

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 160

Summary of the H. Mack Cox - Feland-State No. 1  
Bottineau County, North Dakota  
Well No. 911 - Permit No. 923

by Richard H. Maywald  
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H. Mack Cox, Feland-State No. 1, Bottineau County, North Dakota.  
Location: C NE NE Section 31, T. 163N., R. 82W. Elevation: 1565 K.B., 1556  
G.L.

The H. Mack Cox, Feland-State No. 1 was spudded August 20, 1956, drilled to a total depth of 4383', found dry, and plugged August 30, 1956. Electrical log and micro-laterolog were run by Schlumberger Well Surveying Corporation on August 29, 1955.

Coring Record

3750-3808  
3935-3983  
3993-4049

Testing Record

DST No. 1 - 3730-3750 (Charles)  
Open 2 hours, shut in 1/2 hour, very weak blow throughout. Recovered 15 feet oil cut mud and 260 feet muddy salt water. IFP 20#, FFP 125#, SIP 1385#, IHP 1985#, FHP 1985#.

Casing Record

443 feet of 10, 3/4" surface casing with 310 sacks cement.

Plugging Record

5 sack cement plug - top of surface casing  
10 sack cement plug - at 443-bottom of surface casing  
15 sack cement plug - at 2465-Dakota sand  
15 sack cement plug - at 3590-Spearfish  
15 sack cement plug - at 3730-Charles  
15 sack cement plug - at 3960-Mission Canyon

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

FORMATION TOPS

Cretaceous System	
Greenhorn Formation	1975
Basal Cretaceous sands	2465
Jurassic System	
Top of Jurassic system	2835
Piper formation	3275
Triassic System	



#### Core Chip Description

- 3750-3751 Limestone, pinkish gray, fine grained to very fine grained, finely fossiliferous with the fossils showing a layered structure, scattered small pore spaces.
- 3751-3753 Limestone as above, without the pore spaces, but some very fine porosity evident.
- 3753-3754 Limestone as above, less fossils but some scattered oolites, and some dolomite crystallized along fracture planes.
- 3754-3758 Limestone as above, very finely crystalline, to sub-lithographic, no fossils, and no pores evident.
- 3758-3762 Limestone as above, but interbedded with thin layers of shale.
- 3762-3767 Limestone, pinkish gray, very fine grained, with small fossils interbedded throughout the limestone.
- 3767-3770 Limestone, pale yellowish brown (10YR6/2), oil stain, fine grained, micro-sucrosic texture, scattered small fossils, pinpoint porosity.
- 3770-3774 Limestone, pale pinkish gray, very fine grained, sub-lithographic texture, dense.
- 3774-3777 Limestone, pale yellowish brown, finely crystalline, micro-fossiliferous, pinpoint porosity.
- 3777-3783 Limestone, very pale orange (10YR8/2), very fine grained, even textured with large imbedded rhombs of dolomite.
- 3783-3802 Anhydrite, pale red purple (5RP6/2), very fine grained.
- 3802-3805 Limestone, grayish orange pink, very fine grained, with large secondary dolomite rhombs imbedded in the limestone.
- 3805-3808 Dolomite, yellowish gray (5Y7/2), very fine grained, micro-sucrosic texture.

#### Sample Description

- 3800-3835 Anhydrite, light gray, very fine grained.

#### Core Chip Description

- 3935-3956 Anhydrite, light gray, very fine grained.
- 3956-3958 Dolomite, dark yellowish brown (10YR4/2), good oil staining, micro-sucrosic texture, good porosity.
- 3958-3967 Anhydrite, very light gray, fine grained, dense.
- 3967-3975 Dolomite, very light gray, very fine grained, with fine fractures filled with secondary calcite.
- 3975-3979 Dolomite as above, but more limey.
- 3979-3981 Dolomite, grayish orange pink, micro-sucrosic texture, slight oil stain, fair to good porosity.
- 3981-3985 Limestone, pinkish gray, very fine grained, finely oolitic.
- 3985-3992 Limestone as above with some intergranular porosity between the oolites.
- 3992-4003 Dolomite, pale yellowish brown, micro-sucrosic texture, good pinpoint porosity.
- 4003-4007 Argillaceous dolomite, light gray and pale yellowish brown, has a laminated structure.
- 4007-4009 Dolomite, pale yellowish brown, fine grained.
- 4009-4025 Limestone, grayish orange pink (5YR7/2), fine grained.
- 4025-4035 Limestone, pinkish to light gray, oolitic, with micro-sucrosic textured material between the oolites, fair to good pinpoint porosity.

- 4035-4037 Limestone as above, but secondary calcite recrystallized between the oolites.
- 4037-4049 Limestone as above with microsucrosic limestone between the oolites and shell fossils, pinpoint porosity.

Sample Description

- 4050-4100 Limestone, grayish orange pink (5YR7/2), oolitic granular texture, with microsucrosic limestone between oolites, fine porosity.
- 4100-4120 Anhydrite, light gray, dense, limestone as above.
- 4120-4200 Limestone, grayish orange pink, granular texture to microsucrosic, fine porosity.
- 4200-4220 Limestone as above, with better porosity.
- 4220-4250 Limestone, pinkish gray, fine grained with an oolitic texture, scattered fossil small shell fragments, with little apparent porosity.
- 4250 Limestone as above, with a scattering of medium gray shale fragments.
- 4270-4280 Limestone, very light gray, fine to medium-sized grains, oolitic texture, with scattered shell fragments, shale in scattered fragments as above.
- 4280 Total Depth.