limestone dolomitic, pink-brown, scattered point porosity.
 Core 21-2 Dolomite limey as above.
 Core 21-3 Limestone as above, few small vugs.
 Core 21-4 Limestone buff, finely crystalline.
 Core 21-5 Limestone pale rose, rather dense.
 Core 21-6 Limestone ditto, but finely crystalline.
 Core 22-1
 2039-2064 Limestone, mottled pink and pale green, shaly.
 Core 22-2 Shale, rose-brown, locally calcareous and minutely porous.
 Core 22-3 Shale purple, also white finely crystalline limey dolomite.
 Core 22-4 Limestone, pink to purple, also red shale.

Core 22-5 Limestone, creamy coarsely crystalline to fragmental, point porous, also purple shale.

Core 22-6 Limestone pink saccharoidal.

Core 22-7 Dolomite limey pink with white calcite blebs; also dense white limestone.

Core 22-8 Dolomite limey pink to white; also deep maroon chunky shale.

Core 23-1
2064-2089 Dolomite ditto.

Core 23-2 Dolomite ditto; also buff limestone.

Core 23-3 Limestone mottled violet to buff finely crystalline, pale gray to purple clayey dolomite.

Core 24-1
2089-2114 Limestone, buff dolomitic, dense.

Core 24-2 Limestone ditto; also pale pink limestone conglomerate.

Core 24-3 Limestone ditto and pale pink brown, dense.

Core 24-4 Limestone ditto; also mottled orange to purple limestone.

Core 25-1
2114-2154 Limestone ditto.

Core 25-2 Limestone, oolitic, purple.

Core 25-3 Limestone ditto; also dense buff-gray limestone and gray crystalline limestone.

Core 25-4 Limestone, buff dense, brachiopod chips?

Core 25-5 Limestone buff with black streaks, dolomitic, sugary.

Core 25-6 Limestone white dense; one pink calcareous shale.

Core 26-1
2154-2157 Dolomite limey white sugary vuggy.

2157-2162 Circ. Limestone, white dense to coarse crystalline; some anhydrite; much gray shale.

2162-2167 Circ. Limestone, white sugary.

Core 27-1
2165-2185 Limestone ditto; vuggy; shell cast,

Core 27-2 Limestone, white sugary vuggy reefoid. Stromatoporoid.

Core 27-3 Limestone ditto.

Core 28-1
2185-2201 Dolomite limey mottled light gray finely crystalline to dense, locally vuggy.

Core 28-2 Dolomite ditto.

2201-2206 Circ. Dolomite buff moderately crystalline to dense; rare quartz; some gray shale.

Core 29-1
2206-2209 Dolomite, limey mottled pale gray; locally vuggy.

Core 30-1
2209-2213 Dolomite ditto and buff saccharoidal limestone.

Core 31-1
2213-2229 Dolomite ditto.

Core 31-2 Dolomite ditto.

Core 31-3 Dolomite ditto; more of a brown-gray.

Core 31-4 Dolomite ditto; and rose brown dolomitic limestone; large vugs in both.

Core 32-1
2229-2252 Dolomite buff to pale gray; finely crystalline to dense, locally vuggy.

Cord 32-2 Limestone dolomitic saccharoidal white with pink stains; few vugs.

Core 32-3 Limestone sugary white, brachiopods and vugs.

Core 32-4 Limestone sugary to dense buff; brachiopod fragments; few pink specks.

Core 32-5 Limestone chiefly dense buff with purple and red seams.

Core 32-6 Limestone ditto; rare brachiopod shell; solution seams.

Core 32-7 Limestone ditto; many brachiopod fragments.

Core 32-8 Limestone buff.

Core 32-9 Limestone ditto; few brachiopod fragments.

Core 33-1
2252-2277 Limestone buff with red specks, dense, brachiopod fragments.

Core 33-2 Limestone ditto.

Core 33-3 Limestone ditto; partly finely crystalline.

Core 33-4 Limestone sugary buff; very few porous dashes.

Core 33-5 Dolomite, limey sugary buff; fossiliferous vugs,

Core 33-6 Limestone buff partly fragmental and finely crystalline.

Core 33-7 Limestone slightly dolomitic, buff sugary, good point porosity.

Core 33-8 Siltstone purple, slightly calcareous.

Core 33-9 Siltstone mottled pink to purple, few iron oxide seams.

Core 33-10 Siltstone, pale rose-brown, to deep maroon.

Core 34-1
2277-2302 Shale pink and buff, dense dolomite limey.

Core 34-2 Shale red.

Core 34-3 Shale ditto and one buff dense dolomite.

Core 34-4 Shale red and buff with spots of coarsely crystalline limestone.

Core 34-5 Shale and limestone ditto.

Core 34-6 Shale red and buff dolomite.

Core 34-7 Shale ditto.

Core 34-8 Shale ditto.

Core 34-9 Shale ditto.

Core 34-10 Shale ditto.

Core 35-1
2302-2327 Shale ditto.

Core 35-2 Shale ditto.

Core 35-3 Shale orange brown to red, with seams of limestone.

Core 35-4 Shale banded purple and pale green; dense limestone; pink brown shaly conglomerates.

Core 35-5 Shale pale green with possible slickensides; pinkish purple oolitic limestone with green shale and crystalline limestone blebs.

Core 35-6 Limestone, fragmentary to oolitic red to white; slickensides.

Core 35-7 Limestone ditto; also buff and dense limestone; also calcareous red shale, slickensides.

Core 35-8 Limestone-shale fragments; also buff dense limestone.

Core 35-9 Limestone, buff, dense.

Core 35-10 Limestone ditto.

Core 36-1
2327-2343 Limestone ditto plus some purple oolitic type.

Core 36-2 Limestone as above.

Core 36-4 Limestone, purple pink oolitic and white porous carbonate and gypsum.

Core 36-5 Limestone, dense white with purple seams and gypsum spots.

Core 36-6 Limestone ditto.

Core 37-1
2343-2359 Limestone ditto. (fossil)

Core 37-2 Limestone as above; also limestone fragmental purple with chalk seams.

Core 37-3 Limestone dense white.

Core 37-4 Limestone white and red shale. (Slickensides in this shale and in limestone for perhaps 50 feet above.)

Core 37-5 Anhydrite.

Core 37-6 Dolomite, breccia white to buff, few vugs, cemented by coarse crystalline calcite.

Core 38-1
2359-2373 Mix or breccia of dense limestone, red shale and anhydrite.

Core 38-2 Same as above, breccia.

Core 38-3 Limestone, dolomitic, vuggy.

Core 38-4 Limestone dolomitic, vuggy and porous zones.

Core 38-5 Dolomite gray white, limey, some porosity.

Core 38-6 Dolomite and shale breccia.

Core 39-1
2373-2383 Dolomite limey with some red shale blobs.

Core 39-2 Dolomite pale blue.

Core 39-3 Dolomite white.

Core 39-4 Dolomite ditto.

Core 39-5 Dolomite ditto, few fine solution seams.

Core 39-6 Dolomite ditto.

Core 40-1
2389-2406 Dolomite limey, violet white, spotted.

Core 40-2 Dolomite, limey white, some porosity.

Core 40-3 Dolomite ditto.

Core 40-4 Dolomite ditto; vuggy.

Core 40-5 Limestone white, fine crystalline.

Core 40-6 Dolomite dense buff vuggy.

Core 41-1
2406-2412 Dolomite ditto.

Core 42-1
2412-2430 Dolomite ditto.

Core 42-2 Dolomite buff to white, dense to oolitic; limey, dense phase, quite vuggy.

Core 42-3 Dolomite ditto.

Core 42-4 Limestone dolomitic white fine crystalline, slickensides.

Core 42-5 Dolomite white clayey and limey, dense, locally spotted and shaly.

Core 42-6 Dolomite shaly and spotted, some black to purple seams.

Core 42-7 Limestone white to pink, shaly.

Core 43-1
2430-2445 Limestone white dense.

Core 43-2 Limestone white oolitic, rare porosity.

Core 43-3 Limestone, white dolomitic, vuggy locally, oolitic to fine crystalline.

Core 43-4 Limestone, white fine crystalline, fossils.

Core 43-5 Dolomite limey violet-white, spotted.

Core 43-6 Dolomite limey and shaly, spotted as above or tuberculated.

Core 44-1
2445-2460 Limestone white dense, chalky.

Core 44-2 Limestone ditto.

Core 44-3 Limestone ditto.

Core 44-4 Limestone ditto.

Core 44-5 Limestone ditto, rare point porosity.
 Core 44-6 Limestone ditto.
 Core 45-1
 2460-2485 Limestone white finely crystalline, rare point porosity.
 Core 45-2 Limestone ditto.
 Core 45-3 Limestone ditto; two small shells.
 Core 45-4 Limestone ditto; brachiopod imprints, locally vuggy.
 Core 45-5 Limestone ditto.
 core 45-6 Limestone ditto; also some dense and chalky.
 Core 45-7 Limestone mauve dense, tuberculated.
 Core 45-8 Limestone ditto; almost oolitic.
 Core 45-9 Dolomite white dense.
 Core 46-1 Dolomite ditto.
 Core 46-2 Dolomite ditto; probable solution seams.
 Core 46-3 Dolomite ditto.
 Core 46-4 Dolomite ditto.
 Core 46-5 Dolomite ditto.
 Core 46-6 Dolomite ditto.
 Core 47-1
 2500-2525 Dolomite ditto; orthacea brachiopod (Ord.? form).
 Core 47-2 Dolomite ditto.
 Core 47-3 Dolomite ditto; some point porosity.
 Core 47-4 Dolomite ditto; faint purple tint.
 Core 47-5 Dolomite ditto, one porous chip; some purple shale.
 Core 47-6 Dolomite buff some vugs; red, and green shaly dolomite.
 Core 47-7 Dolomite dense white.
 Core 47-8 Dolomite, buff some vugs; gypsum seams; violet mottled shale.
 Core 47-9 Shale and siltstones pink and green; slightly calcareous.
 Core 48-1
 2525-2550 Siltstone red.
 Core 48-2 Siltstone ditto. (fine sandstone)
 Core 48-3 Sandstone, fine detrital, purple red, slightly calcareous cement;
 some pale green shale.
 Core 48-4 Sandstone, pale green, red, purple.
 Core 48-5 Sandstone, fine purple red; some similar calcareous silty shale.
 Core 48-6 Sandstone, fine pink; and red shale.
 Core 48-7 Sandstone fine to medium pink and white, slightly calcareous.
 Core 48-8 Sandstone pink and dolomite white.
 Core 48-9 Sandstone white to pale green, and dolomite pink.
 Core 48-10 Dolomite white dense, rare vugs.
 Core 49-1
 2550-2552 Dolomite ditto.
 Core 50-1
 2552-2578 Dolomite ditto; some green tints.
 Core 50-2 Dolomite ditto.
 Core 50-3 Dolomite ditto, rare vugs.
 Core 50-4 Dolomite finely crystalline, calcareous.
 Core 50-5 Dolomite ditto also some buff to pink mottled.
 Core 50-6 Limestone, mottled buff dense, slightly dolomitic.
 Core 50-7 Dolomite calcareous mottled cream color, few vugs.
 Core 50-8 Dolomite calcareous mottled white to purple.
 Core 50-9 Dolomite ditto; few vugs.
 Core 51-1
 2578-2603 Limestone, dolomitic white to purple.

Core 51-2 Dolomite buff to purple-gray, finely crystalline.
 Core 51-3 Dolomite ditto; some green; partly oolitic; locally shaly.
 Core 51-4 Dolomite as above.
 Core 51-5 Limestone mottled gray and green, shaly, black dashes.
 Core 51-6 Limestone ditto; darker colors.
 Core 51-7 Limestone ditto; shell fragments.
 Core 51-8 Limestone ditto; becomes more green.
 Core 51-9 Limestone ditto; deep purple-gray.
 2600-2610 Shale red.
 2610-2615 Limestone, shaly gray-green to purple, black dashes.
 2615-2620 Limestone ditto.
 2620-2625 Limestone ditto.
 2625-2635 Limestone ditto; shell imprints.
 2635-2640 Limestone, pale purple to buff, shaly.
 2640-2645 Limestone ditto; some black shale.
 2645-2650 Limestone chiefly greenish gray.
 2650-2655 Limestone ditto; considerable bedded micro-concres. of calcite; lacy bryozoa.
 2655-2660 Limestone mottled, black dashes.
 2660-2665 Limestone ditto; also bryozoa and small brachiopod.
 2665-2670 Limestone ditto.
 2670-2675 Limestone gray to purple.
 2675-2680 Limestone ditto; partly fragmental.
 2680-2685 Limestone, considerable pink, some coarse crystalline.
 2685-2690 Limestone buff, dense to finely crystalline.
 2690-2695 Limestone ditto; buff to pale orange.
 2705-2710 Limestone buff, chiefly dense; rare vuggy chip; bryozoan stem.
 2710-2715 Limestone buff dense.
 Core 52-1
 2715-2133 Limestone dolomitic; pale orange-tan, dense.
 Core 52-2 Limestone as above, plus buff fossil limestone.
 Core 52-3 Limestone mottled brown, good vugs.
 Core 52-4 Limestone dense with crystals to moderately crystalline, buff.
 Core 52-5 Limestone mottled brown to tan, medium crystalline.
 Core 52-6 Limestone ditto.
 2734-2740 Limestone of several types.
 2740-2745 Limestone cream dense,
 2745-2750 Limestone ditto; some black limestone chips.
 2750-2755 Limestone, pale orange tan to buff dense.
 2755-2760 Limestone ditto; few black limey shale chips.
 2760-2765 Limestone ditto.
 2765-2770 Limestone ditto, chiefly buff; some red shale.
 2770-2775 Limestone buff dense.
 2775-2780 Limestone ditto; bryozoa.
 2780-2785 Limestone creamy chalky.
 2785-2790 Limestone ditto; few gray shales.
 2790-2795 Limestone ditto.
 2795-2810 Limestone, buff to creamy, dense.
 2810-2815 Limestone ditto and limestone brown, finely crystalline with few vugs.
 2815-2820 Limestone, buff to brown, chiefly dense; brown type slightly dolomitic.
 2820-2825 Limestone as above.
 2825-2830 Limestone as above, few pink crystalline dolomitic limestones.

2830-2835 Limestone as above, rare green-gray shale.
 2835-2840 Limestone as above.
 2840-2845 Limestone dense pale orange to buff.
 2845-2850 Limestone, dense buff to finely crystalline light brown.
 2850-2855 Limestone ditto.
 2855 Circ. Limestone buff dense to finely crystalline.
 2855-2860 Limestone ditto.
 2860-2865 Limestone ditto; some red shale; rare pale green shale and limestone.

 2870 Circ. Limestone ditto; few gray to green shale,
 2865-2870 Limestone ditto; some pink; few gray shale; brachiopod fragments.
 Core 53-1
 2870-2886 Limestone ditto.
 Core 53-2 Limestone ditto.
 Core 53-3 Limestone ditto.
 Core 53-4 Limestone ditto.
 Core 53-5 Limestone buff-pink, slightly more crystalline.
 Core 53-6 Limestone ditto.
 Core 54-1
 2886-2910 Limestone ditto.
 Core 54-2 Limestone pink-buff, medium to coarse grain; few small pits, rare fossil.

 Core 54-3 Limestone, pink-buff, fine to medium grain.
 Core 54-4 Limestone buff, medium grain; some fossils.
 Core 54-5 Limestone buff, coarsely grained, partly fragmental, few fossils.
 Core 54-6 Limestone, buff, fragmental, fossils, some pits.
 Core 54-7 Limestone ditto, with purplish spots, stemmed bryozoa, brachiopods. Pachydictya?.

 Core 54-8 Limestone ditto.
 Core 54-9 Limestone buff fragmental and coarsely crystalline, vugs.
 Core 54-10 Limestone ditto; tan.
 2920-2925 Limestone ditto; tan, some vugs, bryozoa.
 2925-2930 Limestone as above; also some red shale and purple shale with white speck; one pyrite, few quartz grains.
 2930-2945 Limestone, tan to dull brown, fine to crystalline and porous.
 2945-2960 Limestone, tan and white, mottled, finer than above.
 2960-2965 Limestone tan, few red-purple shale.
 2965-2980 Limestone ditto.
 2980-2985 Limestone ditto; some coarsely fragmental; few white limy dolomite.

 2985-2990 Limestone, tan.
 2990-2995 Limestone ditto; and some hard dense white dolomite?
 2995-3000 Limestone ditto.
 3000-3005 Limestone cream.
 3005-3030 Limestone tan.
 3010-3020 Limestone, white to tan, dense to fragmental.
 3020-3025 Limestone tan.
 3025-3030 Limestone ditto, becoming denser.
 3030-3035 Limestone tan, chiefly dense.
 3035-3040 Limestone ditto.
 3040-3045 Limestone ditto, some purple and gray limey shale.
 3045-3050 Limestone ditto, purple, red and green limey shale and shaly limestone.
 3050-3055 Limestone, tan to green-brown.

3055-3065 Limestone, pink-brown to purple.
 3065-3070 Limestone buff, dense; rare quartz and pyrite. One small brachiopod.
 3070-3080 Limestone, buff to purple.
 3080-3095 Limestone buff to green-brown.
 3095-3100 Missing.
 3100-3110 Limestone buff and green shale.
 3110-3115 Limestone pale brown, dense.
 3115-3120 Limestone buff to green.
 3120-3125 Limestone, buff and purple-brown.
 3125-3130 Limestone tan, bryozoa.
 3130-3135 Limestone, pale brown, some pyrite.
 3135-3140 Limestone ditto.
 3140-3145 Limestone ditto, bryozoa.
 3145-3150 Limestone tan, one pyrite.
 3150-3155 Limestone ditto.
 3160-3165 Limestone, tan and brown, some black shale.
 3165-3170 Limestone ditto.
 3170-3175 Limestone tan, some purple limestone.
 3175-3180 Limestone tan.
 3180-3195 Limestone pale gray, shaly.
 3195-3200 Limestone, tan to pale gray.
 3200-3205 Limestone, moderate gray to tan.
 3205-3210 Limestone, medium green, gray.
 3220-3225 Limestone, pale green gray; pyrite.
 3225-3230 Limestone green gray, some purple and buff fragments.
 3230-3235 Limestone green gray, some finely crystalline buff limestone.
 3235-3280 Limestone, green-gray.
 3280-3285 Limestone ditto; shaly, "balls up".
 3285-3290 Limestone ditto; also some dense cream colored limestone.
 3290-3295 Shale, green, splintery, some buff limestone and shaly green limestone.
 3300-3305 Shale, brown-green splintery; some buff limestone.
 3315-3320 Shale green, splintery.
 3320-3335 Shale, green and brown-green as above.
 3335-3340 Shale ditto; rare black slivers of shale.
 3340-3345 Shale ditto; pyrite.
 3345-3350 Shale ditto; some large buff limestone fragments.
 Core 55-1
 3352-3378 Shale, sea-green, soapy and chunky with carbon specks; possible pyrite lining cavity?
 Core 55-2 Shale gray hard slabby.
 Core 55-3 Shale, green-gray, soapy feel.
 Core 55-4 Shale, brown-green, splintery.
 Core 55-5 Shale, green-gray, soapy feel.
 Core 55-6 Shale ditto.
 Core 55-7 Shale ditto.
 Core 55-8 Shale, green-gray, hard.
 Core 55-9 Shale, gray and brown-green.
 3378-3390 Shale, sea-green, splintery.
 3390-3395 Shale, brown-green to sea green, pyrite.
 Core 56-1
 3395-3408 Sandstone, medium and coarse grayish, quite porous quartz sandstone.

Core 56-2 Sandstone medium grained, locally silt packed, brown to gray.
Core 56-3 Sandstone, brown silty and medium grained, grayish coarse and
clean, well cemented.
Core 56-4 Sandstone, mottled gray, medium to coarse, quartzose. Also
weathered gray granite; some pink and black mottled gneiss.
Core 56-5 Mofic metamorphic.
3409 Total Depth.