

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 218

Summary of McAlester Fuel Company - Alfred Larson #1
Burke County, North Dakota
Well No. 1952 - Permit No. 1964

by David S. Johnson
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The McAlester Fuel Company - Alfred Larson #1 located in C NW SE of Section 22, T. 163N., R. 90W. Elevation 1940 G.L., 1952 K.B.

The McAlester Fuel Company - Alfred Larson #1 was spudded July 25, 1958 and 8 5/8" casing was set at 530 feet with 270 sacks of cement. The well was drilled to a total depth of 5675 feet and completed as a producer on August 22, 1958. 5 1/2" casing was set at 5674 with 250 sacks of cement. The casing was perforated between 5600 feet - 5610 feet, acidized with 4,250 gallons and had an initial production flow of 91 barrels of oil per day through a 14/64" choke. The oil was 38 gravity. (Corrected to 60° API).

NOTE: As of December 1, 1958, McAlester Fuel Company resigned as operators of this well and Signal Drilling and Exploration, Inc. - Wilhite-Northern Brokerage took over the operations.

LOGS:

Schlumberger Induction Electric	503'-5669'
Schlumberger Microlog	4850'-5674'
Wireline Inc. Radioactivity	5300'-5631'

CORES:

5573'-5588' recovered 15 feet
5588'-5612' recovered 24 feet
5638'-5652' recovered 14 feet

TESTS:

DST #1 - 5570'-5588', open 3 hours, shut-in 1 hour, good blow, recovered 3500 feet gas, 204 feet heavily gas cut and slightly oil cut mud. Initial shut-in pressure 495#. Final shut-in pressure 927#. Initial flow pressure 75#. Final flow pressure 102#. Initial hydrostatic pressure 3175#. Final hydrostatic pressure 3080#.

DST #2 - 5595-5612. Tool open 126 minutes shut-in 1 hour. Gas to surface in 19 minutes. Recovered 140 feet of clean green oil, 244 feet of heavily oil and gas cut mud. Initial shut-in pressure 2684#. Final shut-in pressure 2632#. Initial flow pressure 41#. Final flow pressure 114#. Initial hydrostatic pressure 3337#. Final hydrostatic pressure 3187#.

PERFORATIONS:

5600'-5610' with 4 shots per foot. Acidified with 4,250-gallons of acid.

Formation tops were determined from samples and the induction-electric log. Doubtful or obscure formation tops were not picked. Colors and identifying numbers are taken from the Rock-color chart distributed by the Geological Society of America.

FORMATION TOPS

Cretaceous System	
Pierre formation	1129
Niobrara formation	2857
Greenhorn formation	3183
Mowry formation	3548
Fall River formation	3740
Jurassic System	
Rierdon formation	4390
Piper formation	4530
Piper "lime"	4690
Triassic System	
Spearfish formation	4939
Mississippian System	
Charles formation	5230
Midale marker	5576
Nesson marker	5600
0-270	Samples missing.
270-310	Shale, very light gray, spongy. Some compact.
310-330	Lignite.
330-350	Shale, very light gray, spongy-compact. Some sand grains.
350-370	Shale, as above. Interbedded lignite.
370-410	Shale, very light gray, lumpy-spongy, calcareous.
410-430	Glacial gravels, shale, light gray, spongy.
430-450	Shale, light gray, spongy, some gravel.
450-480	Shale, light gray, sandy, calcareous.
480-490	Shale, light gray. Sandy, slightly calcareous, lumpy. Loose sand grains.
490-510	Shale as above.
510-540	Shale, medium light gray, slightly calcareous, lumpy.
540-600	Shale, as above. Some lignite.
600-720	Shale and lignite as above. Some limestone, pinkish gray fine grained.
720-930	Shale, medium light gray lumpy.
930-960	Shale, as above. Shale, medium dark gray, lumpy.
960-1170	Shale, medium light gray, lumpy.
1170-1200	Shale, medium gray, medium light gray, lumpy-compact.
1200-1490	Shale, medium gray, medium light gray, lumpy.
1490-2100	Shale, medium gray, medium light gray, spongy, lumpy. Some scattered bentonite.
2100-2480	Shale as above, small amounts of limestone, brownish gray, very fine grained.
2480-2860	Shale, medium gray, medium light gray, spongy-lumpy. Some bentonite.
2860-2920	Shale as above. Some shale, medium dark gray, "white specks."
2920-3040	Shale, medium gray, spongy-compact. Some shale white lumpy calcareous.
3040-3200	Shale, dark gray, medium light gray compact. Some Inoceramus prisms and pyrite.
3200-3210	Shale, dark gray, compact, some "white specks."
3210-3220	Shale, medium gray, compact abundant "white specks." Shale as above.

3220-3240 Shale, dark gray, compact, carboniferous.

3240-3250 Shale, as above. Some shale, medium light gray, spongy, Inoceramus fragments.

3250-3300 Shale, medium dark gray, medium light gray, compact, "white specks". Some limestone, medium gray-yellowish gray.

3300-3310 Shale as above. Inoceramus prisms.

3310-3430 Shale, dark gray-medium light gray, compact-fissile.

3430-3440 Shale, grayish black-medium light gray, compact-fissile.

3440-3740 Shale, dark gray-medium light gray, compact-fissile.

3740-3800 Shale, medium light gray, compact. Some sandstone, fine-medium grained well cemented.

3800-4100 Shale, as above. Small amounts of sandstone, as above, and some siltstone brownish gray (5YR4/1).

4100-4230 Shale, medium dark gray-medium light gray fissile, lumpy. Some quartz grains, medium-coarse grained, angular, clear. Some sandstone, very light, gray, very fine grained, calcareous.

4230-4300 Shale and sand as above, some limestone, white, sandy.

4300-4330 Shale and sand, as above.

4330-4390 Shale, medium dark gray-medium light gray, lumpy-fissile, pyrite, poor samples.

4390-4440 Shale, as above, some shale, greenish gray (5GY6/1), splintery.

4440-4480 Limestone, medium grained, very fine grained, dense, argillaceous, shale as above.

4480-4530 Shale, as above.

4530-4550 Sandstone, white, fine grained, slightly calcareous. Shale, as above and some shale, moderate reddish brown (10R4/6) splintery.

4550-4590 Shale, dark gray-medium light gray, fissile-compact.

4590-4620 Shale, as above. Some shale moderate reddish brown, splintery. Small amount of limestone, brownish gray-white medium grained.

4620-4700 Shale, variegated. Minor amounts of sandstone, white, fine grained.

4700-4720 Limestone, yellowish gray (5Y8/1) pinkish gray, fine grained, shale as above.

4720-4740 Samples missing.

4740-4800 Limestone and shale, medium gray compact.

4800-4850 Limestone and shale, as above. Some limestone, brownish gray, fine grained, dense.

4850-4870 Shale, variegated, splintery.

4870-4910 Shale, medium dark gray, medium light gray, compact-fissile. Some shale as above.

4910-4950 Shale, as above. Some anhydrite and gypsum, white.

4950-5000 Shale, variegated, splintery.

5000-5040 Sandstone, pale reddish brown, fine grained, shale as above.

5040-5130 Sandstone as above. Shale, grayish black medium gray, compact-fissile.

5130-5230 Shale and sandstone, as above.

5230-5250 Limestone, light red (5R6/6) - white, medium grained, shale dark gray-medium gray, splintery, some gypsum.

5250-5265 Limestone, light red, fine grained, limestone and shale, as above.

5265-5270 Limestone, moderate pink (5R7/4), fine grained, dense. Shale, as above.

5270-5280 Limestone, white, sublithographic, limestone and shale, as above.

5280-5330 Limestone, yellowish gray (5Y8/1) fine grained. Limestone and shale, as above.

5330-5340 Shale, dark gray-greenish gray, splintery. Small amount of limestone, as above. Some shale, moderate brown, splintery.

5340-5360 Shale and limestone, as above. Some gypsum, white.

5360-5385 Anhydrite, very light gray, dense. Shale, as above.

5385-5390 Anhydrite, as above, limestone, yellowish gray-brownish gray, fine grained.

5390-5410 Limestone, as above. Some shale, medium gray.

5410-5420 Limestone, yellowish gray-light brownish gray, fine-medium grained. Anhydrite, white, very light gray, dense.

5420-5445 Shale, dark gray-medium light gray, splintery-fissile. Small amounts of anhydrite, white.

5445-5480 Shale, as above, anhydrite, light gray-white, dense.

5480-5495 Limestone, light brownish gray, medium grained, crystalline. Some shale, as above.

5495-5515 Shale, as above. Anhydrite, white soft-dense.

5515-5530 Shale and anhydrite, as above. Some limestone, light brownish gray (5YR6/1) fine-coarse grained, crystalline.

5530-5550 Anhydrite, light gray, dense, shale, medium gray, splintery-fissile.

5550-5555 Limestone, yellowish gray (5Y8/1) fine grained. Some anhydrite, as above.

5555-5560 Sample, as above. Some shale, medium gray, splintery.

5560-5570 Anhydrite, yellowish gray, light gray, dense. Shale and limestone as above.

Core Chip Description

5573-5575 Anhydrite, light brownish gray, dense.

5575-5576 Limestone, pinkish gray, fine grained dull. Interbedded anhydrite, as above.

5576-5581 Limestone, as above, upper part dolomitic, some porosity. Some spotty oil stain.

5581-5582 Limestone, light brownish gray, fossiliferous.

5582-5585 Limestone, light brownish gray, crystalline.

5585-5586 Limestone, as above, good fluorescence and cut.

5586-5587 Limestone, light brownish gray, medium grained.

5587-5589 Limestone, yellowish gray, fine grained.

5589-5591 Limestone, light brownish gray, fine grained, good cut.

5591-5592 Limestone, light brownish gray, fine grained, anhydritic.

5592-5593 Limestone, yellowish gray fine grained, slight cut with carbon tetrachloride.

5593-5594 Limestone, as above.

5594-5595 Limestone, light brownish gray, coarsely crystalline. Anhydritic.

5595-5596 Limestone, light brownish gray, medium grained.

5596-5598 Limestone, medium gray, fine grained, fossiliferous.

5598-5601 Limestone, light brownish gray, fragmental, poor porosity.

5601-5603 Limestone, light brownish gray, fragmental, fair cut.

5603-5606 Limestone, brownish gray, fine-coarse grained, some anhydrite filling.

5606-5607 Limestone, brownish gray, recrystallized.

5607-5610 Limestone, as above, "pelletoidal" and vuggy, Slight cut.

5610-5612 Anhydrite, white, medium gray, dense.

End of Core

5612-5638 Anhydrite and limestone, as above. Shale cavings.

5638 Circulate 1 hour.

Core Chip Description

5638-5639 Limestone brownish gray, dolomite anhydritic.
5639-5641 Anhydrite, medium gray, dense.
5641-5642 Anhydrite, white sucrosic-dense.
5642-5643 Limestone, light brownish gray, fine grained, dense.
5643-6644 Limestone, light brownish gray, anhydritic.
5644-5645 Limestone, light brownish gray oolitic, hard, dense.
5645-5648 Limestone, yellowish gray, medium grained, anhydrite fillings.
5648-5650 Limestone, light brownish gray, fine grained, dense.
5650-5651 Limestone, medium light gray, fine grained.
5651-5652 Limestone, light brownish gray, fine grained dense, hard,
anhydrite fillings.

End of Core

5655-5672 Limestone, light brownish gray, fine-medium grained, anhydrite
fillings.
5672 Circulate 1/2 hour.
5675 Total Depth.