NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR N0. 93

Summary of William Herbert Hunt - W. & D. Dunham #1
Mountrail County, North Dakota
Permit No. 490, Well No. 474

By LaVerne B. Nelson
November 5, 1954

William Herbert Hunt - W. & D. Dunham #1, Mountrail County, North Dakota. NW NW Section 24, T. 155N., R. 90W., (660 feet from north line and 660 feet from west line). Elevation Grd. 2149', D.F. 2159', K.B. 2161'.

The William Herbert Hunt - W. & D. Dunham was spudded (no date given). 10 3/4" casing was set to a depth of 315' and cemented with 185 sacks of cement. The well was drilled to a total depth of 11,109 feet, plugged and abandoned February 8, 1954.

DST #1 7889-7920. Tool open 2 hours. Shut-in 30 minutes. Recovered 990 feet of muddy water cushion and 125 feet of drilling mud. IFP - 450# FFP - 510# IHP - 4340# FHP - 4340# BHSIP - 3010#

DST #2 7929-8004. Tool open 4 hours. Shut-in 45 minutes. Air immediately, weak blow for 10 minutes and died. Dead for 2 hours and 20 minutes. Very weak intermittent blow for 25 minutes and died. Dead for remainder of test. No gas or fluid to the surface. Recovered 1020 feet of muddy water cushion and 275 feet of muddy brackish water, no shows of oil or gas. IFP - 510# FFP - 510# IHP - 4340# FHP - 4340# BHSIP - 690#

DST #3 9317-9350. Tool open 3 hours. Shut-in 30 minutes. Air immediately, fair blow which gradually increased to good blow during last hour of test. No gas or fluid to the surface. Recovered 2000 feet of muddy water cushion; 1650 feet of salt water and 120 feet of drilling mud. IFP - 935# FFP - 1625# IHP - 5070# FHP - 5070# BHSIP - 3880#

DST #4 9549-9627. Tool open 4 hours. Shut-in 30 minutes. Air immediately, weak blow increasing to fair blow which lasted throughout test. No gas or fluid to the surface. Recovered 2000 of muddy water cushion; 1867 feet of salt water, no shows of oil or gas. IFP -1045# FFP - 1685# IHP - 5040# FHP - 5040# BHSIP - 3850#

DST #5 Tool open 4 hours. Shut-in 30 minutes. Air immediately, strong blow for 1 hour and 35 minutes decreasing to fair blow which lasted throughout test. No gas or fluid to the surface. Recovered 2500 feet of water cushion; 6330 feet of salt water and 90 feet of pare white, solid, crystalline, free salt which jammed into the last stand of drill collars after pulling string. IFP 2005# FFP - 4340# IHP - 5040# FHP - 5040# BHSIP - 4430#

Plugging Record

0 - 20 feet with 10 sacks cement
246-306 feet with 30 sacks cement
4471-4550 feet with 30 sacks cement
7571-7650 feet with 30 sacks cement
9191-9270 feet with 30 sacks cement

Formation tops were determined from samples and electric logs. Depths were determined from electric log depths unless otherwise stated. Colors were determined from rock color chart.

Formation Tops

Cretaceous System	
Pierre Formation	1600
Niobrara	3462
Greenhorn	3943
Dakota	4650
Jurassic System	
Morrison	4980
Sundance	5167
Piper	5685
Triassic System	
Spearfish	6020
Mississippian System	
Amsden	6305
Big Snowy	6490
Kibbey Lime	6920
Charles	7105
Mission Canyon	7637
Lodgepole	7912
Englewood	8973
Devonian System	
Nisku	9265
Duperow	9390
Souris River	9854
Dawson Bay	10112
Prairie Evaporites	10261
Winnipegosis	10634
Ashern	10838 ?
Silurian System	
Interlake	10947
Total Depth	11109

Dunham #1

1880-2030	Shale, medium lightgray, slightly bentonitic, lumpy, compact, pyritic.
2030-2120	Shale as above. Some black lignite. Traces of light brown shale and white bentonite.
2120-2210	Shale, medium lightgray to medium gray, bentonitic, lumpy, some black lignite. Traces ofsilt to very fine sandstone, well cemented.

2210-2300	Shale as above. Muchmedium gray to olive gray, lumpy, bentonitic shale.
2300-2420	Shale, medium gray to medium light gray and olive gray, lumpy shale.
2420-3110	Missing samples.
3110-3200	Shale, medium gray to medium light gray, firm, compact, traces of loosely cemented silt to very fine sandstone.
3200-3470	Shale, as above. Traces of dark brown, very fine grained, dense limestone.
3470-3560	Shale, medium lightgray, lumpy, traces of brown silt.
3560-3890	Shale, medium lightand medium dark gray, lumpy, spongy to compact, traces of glauconite.
3890-3950	Shale, medium dark gray to dark gray, fissile.
3950-4010	Shale, medium dark gray, fissile, slightly speckled.
4010-4250	Shale, medium light gray, lumpy, compact.
4250-4310	Shale, medium light gray, flaky.
4310-4580	Shale, medium dark gray and medium gray, flaky, compact.
4580-4640	Shale as above, some white, friable silt to very fine sand.
4640-4760	Siltstone, medium light gray, micaceous, friable.
4760-4820	Shale, varicolored, brown pellets, traces of silt.
4820-4940	Sandstone, white fine to medium, subangular, pyrite cemented in part, many brown pellets, much black shale.
4940-5000	Sandstone, very coarse and pebbly, subangular to well rounded, frosted and pitted. Some pyrite cemented quartz as above.
5000-5140	Sandstone, very fine, well sorted, white, cemented, glauconite. Some medium gray shale.
5140-5150	Sandstone and shale as above. Trace of greenish gray shale.
5150-5170	Shale, moderate reddish brown, greenish gray and medium gray shale.
5170-5240	Shale, medium dark gray, flaky, compact. Some reddish and green shales as above.
5240-5260	Shale, medium dark gray, flaky, compact. Some very fine grained friable sandstone.
5260-5290	Shale, medium dark gray and green, fissile. Much very fine grained, well cemented sandstone, slightly glauconitic.
5290-5340	Shale, varicolored black, green and moderate reddish brown, flaky. Trace of white fine grained sandstone. Traces of coarse, subangular quartz grains.
5340-5470	Shale, green to greenish gray, compact, platy. Trace of sandstone with glauconite.
5470-5490	Shale, medium dark gray and greenish gray, flaky, compact.
5490-5520	Shale, greenish gray, medium dark gray and moderate brown, splintery, brittle in part.
5520-5600	Shale as above, trace of white, chalky gypsum.
5600-5640	Shale, greenish gray, medium dark gray and moderate brown, flaky and splintery. Some medium to coarse grained white limestone.
5640-5680	Shale as above, some very fine grained, cemented, slightly calcareous, sandstone.
5680-5700	Limestone, white to pale orange, medium grained, dense, much shale as above.
5700-5750	Limestone, white to very pale orange, sublithographic to very fine grained, dense.
5750-5780	Limestone as above, fossiliferous, fragmental in part. (Ostracods ?)

5780-5790	Limestone, white to very pale orange, very fine sucrosic to fragmental in part, some intergranular porosity.
5790-5850	Shale, moderate reddish brown and greenish gray, lumpy, compact, some limestone as above.
5850-5860	Shale as above. Some medium dark to dark gray shale.
5860-5870	Shale, medium dark gray and greenish gray, slight amount of moderate reddish brown shale.
5870-5890	Shale as above. Much reddish brown shale. Traces of coarse angular quartz grains and mustard yellow shale. Traces of friable crystalline, masses of anhydrite.
5890-6020	Shale, greenish gray and medium dark gray. Some moderate reddish brown, anhydritic silt and white friable, masses of crystalline and crypto-crystalline anhydrite.
6020-6030	Shale, moderate reddish orange, anhydritic dolomite. Greenish gray and medium dark gray shale, and white anhydrite.
6030-6070	Anhydrite, soft, friable, crypto-crystalline. Some moderate reddish brown and medium gray shale, and moderate reddish orange anhydritic dolomite.
6070-6100	Shale, greenish gray to medium dark gray, some moderate reddish brown, shale and white friable, soft anhydrite. Traces of moderate reddish orange silt.
6100-6160	Silt, moderate reddish orange, anhydritic, calcareous, firmly cemented. Some shale as above, white coating around silt fragments. Some white, friable anhydrite.
6160-6180	Shale, greenish gray, flaky. Some moderate reddish orange silt and white anhydrite as above.
6180-6190	Shale, greenish gray, some moderate reddish orange silt, some black, carbonaceous, material (lignite ?). Some olive gray, dense, very fine grained to sublithographic limestone.
6190-6210	Silt, moderate reddish orange, friable, calcareous, some greenish gray and medium dark gray shale.
6210-6270	Shale, medium gray to medium dark gray, flaky, compact. Some moderate reddish orange anhydritic, cemented, friable silt. Traces of white crystalline, friable masses of anhydrite. Some medium sized quartz grains in silt matrix.
6270-6300	Sandstone, moderate reddish orange, very fine to fine grained quartz grains, cemented with white, soft anhydrite. Quartz grains are well rounded. Some shale and white anhydrite and gypsum.
6300-6360	Shale, medium gray to greenish gray, flaky to lumpy, spongy. Some white anhydrite and sandstone as above. Little moderate reddish brown shale.
6360-6380	Shale, greenish gray to medium gray, brittle and splintery. Some moderate reddish brown shale and moderate reddish orange silt.
6380-6420	Shale, greenish gray, flaky, spongy, traces of moderate reddish orange silt, pink and white anhydrite.
6420-6450	Dolomite, moderate orange pink to pale red, very fine crystalline to very fine grained, dense, argillaceous, some shale as above. Olive gray, argillaceous dolomite.
6450-6460	Dolomite, moderate orange pink to pale red, very finely sucrosic, argillaceous, traces of white very finely sucrosic dolomite. Some greenish gray shale.
6460-6490	Limestone, white to very pale orange, very fine crystalline to sublithographic, chalky in part, some pale red mottling.

6490-6700 Shale, pale reddish to moderate reddish brown, greenish gray and white, and mustard yellow, pale red purple, brittle, viterous luster.

6700-6740 Limestone, very pale orange, greenish gray, and pale red, very fine grained, argillaceous, dolomitic, rubbly appearance.

6740-6760 Limestone as above, much varicolored shale.

6760-6800 Shale, varicolored, splintery, brittle. Traces of very pale orange, fine grained and fine crystalline limestone.

6800-6840 Shale, varicolored as above. Much medium to fine grained, cemented, friable, moderate orange pink sandstone.

6840-6900 Sandstone, moderate orange pink, very fine grained, well cemented, well rounded. Few coarse well rounded quartz grain inclusions.

6900-6930 Sandstone as above, much greenish gray, flaky shale.

6930-6950 Dolomite, grayish orange pink, medium grained, friable, arenaceous. Sandstone as above.

6950-7000 Limestone, very light gray to pale yellowish brown, medium grained, fragmental and oolitic in part, some pinpoint and vuggy porosity. Traces of anhydrite filled vugs and fractures.

7000-7020 Limestone, pale yellowish brown to very light gray, very arenaceous, fine grained.

7020-7030 Sandstone, very light gray, medium grained, subangular, highly calcareous, well cemented.

7030-7050 Sandstone as above. Much dark gray and red shale.

7050-7100 Silt, moderate reddish orange, friable, very calcareous, some greenish gray and pale moderate red shale.

7100-7110 Anhydrite, white, soft, friable, rubbly appearance.

7110-7120 Dolomite, very light gray, fine crystalline to medium grained, sugary, some pinpoint porosity, traces of fluorescence.

7120-7140 Anhydrite and limestone, white to very light gray, rubbly appearance, vugs soft and friable.

7140-7170 Limey anhydrite, very light gray, chalky, soft, arenaceous and argillaceous, vuggy, some white anhydrite.

7170-7210 Anhydrite, light gray, fine crystalline, dolomitic, some white to very light gray calcareous, silty anhydrite, rubbly appearance.

7210-7230 Limestone, pale yellowish brown, lithographic to sublithographic and very fine grained, dense, in part fragmental.

7230-7240 Shaly limestone, greenish gray, very fine grained, highly argillaceous, some pale yellowish brown limestone as above.

7240-7280 Limey anhydrite, very light gray, fine grained, vuggy, rubbly appearance.

7280-7300 Limestone, light gray to very light gray, medium to coarse oolitic, fair vuggy and pinpoint porosity, good fluorescence, not cut in CCl_4

7300-7310 Limestone, as above, becomes very shaly.

7310-7320 Anhydrite, white, crypto-crystalline, soft, friable, calcareous, some light gray to pale yellow brown, fragmental limestone.

7320-7360 Limestone pale yellowish brown, medium granular and oolitic, pinpoint and vuggy porosity, some brown, lithographic dense limestone, some anhydrite.

7360-7380 Anhydrite, white, crystalline, friable, calcareous.

7380-7390 Limestone, medium gray, very fine to fine grained, argillaceous, some white anhydrite and pale yellow brown limestone.

7390-7410 Shale, varicolored, greenish gray, pale red purple, mustard yellow, moderate reddish orange.

7410-7470	Anhydrite, white to very light gray, rubbly looking, calcareous, some shale as above, some medium gray, dense, fine grained, argillaceous limestone.
7470-7510	Limestone and anhydrite, pale yellowish brown, very fine granular, dense, and bluish gray massive anhydrite, good fluorescence, no oil cut, vugs in limestone filled with anhydrite, some pinpoint porosity.
7510-7530	Limestone, pale yellowish brown, very fine granular, fragmental in part. Some green gray shale and white to bluish gray anhydrite.
7530-7550	Limey anhydrite, very light gray, rubbly appearance, vuggy.
7550-7580	Limestone, pale yellow brown to yellowish gray, medium grained, fragmental, and fine grained in part, some pinpoint porosity.
7580-7600	Limey anhydrite, very light gray, rubbly, vuggy, some limestone as above.
7600-7620	Limestone, yellowish gray, rubbly appearance, medium granular, anhydrite filled vugs.
7620-7630	Limey anydrite, very light gray, rubbly, vuggy, friable, soft, some medium bluish gray, massive anhydrite, some medium gray flaky shale.
7630-7690	Limestone, pale yellowish gray to yellowish gray, medium granular and sublithographic, dense, some white anhydrite.
7690-7730	Limestone, pale yellowish brown, sublithographic to very fine granular, dense, some anhydrite filled fractures and cavities.
7730-7760	Limestone, pale yellowish brown to yellowish gray, medium grained, oolitic dense, few vugs and fractures filled with clear anhydrite.
7760	2 hour circulation. Limestone as above.
7760-7830	Limestone, pale yellowish brown to yellowish gray, oolitic and fragmental, dense, anhydrite filled fractures, sublithographic in part, slightly fossiliferous.
7830-7840	Limestone, very light gray to yellowish gray, very fine crystalline, fragmental in part, dense.
7840-7852	Limestone, pale yellowish brown to yellowish gray, very fine to fine granular, crystalline in part, dense.
7852	Circulation. Limestone, pale yellowish brown, fine crystalline and granular, oolitic in part.
7852-7870	Limestone, very light gray and yellowish gray, very fine crystalline, fragmental in part, dense.
7870-7930	Limestone, pale yellowish brown, very fine granular, fragmental in part, fossiliferous.
7930-7940	Limestone, light to medium gray, medium grained, crystalline and granular, dense.
7940-7970	Limestone, medium light gray and dusky yellowish brown, medium to coarse grained, rounded fragmental and fine grained, granular.
7970-8030	Limestone, medium light gray and dusky yellowish brown, fine granular, dense, and medium grained, fragmental, fossiliferous.
8030-8060	Limestone as above. Sample becomes quite shaly (Cave ?).
8060-8120	Limestone, medium gray to yellowish gray, fine grained, fragmental in part, and crystalline, dense.
8120-8160	Limestone, medium gray to olive gray, medium grained dense, traces of dark gray, fissile shale, and greenish gray, compact, lumpy shale.
8160-8230	Limestone, pale yellowish brown to yellowish gray, very fine grained, dense.

8230-8250	Limestone as above. Some medium gray shale and varicolored shale.
8250-8280	Limestone, yellowish gray to dusky yellowish brown, fine crystalline, in part fragmental and fine grained.
8280-8320	Limestone, light gray to medium gray, very fine crystalline, fossiliferous and fine grained.
8320-8400	Limestone, medium gray to yellowish gray, fine grained, dense, in part fragmental and fossiliferous.
8400-8430	Limestone, pale yellowish brown to yellowish gray and light gray, very fine to fine grained, dense, in part fossiliferous and fragmental.
8430-8610	Limestone, medium gray to dark brownish gray, very fine crystalline, dense, some pale yellowish brown, fine grained, dense limestone, fossiliferous in part.
8610-8650	Limestone, brownish gray to yellowish gray and medium gray, very fine crystalline and fine to very fine grained, dense, fossiliferous. Traces of brownish gray, sublithographic limestone.
8650-8930	Limestone, light gray to medium gray, fine grained, slightly sucrosic, some brownish gray, very fine crystalline, dense.
8930-8960	Limestone, as above. Some moderate reddish brown, moderate reddish orange, dark gray, waxy to viterous luster shale. Also some greenish gray shale. Traces of white, soft anhydrite.
8960-8970	Limestone, very light to medium light gray, very fine grained, dense, slightly granular, traces of anhydrite.
8970-8990	Shale, brownish black, slightly brittle, thin bedded.
8990-9010	Limestone, light gray, fine grained, dense, some shale as above, trace of fine grained, cemented quartz grains.
9010-9040	Shale, brownish black, compact, fissile.
9040-9050	Shale as above. Some very pale orange dolomite, medium grained, dense.
9050-9080	Dolomite as above. Shale as above. Some greenish gray, micaceous, calcareous shale.
9080-9090	Shale, greenish gray, medium gray, moderate red, yellow, earthy luster, calcareous, some dolomite as above.
9090-9130	Dolomite, moderate orange pink to very pale orange, medium grained, dense. Some shale as above.
9130-9150	Shale, moderate reddish brown, greenish gray and dark gray, dolomitic, some dolomite as above.
9150-9200	Dolomite, moderate orange pink, medium to fine granular, arenaceous, argillaceous, some shale as above.
9200-9270	Shale, greenish gray, moderate reddish brown to moderate reddish orange, dolomitic arenaceous, some dolomite as above.
9270-9300	Limestone, very pale orange, fine granular, dense, some pale brown to pale yellowish brown, lithographic limestone. Traces of coarse, angular fragmental limestone.
9300-9330	Limestone, yellowish gray to pale yellow brown, medium to coarse, angular fragmental, sucrosic in part, some white anhydrite inclusions. Good fluorescence, no oil cut, possibly mineral fluorescence. Slightly dolomitic.
9330-9350	Limestone, very pale orange to pale yellowish brown, medium granular, in part fragmental, anhydritic, some good pinpoint and vuggy porosity.
9350-9390	Limestone, pale yellowish brown, very fine crystalline to sublithographic, dense.

9390-9400 Limestone, as above. Some greenish gray, moderate reddish brown and moderate red, calcareous shale.

9400-9410 Limestone, very pale orange to yellowish gray, chalky and earthy in part, some medium grained fragmental limestone, little shale as above.

9410-9440 Limestone, pale yellowish brown to yellowish gray, fine to medium grained, sucrosic and fragmental.

9440-9480 Limestone, very pale orange to pale yellowish brown, very fine grained, anhydritic, argillaceous.

9480-9510 Limestone, yellowish gray, very fine grained to sublithographic, dense, medium to fine grained granular in part.

9510-9600 Limestone, very pale orange to yellowish gray, fine to medium grained, some fragmental, dense, some yellowish brown, sub-lithographic, dense limestone.

9600-9640 Dolomite, yellowish gray to pale yellowish brown, fine grained to very fine crystalline, sliblithographic in part.

9640-9650 Limestone and dolomite as above. Some medium dark gray shale and moderate red shale.

9650-9670 Limestone, grayish orange pink to pale yellowish brown, fine to medium grained. Slight fluorescence with good to fair porosity.

9670-9680 Dolomite, yellowish gray, fine to medium grained, dense, traces of shale, greenish gray, dark gray, and moderate red.

9680-9770 Dolomite, yellowish gray to olive gray, medium to coarse grained, pinpoint and vuggy porosity.

9770-9790 Dolomite, very pale orange to yellowish gray, very fine grained, earthy appearance, some dolomite as above.

9790-9820 Limestone, yellowish gray to pale yellowish brown, fine to medium grained, lithographic in part, very shaly, medium light gray and greenish gray.

9820-9860 Limestone, grayish orange pink to yellowish gray, very fine crystalline, dense.

9860-9890 Shale and limestone, medium light gray, fine grained, dense limestone and moderate reddish brown, pale red purple, yellow and greenish gray shale.

9890-9900 Shale, varicolored, flaky, friable, dark gray, moderate red, pale red purple, greenish gray.

9900-10040 Limestone, yellowish gray, very fine grained, dense, traces of anhydrite and shale as above, some moderate reddish orange siltstone.

10040-10080 Limestone, dusky yellowish brown, very fine crystalline to lithographic, dense. Some limestone as above, good fluorescence, very slight cut in CCl_4.

10080-10140 Dolomite, olive gray, medium grained, granular, good interstitial porosity.

10140-10200 Dolomite, olive gray to yellowish brown, medium grained to coarse crystalline, pinpoint and vuggy porosity.

10200-10210 Dolomite as above. Becoming more dense.

10210-10260 Limestone, yellowish gray, very fine grained, dense and dusky yellowish brown, lithographic limestone.

10260-10640 Salt and evaporite section.

10640-10700 Limestone, very light gray, very fine grained, granular, dense, anhydritic, earthy looking, soft, friable, dolomitic.

10700-10840 Limestone, medium dark gray, very fine crystalline, dense, dolomitic. Some light gray to very pale orange, very fine grained, sucrosic.

10840-10950	Silt, moderate reddish brown, dolomitic, argillaceous, some limestone as above.
10950-11110	Dolomite, very pale orange to white, fine grained to very fine crystalline, dense.
11,109	Total Depth