

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 47

Summary of the Deep Rock Oil Company - Hilda Johnson "A" #1
Permit No. 149, Well No. 133

By Morton Strassberg
April, 1954

Deep Rock Oil Company - Hilda Johnson "A" No. 1, Morton County, North Dakota, SW 1/4 SW 1/4 Section 30, T. 139 N., R. 86E. (660 feet from S. line, 660 feet from W. line) Elevation G.L. 2191. K.B. 2204.

Deep Rock Oil Company - Hilda Johnson "A" No. 1 was spudded August 17, 1952 and 13 3/8 inch casing was set at 460 feet with 400 sacks of cement.

The drilling was completed November 1, 1952 and the well abandoned. Total depth 8103 feet. Cement plugs were set at the following places:

7625 with 15 sacks	4050 with 15 sacks
6600 with 15 sacks	475 with 20 sacks
6150 with 15 sacks	475 with 5 sacks
4250 with 15 sacks	

Cores

#1. 7790-7819

Tests

- Dst. #1 6570-6620: Tool open 2 hours, recovered 270 feet muddy salt water and 930 feet black gas cut sulphur water; F.P. 250-275#, 20 minute S.I.P. 2600#.
- Dst. #2 6680-6732: Tool open 2 hours, recovered 310 feet mud; F.P. 320#, 30 minute S.I.P. 2330#.
- Dst. #3 6740-6754: Tool open 3 hours, recovered 190 feet water cut mud, 30 feet gas cut sulphur water; F.P. 0#, 45 minute S.I.P. 2550#, H.P. 3630#.
- Dst. #4 6777-6795: Tool open 1 hour, recovered 870 feet black sulphur water, 55 feet black gas cut sulfur water; F.P. 0-425#; 30 minute S.I.P. 2800#; H.P. 3700#.
- Dst. #5 6934-6978: Tool open 1 hour, recovered 724 slightly gas cut salt water, 10 feet gas cut basic sediment; F.P. 0-400#, 30 minute S.I.P. 2975#.
- Dst. #6 7531-7556: Tool open 1 1/2 hours, recovered 10 feet mud; F.P. and 30 minute S.I.P. 0#.
- Dst. #7 7893-8090: Tool open 20 minutes, recovered 580 feet muddy salt water; F.P. 400-500#, 25 minute S.I.P. 3400#.

TOPS

Formation tops were determined from samples and electric logs, not all lithologic formation tops were called in the following list. Colors were determined from the rock color chart.

	<u>Depth</u>
Cretaceous System	
Pierre Formation	1314
Niobrara Formation	2520
Greenhorn Formation	3370
Dakota	4036
Jurassic System	
Morrison Formation	4297
Sundance Formation	4413
Piper Formation	4840
Triassic System	
Spearfish Formation	5060
Permian-Pennsylvanian Systems	
	5160
Mississippian System	
Amsden Formation	5376
Big Snowy Group	5619
Kibby Formation	5990
Charles Formation	6122
Mission Canyon Formation	6574
Lodgepole Formation	6934
Englewood Formation	7476
Devonian System	
Lyleton Formation	7600
Nisku Formation	7765 Electric Log
Duperow Formation	8080 Electric Log

<u>From</u>	<u>To</u>	<u>Description</u>
1090	1120	Shale--medium gray, silty to orenaceous.
1120	1180	Sandstone--very fine grained, greenish gray, argillaceous.
1180	1270	Sandstone--greenish gray, very fine grained, argillaceous, calcareous.
1270	1330	Sandstone--light to medium gray, very fine grained, calcareous, argillaceous.
1330	1420	Shale--medium to medium light gray, arenaceous, micaceous.
1420	1480	Shale--medium to medium light gray, micaceous.
1480	1540	Shale--medium to medium mark gray, white specks.
1540	1570	Shale--medium light to medium dark gray, calcareous.
1570	1600	Shale--medium light to medium gray, white specks, calcareous.
1600	1660	Shale--medium to medium dark gray, calcareous, white bentonite.
1660	1690	Shale--medium to medium dark gray, slightly calcareous.
1690	1720	Shale--medium light gray, some white specks.
1720	1740	Shale--medium light gray.
1740	1770	Shale--medium light gray, white bentonite.
1772	1859	Shale--medium light gray.

<u>From</u>	<u>To</u>	<u>Description</u>
1859	1889	Shale--medium light gray, white specks.
1889	1948	Shale--medium light gray, white specks, calcite prisims.
1948	2008	Shale--medium light gray, calcite prisims.
2008	2038	Shale--medium light gray.
2038	2068	Shale--medium to medium light gray, micaceous, bentonitic.
2068	2128	Shale--medium light to medium gray, white specks.
2128	2188	Shale--light to medium gray.
2188	2248	Shale--medium light to medium gray, calcareous.
2248	2303	Shale--medium light to medium gray, calcareous, bentonitic.
2303	2333	Shale--medium to medium dark gray, white specks, white bentonite.
2333	2423	Shale--medium to medium light gray, calcareous, white bentonite.
2423	2481	Shale--medium gray, white bentonite.
2481	2511	Shale--medium light to medium gray, calcareous.
2511	2570	Missing samples.
2570	2630	Shale--medium to medium dark gray, calcareous. White bentonite.
2630	2660	Missing samples
2659		(1/2 hr. circulation) Shale--medium to medium dark gray, calcareous. White bentonite.
2659	2673	Shale--same.
2673	2688	Missing samples.
2688		Shale--medium light to medium dark gray, white bentonite.
2688	2835	Missing samples.
2835	2893	Shale--medium to medium dark gray, white specks, calcareous.
2893	2923	Shale--medium light to medium gray, calcareous.
2923	2950	Shale--medium to medium dark gray, white specks, calcareous.
2950	3000	Shale--medium light to medium gray calcareous.
3000	3010	Shale--medium light to medium gray.
3010	3020	Shale--medium light to medium brown gray.
3020	3030	Shale--medium to medium dark gray, white specks, pyrite.
3030	3040	Shale--medium gray pyritic.
3040	3060	Shale--medium light to medium gray, white bentonite.
3060	3070	Shale--medium light gray, micaceous. White bentonite.
3070	3080	Shale--medium light to medium gray, micaceous, pyrite and white bentonite.
3080	3120	Shale--medium light to medium gray, bentonite.
3120	3150	Shale--medium light to medium gray.
3150	3160	Shale--medium light to medium gray, micaceous.
3160	3190	Shale--medium gray, micaceous, calcareous, bentonitic.
3190	3200	Shale--medium to medium dark gray, micaceous, bentonitic.
3200	3230	Shale--medium gray, micaceous, bentonitic.
3230	3290	Shale--medium light to medium gray, bentonitic, micaceous.
3290	3320	Shale--medium light gray, micaceous, bentonitic, white bentonitic.
3320	3330	Shale--medium light to medium, gray bentonitic. Pyrite and some white specks.
3330	3337	Missing samples.
3337	3367	Shale--medium dark gray, calcareous, with white specks and medium light gray bentonitic.
3367	3388	Shale--medium dark gray, white specks, calcareous, calcite prisims.

<u>From</u>	<u>To</u>	<u>Description</u>
3388	3450	Shale--medium dark to dark gray, white specks, calcareous, calcite prisims.
3450	3500	Limestone--very light gray, fine grained to fragmental. Medium dark to dark gray shale, white specks calcareous.
3500	3510	Shale--light olive gray, micaceous.
3510	3550	Shale--olive gray and dark gray, white specks, calcareous.
3550	3560	Shale--medium light gray.
3560	3580	Shale--dark gray some white specks and light olive gray.
3580	3590	Shale--light to medium light gray.
3590	3610	Missing samples.
3610	3630	Shale--light to dark gray.
3630	3640	Shale--light to dark gray.
3640	3650	Shale--medium to dark gray.
3650	3676	Missing samples.
3676	3686	Shale--medium dark to dark gray.
3686	3726	Shale--light to medium dark gray.
3726	3800	Shale--medium light and dark gray.
3800	3820	Shale--medium light gray bentonitic and medium dark gray.
3820	3840	Shale--medium to medium dark gray.
3840	3870	Shale--medium light gray bentonitic and medium dark gray.
3870	3970	Shale--medium light gray bentonitic and medium dark gray.
3970	4020	Shale--medium dark gray and light gray slightly silty.
4020	4060	Missing samples.
4060	4080	Sandstone--very light gray very fine grained. Light olive gray silty shale.
4080	4100	Shale--very light gray silty. Very light gray, very fine grained siltstone. Slightly iron stained, siltstone concretions.
4100	4110	Siltstone--iron stained siltstone concretions. Very fine grained sandstone. Medium light gray silty shale.
4110	4130	Sandstone--white to very light gray, very fine grained calcareous. Iron stained siltstone concretions, light gray silty shale.
4130	4160	Siltstone--concretions, iron stained. Little very fine grained sandstone. Light gray silty shale.
4160	4180	Sandstone--white to very light gray, very fine grained. Light gray silty shale. Iron stained siltstone concretions.
4180	4210	Siltstone--light gray argillaceous and a few siltstone concretions. Very fine grained sandstone.
4210	4220	Shale--medium light gray silty.
4220	4230	Sandstone--very fine grained silty and medium light gray siltstone.
4230	4260	Siltstone--medium light gray, argillaceous. Few free medium grains quartz.
4260	4270	Sandstone--very fine grained glauconitic, medium light gray siltstone.
4270	4290	Shale--medium light gray, silty, little very fine grained sandstone.
4290	4320	Shale--medium light gray silty.
4320	4370	Shale--medium light gray silty, very fine grained sandstone.
4370	4380	Shale--medium light gray, slightly silty, very fine grained calcareous sandstone.

<u>From</u>	<u>To</u>	<u>Description</u>
4380	4400	Shale--medium light to light olive gray, slightly silty.
4400	4420	Shale--medium light gray.
4420	4450	Shale--medium light gray, very fine grained, calcareous sandstone.
4450	4460	Shale--medium light gray.
4460	4470	Shale--moderate yellowish brown.
4470	4480	Shale--moderate yellow brown and medium light gray medium light gray, siltstone.
4480	4500	Shale--moderate yellowish brown, light brown siltstone.
4500	4530	Shale--medium light gray, silty, light gray siltstone.
4530	4540	Siltstone--very light to olive gray, medium gray shale.
4540	4570	Siltstone--very light to olive gray, pale yellowish brown shale.
4570	4620	Missing samples.
4620	4630	Shale--medium light gray, light gray, siltstone.
4630	4660	Shale--medium light gray, light gray siltstone, little fine free quartz.
4660	4680	Shale--medium gray.
4680	4700	Shale--medium light to medium gray, few free fine quartz grains.
4704	4714	Shale--medium light gray.
4714	4734	Shale--medium light gray silty.
4734	4744	Shale--medium light gray, light gray siltstone and iron stained siltstone concretions. Free fine to medium grained quartz.
4744	4754	Shale--medium light gray, silty.
4754	4780	Limestone--medium light gray, fine grained, slightly argillaceous. Medium light gray shale.
4780	4790	Limestone--light to medium light gray. Medium gray shale.
4790	4830	Shale--medium light to medium, gray. Light gray limestone.
4830	4850	Missing samples.
4850	4860	Limestone--medium light to very light gray, fine grained, medium gray shale.
4860	4870	Shale--medium to medium light gray. Medium light gray fine grained limestone.
4870	4880	Limestone--white to very light gray, fine grained. Medium light gray shale.
4880	4890	Limestone--very light to pinkish gray, fine grained.
4890	4930	Limestone--white to pale red, fine grained. Medium gray shale.
4930	4970	Missing samples.
4970	4980	Limestone--white to pinkish gray, fine grained.
4980	4990	Limestone--white to pinkish gray, fine grained. Medium gray shale.
4990	5000	Missing samples.
5000	5040	Limestone--very light gray and pale reddish brown, argillaceous.
5040	5070	Limestone--very light to pale red. Pale reddish brown and medium gray shale.
5070	5090	Shale--medium light to medium gray.
5090	5110	Limestone--very light gray fine grained. Pale reddish brown and medium gray shale.

<u>From</u>	<u>To</u>	<u>Description</u>
5110	5120	Missing samples.
5120	5140	Anhydrite--white to moderate pink. Pale reddish brown shale, light gray fine grained limestone.
5140	5150	Shale--medium light gray, slightly calcareous.
5150	5160	Shale--medium light to greenish gray and pale brownish red, few free medium quartz grains.
5160	5180	Shale--pale reddish brown, silty, white anhydrite, light gray, fine grained dolomite.
5180	5190	Shale--pale reddish brown, silty, white anhydrite. Light gray fine grained limestone. Few free fine quartz grains.
5190	5220	Sandstone--pale reddish brown, very fine grained, argillaceous. Pale reddish brown shale. Grayish pink dolomite.
5220	5230	Shale--greenish gray, micaceous, calcareous and pale reddish brown pink to very light gray dolomite.
5230	5240	Dolomite--pink gray, fine grained dense. Light red very fine grained sandstone.
5240	5270	Dolomite--grayish pink, fine grained dense. Medium gray and pale reddish brown shale.
5270	5300	Missing samples.
5300	5330	Shale--pale reddish brown, calcareous, and medium gray. Grayish pink dolomite.
5330	5340	Shale--pale reddish brown, calcareous and medium gray. Light gray calcareous siltstone.
5340	5360	Shale--pale reddish brown calcareous and medium gray. Grayish pink dolomite.
5360	5380	Dolomite--grayish red, sublithographic dense. Fine grained free quartz.
5380	5400	Sandstone--fine grained, subrounded to rounded, frosted.
5400	5410	Dolomite--very light to pinkish gray. Fine rounded to subrounded sandstone, frosted sandstone. Pale reddish brown shale.
5410	5420	Sandstone--white very fine grained. Olive to medium gray, and pale reddish brown shale.
5420	5430	Dolomite--pale red, sublithographic. Medium gray shale.
5430	5440	Dolomite--pale red, fine grained to sublithographic dense.
5440	5460	Shale--Medium light gray and pale reddish brown.
5460	5470	Dolomite--pale red, fine grained dense. Medium gray and pale red shale.
5470	5490	Dolomite--pale red fine grained. Pale reddish brown and medium gray shale.
5490	5500	Dolomite--light brownish gray, sublithographic.
5500	5510	Shale--medium gray, light brownish gray dolomite. White anhydrite.
5510	5520	Missing samples.
5520	5550	Dolomite--very light to light gray fine grained dense.
5550	5560	Shale--pale reddish brown, slightly calcareous and medium gray.
5560	5570	Shale--medium light to medium gray and pale reddish brown.
5570	5580	Shale--pale brown calcareous.
5580	5590	Shale--medium gray and pale reddish brown.
5590	5630	Shale--pale reddish brown calcareous and medium gray.

<u>From</u>	<u>To</u>	<u>Description</u>
5630	5660	Shale--medium light to medium gray and pale reddish brown, slightly calcareous.
5660	5690	Missing samples
5690	5700	Shale--medium to medium dark gray and pale red.
5700	5730	Sandstone--fine grained, subrounded to rounded, frosted dolomitic cement.
5730	5750	Sandstone--iron stained, fine to medium grained, rounded to subrounded. Dusky yellow flaky shale.
5750	5790	Sandstone--iron stained, fine to medium grained, subrounded to rounded.
5790	5810	Shale--medium to dark gray. Iron stained, fine to medium grained sandstone.
5810	5820	Shale--dark gray and greenish gray. Iron stained fine to medium grained sandstone.
5820	5830	Shale--dark gray, sand log.
5830	5850	Shale--dark gray.
5850	5870	Shale --dark gray and medium light gray.
5870	5880	Dolomite-light gray, fine grained, medium to dark gray shale.
5880	5890	Shale--medium to medium dark gray. Frosted fine grained, rounded sandstone.
5890	5910	Sandstone--white to very light gray, very fine grained, medium to dark gray shale.
5910	5950	Sandstone--frosted to iron stained, very fine to fine grained. Rounded to subrounded.
5950	5980	Sandstone--frosted, subrounded, fine grained to silt size.
5980	5990	Siltstone--pale red, slightly calcareous and fine grained frosted to iron stained sandstone.
5990	6000	Shale--medium to dark gray.
6000	6030	Limestone--very light to yellowish gray sublithographic.
6030	6040	Limestone--white to yellowish gray chalky, fine grained free quartz.
6040	6050	Limestone--very light gray chalky.
6050	6060	Siltstone--grayish orange pink, calcareous.
6060	6070	Sandstone--frosted to iron stained, fine grained subrounded to rounded. Grayish orange pink siltstone.
6070	6090	Missing samples.
6090	6110	Shale--pale red, silty calcareous.
6110	6130	Shale--medium to dark gray.
6130	6150	Shale--dark gray and greenish gray.
6150	6160	Shale--dark gray, fine grained free quartz.
6160	6170	Shale--pale red, silty calcareous.
6170	6180	Shale--dark gray, fine grained free quartz.
6186		(Circulation) Siltstone--medium to yellowish gray, dark gray shale.
6190	6200	Shale--medium to medium dark gray, Cave?
6200	6210	Sandstone--iron stained to frosted, fine grained, subrounded to rounded. Very light gray fine grained limestone.
6210	6220	Shale--dark gray cave? Light gray dense dolomite. Fine grained free quartz.
6228		(Circulation) Shale--dark gray cave? White anhydrite.
6230	6240	Limestone--medium light gray, fine grained, argillaceous. Medium to medium dark gray shale.

<u>From</u>	<u>To</u>	<u>Description</u>
6240	6250	Dolomite--light gray fine grained. Medium to dark gray shale fine free quartz.
6250	6260	Same--Poor sample.
6260	6270	Limestone--medium light gray, argillaceous, medium to dark gray, shale.
6274		(Circulation) Limestone--light gray, fine grained, argillaceous, shale cave?
6270	6280	Limestone--same as above.
6280	6300	Limestone--medium light gray fine grained, silty, medium to dark gray shale, fine grained free quartz.
6300	6320	Dolomite--very light gray, arenaceous. Dark gray shale.
6320	6330	Missing samples.
6330	6340	Shale--medium to dark gray.
6340	6350	Shale--medium dark gray and grayish green with some pale red mottling.
6350	6360	Shale--medium to dark gray and light olive gray.
6360	6370	Limestone--medium light gray, fine grained, silty.
6370	6380	Dolomite--very light gray, fine grained.
6380	6400	Limestone--yellowish gray, fine grained, fragmental.
6400	6410	Limestone--white to very light gray, sublithographic.
6410	6420	Limestone--yellowish gray, fine grained, fragmental.
6420	6430	Missing samples.
6430	6440	Shale--medium light gray.
6440	6450	Shale--yellowish to dark gray.
6450	6460	Shale--light olive gray and medium to dark gray.
6460	6470	Limestone--light olive gray, fragmental.
6470	6480	Missing samples.
6480	6490	Limestone--yellowish gray, fine grained, fragmental.
6490	6500	Limestone--yellowish gray, fine grained, fragmental. Medium to dark gray shale.
6500	6520	Shale--medium light gray.
6520	6530	Dolomite--very light to light gray, sublithographic.
6530	6540	Shale--medium to dark gray, medium light gray sublithographic, dolomite.
6540	6550	Anhydrite--medium light to medium gray.
6550	6560	Shale--medium gray cave?
6560	6570	Anhydrite--very light to medium light gray. Medium light gray sublithographic dolomite.
6570	6580	Shale--medium gray calcareous.
6580	6600	Limestone---very light gray, oolitic, tight.
6600	6610	Limestone--very light gray, oolitic light brownish gray chert.
6610	6620	Limestone--very light gray to white, fine grained to chalky.
6620	6650	Shale--light olive gray, calcareous cave?
6650	6660	Limestone--grayish orange pink, fine grained to oolitic.
6660	6680	Limestone--very light gray, fine grained to fragmental.
6680	6720	Limestone--very light gray, fine grained to fragmental.
6720	6730	Missing samples.
6730	6740	Limestone--white to very light gray, fine grained to fragmental.
6732		(Circulation) Limestone--same as above.
6740		(Circulation) Limestone--light to yellowish gray, fragmental.

<u>From</u>	<u>To</u>	<u>Description</u>
6740	6770	Limestone--same as above.
6770	6780	Anhydrite--white to medium light gray.
6780	6790	Limestone--pale yellowish brown, fragmental, white to medium light gray anhydrite.
6790		(Circulation 1 hr) Limestone--very light gray, fine grained to fragmental.
6790	6820	Missing samples.
6820	6840	Limestone--medium light gray, fine grained, fragmental.
6840	6870	Missing samples.
6870	6890	Limestone--very light gray, fine grained to fragmental.
6890	7000	Limestone--light gray, oolitic to fragmental, arenaceous some pinpoint porosity.
7000	7020	Limestone--light to medium light gray, oolitic to fragmental.
7020	7040	Limestone--light to medium light gray, fragmental to oolitic. Fine grained free quartz.
7040	7070	Missing samples.
7070	7100	Limestone--light to medium light gray, oolitic to fragmental.
7100	7110	Limestone--light to medium light gray, fragmental.
7110	7130	Limestone--light to medium light gray, oolitic to fragmental.
7130	7160	Limestone--light to medium light gray, oolitic.
7160	7180	Limestone--light to medium light gray, oolitic to fragmental.
7180	7190	Limestone--light to medium light gray, oolitic to fragmental. Medium dark gray shale.
7190	7220	Limestone--light to medium gray, fragmental to oolitic.
7220	7240	Limestone--light to medium gray, fragmental to oolitic
7240	7320	Limestone--light to medium gray, fragmental to oolitic.
7320	7330	Limestone--light to medium gray, fragmental.
7330	7360	Limestone--light to medium gray, fragmental to oolitic.
7360	7380	Shale--medium dark gray, Light to medium dark gray fragmental limestone.
7380	7390	Limestone--light to medium gray fragmental. Medium gray shale.
7390	7430	Limestone--light to medium gray, fragmental.
7430	7460	Shale--medium to medium dark gray. Light to medium gray fragmental limestone.
7460	7500	Limestone--medium light to medium dark gray. Fine grained, dense.
7500	7530	Limestone--medium light to medium gray, fine grained to fragmental. Medium dark gray shale.
7530	7550	Limestone--medium light to medium gray, fine grained dense to fragmental.
7550	7570	Shale--medium to medium dark gray. Light to medium dark gray, fragmental.
7570	7580	Missing samples.
7580	7590	Limestone--very light to medium light gray, fine grained to sublithographic.
7597		(Circulation) Limestone--same as above.
7590	7600	Shale--medium to medium dark gray. Very light to light gray, sublithographic limestone.

<u>From</u>	<u>To</u>	<u>Description</u>
7600	7610	Shale--medium dark gray. Very light to light gray fine grained dense limestone.
7610	7620	Limestone--very light to light gray, fine grained dense. Medium dark gray shale.
7620	7660	Dolomite--pale orange pink, slightly silty. Medium dark gray shale. Light gray fine grained limestone.
7660	7680	Shale--medium to medium dark gray. Pale orange pink dolomite.
7680	7690	Dolomite--pale reddish brown and pale orange pink, argillaceous. Medium to medium dark gray shale.
7684		(Circulation 20 min.) Dolomite--Same as above.
7690	7700	Dolomite--same as above.