NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR N0. 134

Summary of the Hunt Oil Co. - Gunnar Opseth #1
Burke County, North Dakota
Well No. 945 - Permit No. 957

By John L. Hainer

Hunt Oil Company - Gunnar Opseth #1, Burke County, North Dakota. Location: 660 feet from the north line and 1980 feet from the south line of Section 28, T. 161N., R. 90W. Elevation: K.B. 2039; TD 7016; PB 6570.

The Hunt Oil Company - Gunnar Opseth #1 was spudded August 12, 1955 as the Calvert Drilling Inc. - Gunnar Opseth #1, drilled to a total depth of 7016 and completed as a new oil discovery (Coteau field) September 22, 1955.

DRILL STEM TESTS:

DST #1: 8-28-55. Tested from 6360-6400', 4 hr. test. 30 min. shut in, not max. Recovered 575' heavily gas and oil cut mud, very gassey. 90' heavily mud cut oil. IFP 0, FFP 280, IHP 3450, FHP 3400, SIP 2070.

DST #2. 8-31-55. Tested from 6420-6440'. 2 hr. test, 30 min. shut in, not max. Recovered l0' drilling mud, 90' slightly salt and sulphur water cut mud. IFP 0, FFP 20, IHP 3525, FHP 3460, SIP 660. Weak blow for 15 min. and stopped. Packer reset.

DST #3. 9-2-55. Tested from 6443-6484', 4 hr. test. 30 min. shut in. Recovered 660' total fluid. 30' sulphur mud, 450', oil and gas cut sulphur mud with 25% oil. 180' gas and mud cut oil 60 to 75% oil. IFP 0, FFP 290, IHP 3535, FHP 3500, SIP 2175. Had gas to surface in 1 hour.

DST #4. 9-3-55. Tested from 6530-6590', 4 hr. test. 45 min. shut in, almost max. Recovered 30' drilling mud, 90' sulphur mud, 720' slightly gas cut salty sulphur water with very slight show of oil. IFP 0, FFP 35, IHP 3575, FHP 3535, SIP 2700.

DST #5. 9-5-55. Tested from 6689-6741', 4 hr test. 30 min. shut in, almost max. Recovered 1095' black sulphur cut salt water. IFP 0, FFP 575, IHP 3600, FHP 3490, SIP 2660.

LOGS RUN: Schlumberger Electric log, 9-9-55, Schlumberger Microlaterolog, 9-9-55, B. J. Radiation log 9-15-55, Geolograph.

CASING RECORD:

Size	Put in Well	Left in Well	No. Sacks Cement
10-3/4	602	602	335
5-1/2	6598	6598	150

CORED INTERVALS: 6400-6425' and 6440-6470'.

COMPLETION TEST DATA: Test commenced 10-7-55; Test completed 10-8-55. Length of test - 24 hours. Test taken on pump: length of stroke - 64 in. No. strokes per min. - 14. Size working barrels 1 1/2 in. Size tubing - 2 in. No. ft. run - 6556 ft.

RESULT OF TEST: 43 bbls net oil per 24 hours. Gas-oil ratio - 547 cu. ft. gas per bbl. oil. Percent water produced during test - 70%. Gravity of oil (corrected to 60° API) - 32.9.

Well shot Sept. 15, 1955. Perforated with 4 holes per foot. Acidized with 7000 gals. Treated from 6356 to 6387, 6438 to 6444 and 6452 to 6486. (Total of 71 feet).

TOP OF PAY: 6356'.

TRANSPORTER: International Refineries Inc.

Formation tops were picked from samples and electric logs, corrected to the electric logs. Not all formation tops are called in the following list. Colors are from the rock color chart.

FORMATION TOPS

Cretaceous System	
Pierre formation	1420
Niobrara formation	3249
Greenhorn formation	3600
Dakota Group sands	4177
Jurassic System	4517?
Piper Lime	5207
Triassic System	
Spearfish formation	5478
Mississippian System	
Kibbey Lime	5813
Charles formation	5980
Mission Canyon formation	6356?
Total Depth	7016

990-1020	Shale, medium light gray, lumpy, bentonitic.
1020-1200	Shale as above. Lignite.
1200-1320	Shale, medium light to medium gray, lumpy, bentonitic, little lignite. Little pyrite.
1320-1590	Shale, medium light to medium gray, lumpy, sandy and silty bentonitic. Little lignite.
1590-1700	Shale as above.
1700-1800	Shale, medium light gray to light olive gray, lumpy, little bentonitic silty. Little lignite.
1800-1890	Shale, medium light gray, foliated, light olive gray, lumpy, bentonitic. Lignite.
1890-2100	Shale, medium light to medium gray, lumpy, bentonitic.
2100-2130	Shale as above. Lignite.
2130-2160	Shale, medium light to medium gray, lumpy, slightly bentonitic.
2160-2190	Shale as above. Little shale, light olive gray with numerous glauconite pellets.
2190-2310	Shale, light olive gray to medium gray, lumpy.
2310-2420	Shale, light olive gray to medium gray, lumpy to fissile.
2420-2480	Shale, medium light gray, lumpy.
2480-2720	Shale, medium gray to light brownish gray, lumpy to fissile. Bentonite, white to very light gray.

2720-2990	Shale, medium light gray, foliated, micaceous.
2990-3010	Shale, medium, gray, lumpy, bentonitic.
3010-3100	Shale, medium light to medium gray, lumpy to foliated. Bentonite. Few Inoceramus prisms.
3100-3210	Shale, medium gray, lumpy, bentonitic.
3210-3240	Shale, medium light to medium gray, foliated. Bentonite.
3240-3270	Shale, medium to dark gray, foliated to fissile.
3270-3300	Shale, medium to medium dark gray, foliated, “white specks” calcareous.
3300-3360	Shale as above with “white specks”, shale, light olive gray, fissile, micaceous. Few Inoceramus prisms.
3360-3470	Shale, medium light gray, foliated to lumpy. Few calcite crystals. Few Inoceramus prisms.
3470-3590	Shale, medium to medium dark gray, foliated. Inoceramus prisms.
3590-3610	Shale, dark gray to black, foliated. Inoceramus prisms.
3610-3650	Shale, medium dark gray, foliated, with “white specks”, calcareous, Inoceramus prisms.
3650-3710	Shale, medium gray, foliated.
3710-3800	Shale, medium gray, lumpy to foliated.
3800-3860	Shale as above. Inoceramus prisms.
3860-3940	Shale, medium to dark gray, foliated. Inoceramus prisms.
3940-4010	Shale, medium light gray, lumpy, medium dark gray, foliated.
4010-4220	Shale, dark gray foliated, light olive gray to yellowish gray 5Y8/1 micaceous, silty.
4220-4340	Shale, medium dark to dark gray, foliated. Sandstone, yellowish gray 5Y8/1, very fine grained, angular, friable to fine grained, subrounded, friable.
4340-4360	Shale and sandstone as above with some fine grained sandstone, slightly glauconitic.
4360-4390	Shale, medium dark to dark gray, foliated. Sandstone, very light gray, fine grained, angular, calcareous cement.
4390-4420	Shale as above. Limestone, very light gray, fragmental with much impurities.
4420-4470	Shale as above. Sandstone, white to light brown stained, fine grained, friable, some carbonaceous streaks but no cut.
4470-4530	Shale, medium dark to dark gray, foliated to fissile. Sand, medium grained, unconsolidated, subrounded quartz sand.
4530-4550	Shale, medium gray to grayish black, fissile. Little quartz sand as above.
4550-4600	Shale, medium to dark gray, foliated to fissile. Little shale, greenish gray 5GY6/1, waxy and foliated to fissile.
4600-4630	Missing.
4630-4660	Shale, medium to dark gray, foliated to fissile. Shale, greenish gray 5GY6/1, waxy and foliated to fissile.
4660-4700	Shale as above. Siltstone, very light gray, calcareous, little glauconitic.
4700-4790	Shale and siltstone as above. Little sandstone, white, fine grained, subrounded, calcareous cement, friable.
4790-4830	Shale, greenish gray, fissile, dark gray to grayish black, foliated. Little siltstone as above.
4830-4910	Shale as above. Siltstone, greenish gray 5GY6/1 to light gray, calcareous.
4910-4930	Shale as above with little siltstone as above.

4330-4950	Shale, greenish gray 5GY6/1, fissile, light olive gray 5Y6/1, fissile, medium dark gray, foliated to fissile.
4950-5020	Shale, medium dark to dark gray, foliated, medium light to medium gray, lumpy, greenish gray, fissile.
5020-5060	Shale, greenish gray fissile to greenish gray, massive, calcareous. Shale, grayish red 10R4/2, splintery, subwaxy, slightly calcareous. Shale, dark gray, foliated.
5060-5110	Shale as above. Little siltstone, greenish gray 5GY6/1, calcareous.
5110-5140	Shale, greenish gray, fissile, splintery, calcareous, shale grayish red, splintery, calcareous. Shale, medium to dark gray, foliated. Little siltstone, very pale orange, calcareous. Little limestone, pale yellowish brown, fragmental.
5140-5150	Shale and limestone as above.
5150-5200	Variegated shale, splintery to foliated to fissile, calcareous.
5200-5220	Variegated shale as above. Limestone, very pale orange, dense, microsucrosic.
5220-5260	Limestone, very pale orange, sublithographic. Shale as above. Little unconsolidated, subrounded quartz sand probably caving from Dakota.
5260-5300	Limestone, very pale orange, microcrystalline to fragmental. Shale as above. Argillaceous limestone, pale brown 5YR5/2, dense.
5300-5330	Limestone, pale yellowish brown, finely crystalline, dense. Shale, medium to medium dark gray, foliated, greenish gray 5GY6/1 and grayish red 10R4/2, subwaxy, calcareous.
5330-5380	Limestone, pale brown 5YR5/2, finely crystalline to slightly fragmental, dense. Shale as above.
5383-5440	Limestone, dark yellowish brown 10YR4/2, finely crystalline to fragmental, dense, anhydritic. Shale as above.
5440-5470	Limestone and shale as above with considerable anhydrite.
5470-5500	Sandy siltstone, moderate reddish orange 10R6/6, siltstone with fine rounded quartz sand, slightly calcareous. Shale, greenish gray and medium dark gray, foliated.
5500-5660	Siltstone, moderate reddish orange 10R6/6, slightly calcareous. Shale as above.
5660-5810	Siltstone, pale reddish brown 10R5/4, anhydrite, slightly calcareous, some small rounded sand inclusions.
5810-5820	Limestone, white, sublithographic.
5820-5850	Limestone, white to pale yellowish brown, finely crystalline.
5850-5860	Limestone, yellowish gray 5Y8/1 to pale red 5R6/2, medium grained, little silty.
5860-5880	Dolomite, pale red 5R6/2, sucrosic, silty.
5860-5900	Shale, greenish gray 5GY6/1, fissile.
5900-5950	Dolomitic shale to silty, argillaceous, dolomite, pale reddish brown 10R5/4. Shale as above.
5950-5980	Dolomitic shale and silty, argillaceous dolomite as above. Shale, medium to medium dark gray, foliated.
5980-6020	Shale and dolomite as above. Anhydrite, white.
6020-6040	Limestone, pale red 10R6/2, oolitic. Shale, medium gray to grayish green, foliated.
6040-6050	Dolomite, yellowish gray 5Y8/1, sucrosic. Anhydrite. Shale as above.
6050-6100	Limestone, very pale orange 10YR8/2, microsucrosic to fragmental, dense.

6100-6160 Anhydrite, white. Little limestone as above. Shale, dark greenish gray 5GY4/1, subwaxy. Shale, medium dark to dark gray.
6160-6180 Limestone, pale yellowish brown 10YR6/2, fragmental to micro-crystalline, dense.
6180-6210 Limestone, very pale orange 10YR8/2, microsucrosic. Little limestone as above.
6210-6220 Anhydrite, white to light gray. Limestone as above.
6220-6240 Limestone, pale yellowish brown, fragmental. Anhydrite as above.
6240-6270 Limestone and anhydrite as above. Shale, medium to dark gray, foliated.
6270-6300 Anhydrite, white to light gray. Limestone and shale as above.
6300-6318 Limestone, pale yellowish brown, fragmental. Little anhydrite.
6318-6320 TRIP SAMPLE. Predominantly shale caving, Anhydrite.
6320-6331 Missing.
6331 CIRCULATION 1/2 HOUR. Limestone, very pale orange to pale yellowish brown, fragmental to sublithographic.
6331 CIRCULATION 1 HOUR. Limestone as above.
6331 CIRCULATION 1 1/4 HOUR. Limestone as above.
6331 CIRCULATION 1 1/2 HOUR. Anhydrite. Little limestone as above.
6331-6340 Limestone and little anhydrite as above.
6340-6360 Anhydrite, medium light gray.
6360-6382 Anhydrite as above. Little limestone, yellowish gray 5Y7/2 microsucrosic.
6382 CIRCULATION 1/4 HOUR. Limestone, pale yellowish brown to dark yellowish brown, microsucrosic to fragmental.
6382 CIRCULATION 1/2 HOUR. Limestone as above.
6380-6400 Limestone as above, some oil cut.
6400 CIRCULATION 1/4 to 1 HOUR. Limestone, pale yellowish brown, fragmental, some oil cut.

Core Chips
6400-6402 Dolomite, yellowish gray 5Y7/2, microsucrosic with interbedded anhydrite.
6402-6406 Anhydrite.
6406-6408 Dolomite, pale yellowish brown, microsucrosic to finely granular, anhydrite.
6408-6410 Anhydrite.
6410-6412 Limestone, pale yellowish brown, fragmental, dense matrix with some vugs anhydrite, oil stain and slight cut.
6412-6414 Anhydrite.
6414-6416 Limestone, pale yellowish brown, finely crystalline, banded with carbonaceous residue, oil stain and good cut.
6416-6425 Anhydrite.
6425-6430 Anhydrite.
6430-6438 Missing.

SAMPLES
6438 CIRCULATION 1/2 to 1 1/4 HOUR. Anhydrite.
6438 CIRCULATION 1 1/2 to 1 3/4 HOUR. Anhydrite. Limestone, pale yellowish brown, sucrosic, dolomitic, oil stain and cut.
6438-6440 Missing.
6440 CIRCULATION 1 HOUR 55 MIN. Limestone, pale yellowish brown, finely crystalline, slight oil cut. Anhydrite.

Core chips

6440-6442	Limestone, pale yellowish brown, microcrystalline, dense, few included anhydrite crystals.
6442-6443	Limestone, pale yellowish brown, fragmental, dense, oil stain and poor cut.
6443-6445	Limestone, as above, stylolitic, good oil cut.
6445-6446	Limestone, medium gray, fragmental, dense, oil stain and fair cut.
6446-6447	Shale, black, carbonaceous, slightly calcareous, slight oil cut.
6447-6451	Limestone, brownish gray 5YR4/1, fragmental, anhydrite inclusions, slightly oolitic, good oil cut.
6451-6452	Limestone, light gray, argillaceous, light.
6452-6453	Limestone, pale yellowish brown, fragmental, anhydrite filling, little pinpoint porosity, good oil cut.
6453-6454	Limestone, pale yellowish brown, dense cryptocrystalline matrix with oolites lithified within the matrix, oil stain but no cut.
6454-6455	Argillaceous limestone, dark greenish gray 5GY4/1, dense with few fractures filled with carbonaceous residue.
6455-6456	Limestone, olive gray 5Y4/1, dense cryptocrystalline, with little anhydrite filling, few stylolites.
6456-6459	Limestone, pale yellowish brown, fragmental, anhydrite filling vugs few oolites lithified within matrix, little pinpoint porosity, good oil cut.
6459-6460	Limestone, very light gray, chalky, argillaceous.
6460-6462	Limestone, pale yellowish brown, closely packed oolites with the interstitial porosity plugged with anhydrite, poor oil cut.
6462-6464	Limestone, dark yellowish brown 10R4/2, coarsely crystalline, vuggy with some anhydrite filling, good oil cut.
6464-6468	Limestone, dark yellowish brown, oolitic with interstices filled with finely crystalline limestone and anhydrite, some vugs usually lined with anhydrite, oil stain and cut.

Samples

6470-6480	Limestone as above.
6483	Circulation 1 1/2 hours. Limestone as above.
6483-6510	Limestone as above.
6510-6583	Limestone, pale yellowish brown, finely crystalline to fragmental, few scattered oolites, poor oil cut.
6583	Circulation 1/4 to 1 1/2 hours.
6583-6590	Missing.
6590	Circulation 1/2 to 1 1/2 hours. Limestone as above.
6590-6610	Limestone as above.
6610-6730	Limestone, pale yellowish brown, finely crystalline to fragmental few scattered oolites, no oil cut.
6730-6741	Missing.
6741	Circulation 1 2/3 to 2 1/8 hours. Limestone as above. Limestone, dark yellowish brown, microsucrosic, dolomitic, oil stain and cut.
6741-6760	Limestone as above.
6760-6773	Missing.
6773	Circulation 1/2 to 2 hours. Limestone, pale to dark yellowish brown, fragmental, oil stain and cut.
6773-6781	Missing.
6781	Circulation 1 1/2 to 2 1/2 hours. Limestone, pale yellowish brown, fragmental to microsucrosic, dolomitic, little anhydritic, oil stain and cut.

6781-6870	Limestone as above.
6870-7016	Limestone, pale to dark yellowish brown, fragmental, oil stain and cut.
7016-TD	Circulation 2 1/3 hours. Limestone as above.