

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 75

Summary of the Northwest Oil Drilling Company Henry Schmidt #1
Bottineau County, North Dakota
Permit #378, Well #362

By Carole Smith
May, 1954

Northwest Oil Drilling Company - Henry Schmidt #1, Bottineau County,
North Dakota, Located: C NE NW Section 29, T. 160N., R. 77W. (660 feet from
North line, 1980 feet from West line, Section 29). Elevation: 1453 G.L.

The Northwest Oil Drilling Company - Henry Schmidt #1 was spudded July
19, 1953 and 197 feet of 10 3/4" surface casing was set with 110 sacks of
cement. 15 sack plugs were set at 3145-3185; 2949-2992; 2034-2077; 170-213; a
4, sack plug was set at the top of the casing (four feet below surface). The
well was abandoned as a dry hole on August 11, 1953 at a total depth of 3891
feet.

TESTS

DST: (2067-2075)

Open 45 minutes, received 930' of mud cut fresh water; FP 900-925#, 15
minute SIP 1000#, HP 1050#.

No cores.

FORMATION TOPS

Cretaceous System	
Niobrara	1208
Greenhorn	1634
"Muddy"	1843
Dakota	2073
Jurassic System	
Morrison	2305
Sundance	2412
Piper Lime	2730
Triassic System	
Spearfish	2995
Mississippian System	
Charles	3132
Mission Canyon	3196
Lodgepole	3517
Total Depth	3891

Note:

The 100' of anhydrite in the Dakota seems strange, but it did not seem
to come from the drilling mud.

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

180-420 Shale; medium gray, lumpy, partly firm; missing samples; 330-360.

420-570 Shale; medium gray, slightly green, firm; much gray, soft silty bentonitic shale; (510-540); small amounts of very pale orange limestone; shell fragments and calcite beginning at 510 and increasing somewhat in quantity.

570-980 Shale; medium gray, slightly green, firm; scattered traces of dense brown anhydrite, bentonite, and bentonitic shale; occasional Inoceramus prisms; missing samples; 810-820.

980-1000 Bentonitic shale; medium gray to dark gray; lumpy; some shale as above.

1000-1050 Shale; medium gray, slightly green, lumpy, somewhat bentonitic, becoming more bentonitic at 1010; small amounts of dense brown anhydrite beginning at 1030.

1050-1060 Shale; medium gray, firm to lumpy; much dense brown dolomite (partly lime) and anhydrite.

1060-1100 Shale; medium gray, lumpy, small amounts of dense brown limestone, dolomite and anhydrite.

1100-1180 Shale; dark gray, flaky and lumpy, becoming mostly flaky and gray black scattered traces of bentonite, bentonitic shale, and pyrite.

1180-1220 Shale; gray black, flaky; small amounts of bentonite and bentonitic shale; some firm, medium gray shale at 1210.

1220-1250 Shale; dark gray to gray black; flaky and firm; pyritic; becoming slightly limey at 1240; small amounts of bentonite.

1250-1280 Limey shale; medium dark gray, becoming darker; firm to flaky; small amounts of bentonite.

1280-1290 Shale; dark gray; flaky; partly limey.

1290-1330 Limey shale; dark gray with white specks (white specks ending at 1310); scattered traces of Inoceramus prisms.

1330-1360 Limey shale; medium gray to dark gray; slightly brownish; flaky to lumpy; small amounts of bentonite.

1360-1370 Limey shale; dark gray; mostly firm; small amounts of pyrite.

1370-1380 Shale; medium gray to medium dark gray; firm; partly limey.

1380-1410 Shale; medium dark gray; firm to lumpy; pyritic; becoming decreasingly limey.

1410-1420 Shale; medium gray; firm; partly flaky.

1420-1430 Shale; dark gray; flaky; traces of pyrite; shale as above and bentonitic shale.

1430-1510 Shale; medium dark gray; firm and flaky; traces of pyrite and bentonitic shale.

1510-1530 Shale; medium gray to dark gray, flaky and lumpy, pyrite.

1530-1540 Shale; medium gray; firm; traces of bentonite.

1540-1550 Shale; medium gray to dark gray; flaky; partly lumpy and bentonitic.

1550-1560 Shale; medium gray to dark gray; firm to flaky; much lumpy gray bentonitic shale; traces of bentonite.

1560-1600 Shale; gray black; flaky; traces of bentonite and pyrite; some firm; medium gray to light gray shale at 1590.

1600-1650 Shale; medium gray; firm and flaky; some gray black; flaky shale beginning at 1610; missing samples: 1630-1640.

1650-1770 Limey shale; medium dark gray with white specks; scattered traces of Inoceramus prisms and limestone (1730-1740).

1770-1800 Shale; gray black, flaky slightly limey at 1770; small amounts of bentonite; bentonitic shale; and firm; medium gray shale.

1800-1860 Shale; gray black to black; flaky; traces of bentonite; small amounts of firm; medium gray shale (1810-1830) partly lumpy and silty at 1850.

1860-1880 Shale; black; flaky; much medium gray; dense shale; a trace of gray; pyritic siltstone at 1870.

1880-1950 Shale; gray black to black; flaky; small amounts of firm; medium gray shale.

1950-1980 Shale; dark gray; firm to flaky; partly medium dark gray and lumpy at 1970.

1980-2010 Shale; medium gray to medium dark gray; firm; much dark gray, flaky shale at 2000.

2010-2020 Shale; medium dark gray to dark gray, mostly flaky.

2020-2070 Shale; medium gray to medium dark gray; flaky; small amounts of light gray; firm; shale.

2070-2100 Shale; dark gray; flaky and lumpy, becoming silty at 2090; trace of sand at 2070; much medium grained, very limey; white sandstone (2080-2090).

2100-2130 Silty shale; medium gray, lumpy, partly flaky.

2130-2180 Shale; medium gray, flaky; some medium gray to medium dark gray, lumpy partly silty shale beginning at 2140; traces of very light gray siltstone beginning at 2160.

2180-2200 Shale; gray black; flaky; becoming rather lumpy and silty at 2190; traces of gray; very fine sandstone and siltstone.

2200-2230 Shale; medium gray to gray black; firm to flaky; partly lumpy; traces of bentonite and sandstone.

2230-2240 Shale; medium gray to black; flaky; small amounts of greenish shale; traces of reddish shale; much very pale pink anhydrite.

2240-2250 Shale; dark gray to black; flaky; traces of anhydrite.

2250-2290 Shale; dark gray to black; flaky; small amounts of greenish shale; traces of reddish shale and pyrite; much very pale pink anhydrite.

2290-2320 Shale; pale green; soft; silty; small amounts of silty; reddish brown shale and gray shale; much anhydrite as above much gray, fine sandstone (2300-2320); traces of pyrite.

2320-2340 Shale; medium gray to dark gray; some green and reddish shale as above; some anhydrite; some sandstone as above.

2340-2370 Shale; pale green, silty; becoming waxy; some flaky black shale and silty reddish brown shale; some anhydrite, decreasing in quantity; small amounts of fine, glauconitic sandstone, increasing in quantity.

2370-2380 Shale; pale green, very soft, limey; traces of anhydrite and reddish brown shale.

2380-2420 Shale; as above; much medium dark gray to black; firm to flaky shale; much anhydrite and sandstone as above, decreasing in quantity; traces of pyrite.

2420-2440 Shale; greenish gray; to grayish green, soft to lumpy, very limey; traces of anhydrite, pyrite, and sandstone.

2440-2450 Shale as above; some gray shale and reddish brown shale; partly limey and flaky; much pink anhydrite.

2450-2460 Shale; gray to black; some shale as above; much moderate reddish orange anhydrite.

2460-2480 Shale; reddish gray, and greenish; partly silty and limey; some pink and pinkish orange anhydrite; decreasing in quantity.

2480-2520 Shale; medium gray to black; some greenish gray shale; traces of red and pink shale; some very light gray; fine grained, limey sandstone beginning at 2490; small amounts of anhydrite; a trace of dense; gray, fossiliferous limestone at 2500; missing samples: 2510-2520.

2520-2540 Shale as above; partly limey; traces of anhydrite and sandstone.

2540-2580 Shale; medium gray to medium dark gray; greenish; traces of reddish; increasingly limey and silty; traces of gypsum and anhydrite; small amounts of medium grained, gray, limey sandstone at 2570.

2580-2590 Limey shale; pale reddish brown; lumpy; much is gray and greenish gray; traces of sandstone and anhydrite.

2590-2630 Limey shale; medium gray to dark gray; lumpy; increasingly silty; small amounts of reddish and greenish shales.

2630-2640 Shale; yellows and reds, somewhat silty and limey.

2640-2660 Silty; limey shale; gray, greenish, reddish, yellowish.

2660-2680 Shale; grays, some reds, greens, and yellows, partly silty; and limey.

2680-2690 Shale; grays, sandy; silty; limey; some colored shale as above; small amounts of shaly; gray; fine to medium grained sandstone.

2690-2700 Shale; medium gray, lumpy and firm; partly silty and limey; some red and green shales and sandstone as above.

2700-2770 Shale; grays; greens; reds; olive; flaky; partly limey; traces of anhydrite sandstone; and lithographic white dolomitic limestone; mostly gray and greenish gray shale (2720-2730).

2770-2780 Shale as above; much coarse grained; very limey; gray sandstone.

2780-2790 Shale as above; some white, lithographic limestone; some pale, micro-sugary to dense limestone; traces of anhydrite and sandstone.

2790-2800 Shale; grays; reds; greens; olives; yellows; traces of sandstone and limestone.

2800-2830 Shale; grays and greens; partly limey; traces of partly silty reddish shale increasing in quantity; small amounts of lithographic limestone and sandstone; traces of shell fragments; much pale, micro-sugary to lithographic limestone beginning at 2820; small amounts of anhydrite beginning at 2820.

2830-2890 Shale; gray; some reddish and greenish; some white; lithographic limestone; traces of anhydrite.

2890-2930 Shale as above; small amounts of limestone; sandstone; and anhydrite as above; the shale becomes lumpy and limey at 2910; and then flaky at 2920.

2930-2990 Shale; dark gray; partly variegated and limey; small amounts of pale lithographic limestone; small amounts of dense, very light gray anhydrite increasing greatly, in quantity.

2990-3000 Anhydrite; dense, white to very light gray; much shale as above.

3000-3010 Shale; gray; greenish; reddish; olive; lumpy; partly limey; some anhydrite as above; small amounts of sublithographic limestone.

3010-3020 Shale as above; traces of anhydrite and reddish siltstone.

3020-3040 Shale; gray, firm; to flaky; some partly limey reddish and greenish shale; some reddish siltstone and fine grained sandstone; traces of anhydrite.

3040-3050 Shale; medium gray to dark gray; some green; traces of red; partly silty; small amounts of anhydrite; reddish siltstone and fine sandstone.

3050-3120 Shale as above; some reddish orange brown, medium to coarse grained sandstone; increasing in quantity; small amounts of round, coarse reddish orange quartz sand; traces of anhydrite.

3120-3170 Shale; as above; small amounts of sand and sandstone as above; traces of anhydrite; traces of dense pink dolomite beginning at 3140.

3170-3180 Shale; green; grayish green and greenish gray; some gray and red; partly limey; some white anhydrite.

3180-3185 Shale; variegated as above; much pink and white anhydrite; much dense pinkish dolomite;

3185-3205 Limestone; very pale yellow brown to white; sublithographic; small amounts of variegated shale increasing somewhat in quantity; small amounts of pink dolomite and white anhydrite (3190-3195).

3205-3235 Limestone; white and very pale yellow brown, sublithographic; some variegated shale; increasing at 3220.

3235-3240 Shale; variegated and partly limey as above; much very pale yellow brown, sublithographic, partly micro-oolitic limestone; small amounts of anhydrite

3240-3260 Limestone; very pale yellow brown, micro-sugary; partly sublithographic and dolomitic, partly fine well cemented oolitic; some gray and green shale traces of reddish shale.

3260-3290 Limestone; very pale yellow brown to white; micro-sugary to white; partly fine, well cemented oolitic; much gray and green shale; small amounts of reddish shale.

3290-3310 Shale; black; grays; greens; reds; olives; partly limey; much dense; pale red purple dolomite; much limestone as above; limestone and dolomite decreasing in quantity.

3310-3315 Shale; variegated; partly silty and limey; some white; sublithographic limestone; and dense pink dolomite; small amounts of reddish sandstone and siltstone.

3315-3320 Shale; greenish; flaky; limey; some shale as above; some dense; very light gray and pink dolomite.

3320-3330 Shale as above; small amounts of white and orangish pink anhydrite (3320-3325); small amounts of dense, gray dolomite.

3330-3340 Shale; grays, greens and reds partly limey; some very light gray; dense dolomite, small amounts of white anhydrite beginning at 3335.

3340-3350 Shale as above; much dense anhydrite; decreasing in quantity; small amounts of brownish, crystalline, and sublithographic limestone ending at 3345.

3350-3355 Shale as above, small amounts of dense limestone and anhydrite.

3355-3365 Shale as above, becoming somewhat more black; much pale yellow brown, lithographic and fine oolitic and crystalline limestone; small amounts of white anhydrite.

3365-3375 Limestone; pale yellow brown, micro-sugary to sublithographic; becoming somewhat lighter and partly dolomitic at 3370; small amounts of shale.

3375-3380 Limestone; pale yellow brown, micro-sugary; partly oolitic with much cement.

3380-3385 Shale; yellows, red, grays, olives, partly limey; some limestone as above some dense gray dolomite.

3385-3390 Limestone; yellow brown, oolitic, well cemented; small amounts of shale and dolomite as above.

3390-3405 Limestone; yellow brown, micro-sugary, partly chalky and oolitic; much shale as above.

3405-3450 Limestone; very pale yellow brown, micro-sugary and/or chalky, becoming partly fine oolitic (well-cemented) at 3420 with many pinpoint vugs; small amounts of shale.

3450-3475 Limestone; very pale yellow brown, very fine sugary to micro-sugary, partly chalky; traces of black shale; missing samples: (3465-3470).

3475-3480 Limestone; very pale yellow brown to almost white, micro-sugary and chalky; some variegated shale; traces of anhydrite.

3480-3495 Limestone; very pale yellow brown and very light gray, very fine sugary to micro-sugary and chalky; some gray green, olive, and brownish shale, increasing at 3490.

3495-3500 Shale; variegated, limey, some limestone as above.

3500-3505 Shale; variegated, partly limey, some gray and light olive gray, crystalline, fossiliferous limestone, small amount of limestone as above and anhydrite.

3505-3510 Shale; flaky black and silty green, small amounts of red and yellow brown; some very light gray, micro-sugary and chalky partly fossiliferous limestone.

3510-3520 Limestone; grays, crystalline and/or chalky to dense; much shale as above.

3520-3535 Shale; grays, greens, reds, partly limey; some limestone as above decreasing in quantity; small amounts of anhydrite.

3535-3555 Shale; as above; much is reddish brown; some gray crystalline and chalky; fossiliferous limestone; increasing greatly at 3550; mostly black and gray shale at 3550.

3555-3560 Shale; black to gray some greenish and red; small amounts of limestone as above; traces of anhydrite.

3560-3570 Limestone; almost white, sublithographic to micro-sugary; some shale as above; increasing in quantity.

3570-3580 Limestone; grays, oolitic and crystalline and micro-sugary and chalky, fossiliferous; much shale as above; missing samples: 3575-3580.

3580-3595 Shale; variegated as above and slightly silty; some gray, fine sugary to micro-sugary partly crystalline, fossiliferous limestone (less in quantity from 3585-3590); small amounts of anhydrite.

3595-3620 Shale; variegated, flaky and firm; partly limey until 3595; somewhat silty at 3615; traces of limestone; anhydrite, glauconitic sandstone; and fine sand.

3620-3660 Shale; variegated, flaky, partly limey; traces of limestone and sandstone much greenish shale at 3655; missing samples: 3640-3655.

3660-3665 Shale; greenish and reddish brown; partly limey; traces of fine; gray; limey sandstone; small amounts of gray limestone as above.

3665-370 Shale; variegated, partly limey; some light olive gray to very light gray, crystalline and/or chalky, fossiliferous limestone; occasional traces of gray sandstone and anhydrite.

3700-3725 Limestone as above; much variegated shale beginning at 3705.

3725-3740 Limestone as above; much flaky black shale; small amounts of anhydrite red and green shale.

3740-3745 Limestone; medium gray and light olive gray, dense, partly chalky; much chalky limestone; traces of anhydrite.

3745-3765 Limestone; medium light gray, micro-sugary and crystalline partly chalky fossiliferous; becoming light olive gray at 3755; traces of shale.

3765-3775 Limestone; medium gray to light gray micro-sugary, partly chalky, fossiliferous; much shale at 3770-light browns, grays, greens, reds, olives.

3775-3790 Limestone; grays, micro-sugary and/or chalky and/or crystalline, fossiliferous; much gray and black shale beginning at 3780; small amounts of light olive gray chert (3775-3780).

3790-3800 Limestone; gray; fragmental, fossiliferous, partly chalky; some variegated shale increasing in quantity; traces of anhydrite.

3800-3815 Shale; medium gray to black, partly greenish olive, and reddish, small amounts of anhydrite and fragmental limestone; missing samples: 3805-3810.

3815-3830 Shaly limestone; gray; fragmental and micro-sugary and chalky; much shale especially dark gray.

3830-3845 Shale; mostly gray, small amounts of reddish, greenish, and olive; some shaly limestone; as above increasing at 3840; traces of anhydrite.

3845-3865 Limestone; grays; micro-sugary and/or chalky and/or fragmental, becoming much chalkier and lighter gray at 3855; much shale decreasing steadily in quantity.

3865-3870 Shale; variegated, partly limey; some fossiliferous gray limestone as above; some pale, chalky limestone.

3870-3890 Limestone; white to medium gray and light olive gray, fragmental and chalky, fossiliferous; some variegated shale; increasing at 3855; small amounts of anhydrite beginning at 3880 and increasing somewhat at 3885; missing samples: 3875-3880.

3891 Total depth.