

NORTH DAKOTA GEOLOGICAL SURVEY CIRCULAR NO. 26

Summary of the Argyle Royalty Co.
Baukol-Noonan #1
Divide County, North Dakota

By Morton Strassberg

Argyle Royalty Company - Baukol-Noonan #1, Divide County, North Dakota, C SW NE, Section 11, T. 162., R. 95W., (600 feet from South Line, 660 feet from West Line) Elevation: K. B. 2031, G. L. 2020. Total depth 6954.

The Argyle Baukol-Noonan #1 was spudded May 17, 1953 with 16 inch casing set at 74 feet and 10 3/4 inch casing set at 588 feet with 300 sacks cement. The well was plugged and abandoned August 9, 1953.

There is apparently a large unconformity existing in this well between the Spearfish and the Kibby with the Amsden, Heath, and Otter missing.

Twenty sack cement plugs were set as follows: 50 feet to surface, 550 to 600 feet, 4315 to 4365 feet, and 6600 to 6650 feet.

Cores: #1 4329-4365
#2 6601-6657
#3 6657-6709 - scattered stain
#4 6710-6764 - shows
#5 6766-6798 - 6797-98-pinpoint porosity, bleeding oil
#6 6798-6855
#7 6855-6872
#8 6900-6954 - scattered bleeding oil and gas

Tests

DST #1 6604-6657 feet
Shut in 15 minutes, air immediately died in 5 minutes. Recovered 15 feet drilling mud, FP 0#, SIP 0#, HP 3900#

DST #2 6661-6709 feet
Open 1 hour. Recovered 90 feet mud.

DST #3 6714-64 feet
Open 1 hour. Recovered 50 feet mud.

DST #4 6771-98
Open 2 hours, shut in 30 minutes. Recovered 810 feet black, salty, sulphur water, top 180 feet muddy, HP 3800#, FP 475#, SIP 2890#

DST #5 6802-6855
Open 1 hour, shut in 30 minutes. Recovered 230 feet salty gas cut mud, FP 950#, SIP 3100#

DST #6 6904-6954
Open 2 hours, shut in 30 minutes. Recovered 170 feet gas and sulphur water cut mud, 540' black salty sulphur water. FP 50-490#, SIP 3075#, HP 3900#

Formation tops were, determined from samples, core chips, electric, radio activity and micro logs. Not all lithologic units called in following list. Colors determined from rock color chart.

FORMATION TOPS

Cretaceous System	<u>Depth</u>
Pierre Formation	1262
Niobrara Formation	2960
Greenhorn Formation	3636
"Muddy"	4061
Dakota	4320
Jurassic System	
Morrison Formation	4650
Ellis Formation (Sawtooth)	4843
Piper Formation	5403
Triassic System	
Spearfish	5670
Mississippian System	
Kibby LS	6020
Charles Formation	6223
Mission Canyon Formation	6757

<u>From</u>	<u>To</u>	<u>Formation</u>
80	90	Coal, black.
90	110	Siltstone, yellowish gray, calcareous.
110	140	Shale, yellowish gray to black carbonaceous.
140	200	Shale, medium light gray, silty, calcareous.
230	310	Shale, medium light gray, arenaceous, dark gray carbonaceous.
310	350	Shale, light gray, arenaceous, calcareous.
350	380	Shale, very light to light gray, crendaceous, calcareous.
390	400	Shale as above.
400	420	Shale, black carbonaceous.
430	440	Shale, grayish black, carbonaceous.
440	500	Shale, very light gray, silty, calcareous.
500	530	Sandstone, very fine to fine grained, argillaceous.
530	560	Shale, light gray, arenaceous.
560	570	Sandstone, fine grained, frosted, subangular.
570	580	Shale, light greenish gray, arenaceous.
580	590	Shale, light gray, arenaceous, calcareous.
590	600	Shale, grayish black, carbonaceous.
620	630	Shale, very light gray, arenaceous, calcareous.
640	650	Shale, medium light gray.
650	670	Limestone, white, fine grained, silty.
697	727	Sandstone, fine grained, frosted, subangular to subrounded.
880	905	Shale, medium gray, arenaceous. Limestone, light gray, fine grained.
933	963	Shale, light to medium gray, silty, arenaceous, calcareous.

963	993	Shale, medium gray, arenaceous.
993	1020	Shale, medium light gray, arenaceous, calcareous.
1020	1051	Shale, medium gray, silty.
1051	1080	Shale, light gray, silty.
1080	1190	Shale, medium light gray, silty.
1232	1261	Sandstone, fine to medium grained, frosted to iron stained, subangular to subrounded.
1320	1380	Shale, pale yellowish brown and medium light gray.
1380	1410	Shale, greenish gray and pale yellowish brown, calcareous.
1410	1440	Shale, greenish gray.
1440	1470	Shale, greenish gray to medium gray.
1470	1500	Shale, medium gray.
1500	1530	Shale, medium gray, white bentonite.
1530	1560	Shale, medium gray, little white bentonite.
1560	1620	Shale, medium gray.
1680	1710	Shale, medium light gray.
1800	1890	Shale, medium light gray.
1900	1930	Shale, medium light to medium gray.
1930	1960	Shale, medium light gray.
1960	1990	Shale, medium light gray.
1990	2020	Shale, medium light to medium gray.
2035	2060	Shale, medium light gray.
2065	2185	Shale, medium light gray, slightly bentonitic.
2185	2215	Shale, medium light gray.
2215	2245	Shale, medium gray.
2245	2275	Shale, medium light to medium gray.
2275	2305	Shale, medium gray.
2305	2333	Shale, medium gray.
2334	2364	Shale, medium to light olive gray.
2364	2384	Shale, medium light to medium gray.
2384	2414	Shale, medium light gray.
2424	2484	Shale, medium to medium light gray.
2484	2514	Shale, medium light gray.
2514	2545	Shale, medium light to medium gray.
2545	2605	Shale, medium light gray.
2605	2634	Shale, medium light gray.
2634	2664	Shale, medium light gray bentonitic.
2664	2684	Shale, medium light gray.
2694	2724	Shale, medium light to medium gray.
2724	2784	Shale, medium to medium light gray, silty.
2784	2818	Shale, medium light gray silty.
2818	2843	Shale, medium light gray.
2843	2873	Shale, medium light to medium gray.
2873	2993	Shale, medium light gray.
2993	3115	Shale, medium light to medium gray, bentonite.
3115	3145	Shale, medium light gray.
3145	3262	Shale, medium to medium light gray.
3262	3322	Shale, medium to medium light gray.
3322	3380	Shale, medium light gray, bentonitic.
3380	3410	Shale, medium light to medium gray and medium dark gray.
3410	3440	Shale same as above.
3440	3531	Shale, medium to medium dark gray.

3530	3560	Shale, medium light to medium and medium dark gray.
3560	3590	Shale, medium to medium dark gray.
3590	3680	Shale, medium to medium dark gray.
3739	3799	Shale, medium to medium dark gray.
3799	3829	Shale, medium dark gray, white specks.
3829	3858	Shale, medium dark gray, white micaceous bentonite, shell fragments.
3858	3917	Shale, medium dark to dark gray.
3917	3945	Shale, medium to medium dark gray, pyritic.
3945	3974	Shale same as above, no pyrite.
3974	4010	Shale same as above, shell fragments.
4010	4030	Shale, medium to medium dark gray.
4030	4040	Shale, medium to medium dark gray. Very fine to fine grained, frosted quartz.
4040	4050	Shale, medium to medium dark gray.
4050	4060	Shale, medium dark gray.
4060	4080	Shale, medium to medium dark gray.
4080	4090	Shale, medium to medium dark gray. Very fine grained quartz.
4090	4110	Sandstone, white very fine grained. Medium dark gray shale.
4110	4120	Sandstone, white very fine grained. Medium dark gray shale, pyrite.
4120	4150	Sandstone, white very fine grained. Medium dark gray shale.
4150	4160	Shale, medium dark gray. White very fine grained sandstone.
4160	4180	Shale, medium dark gray. White very fine grained sandstone.
4180	4280	Shale, medium dark gray.
4280	4300	Sandstone, iron stained, argillaceous and glauconitic, very fine grained. Medium dark gray shale.
4300	4329	Shale, medium dark gray. Little very fine grained sandstone.
4329	4331	Sandstone very fine grained, silty, micaceous, very light gray shale.
4331	4332	Sandstone, very light gray, very fine grained to silty, micaceous. Thin medium to medium dark gray shale partings.
4332	4333	Siltstone, very light gray, very thin shale partings.
4333	4334	Siltstone, very light gray.
4334	4335	Siltstone, very light gray, medium dark gray shale partings.
4335	4337	Siltstone, very light gray, micaceous.
4337	4347	Siltstone, very light gray, micaceous. Thin medium dark gray shale partings.
4347	4349	Siltstone, very light gray.
4349	4351	Siltstone, very light gray. Very thin medium dark gray shale partings.
4351	4353	Shale, medium gray, silty.
4353	4355	Sandstone, very light gray, silty, micaceous.
4355	4357	Sandstone, same as above, thin shale partings.
4357	4359	Sandstone, very light gray, silty.
4359	4361	Sandstone, yellowish gray, silty, micaceous. Thin shale partings.

4361	4363	Shale, medium gray, silty.
4363	4364	Siltstone, very light gray, micaceous. Very thin shale partings.
4364	4405	Shale, medium dark gray. Very fine grained, silty sandstone.
4405	4415	Shale, medium gray.
4415	4445	Shale, medium gray. Iron stained siltstone concretions.
4445	4455	Shale, medium gray. Little very fine grained sandstone.
4455	4465	Shale, medium gray.
4465	4475	Shale, medium gray. Few iron stained siltstone concretions.
4475	4485	Shale same as above.
4485	4495	Shale, medium to medium dark gray. Considerable iron stained siltstone concretions.
4495	4505	Sandstone, white, very fine grained. Iron stained siltstone concretions. Medium dark gray shale.
4522	4533	Sandstone, white, very fine grained. Iron stained siltstone concretions. Medium dark gray shale, pyrite.
4602	4612	Sandstone, same as above.
4612	4622	Sandstone, white, very fine grained. Iron stained siltstone concretions. Medium dark gray shale.
4622	4642	Sandstone same as above, pyritic.
4642	4652	Sandstone same as above, no pyrite.
4652	4682	Sandstone, white very fine to fine grained, pyritic. Few iron stained siltstone concretions. Medium dark gray shale.
4682	4692	Shale, medium gray. Little sandstone.
4692	4712	Shale, medium to medium dark gray. Fine grained sandstone and iron stained siltstone concretions.
4720	4730	Shale, medium light to medium gray and gray red. Iron stained siltstone concretions.
4730	4760	Shale, medium light to medium gray and a little gray red. Few iron stained siltstone concretions.
4760	4780	Shale, medium gray. Fine, subangular, frosted quartz.
4780	4790	Shale, medium gray. Very fine grained, frosted quartz.
4790	4800	Shale, medium to medium dark gray.
4800	4850	Shale, medium light to medium gray. White siltstone. White very fine grained limestone. Few iron stained siltstone concretions, pyritic.
4850	4860	Shale, medium light to medium gray and a little gray red.
4860	4890	Shale, medium light to medium gray. Very light gray calcareous siltstone.
4890	4900	Shale, medium to medium light gray. Light gray, calcareous siltstone. Iron stained siltstone concretions.
4900	4910	Shale, medium gray. Considerable fine, free quartz. Very light gray, calcareous siltstone and a few iron stained siltstone concretions.
4910	4960	Shale, medium to medium dark gray. Iron stained siltstone concretions. Very light gray siltstone.
4960	4970	Shale, medium gray. Fine, free, frosted quartz. Light gray siltstone.

4990	5000	Limestone, white to medium gray fragmental limestone. Medium gray shale. Fine to very fine grained quartz.
5000	5010	Limestone, white to medium gray, fragmental. Medium gray shale.
5020	5030	Shale, medium gray.
5030	5040	Shale, medium gray. Very light gray fine grained limestone.
5040	5050	Shale, medium gray. Fine grained, free, frosted quartz.
5050	5060	Shale, medium light to medium gray.
5060	5080	Shale, medium gray and gray red.
5080	5090	Shale, medium gray, light gray siltstone.
5090	5110	Shale, medium gray, white very fine grained limestone.
5110	5120	Shale, medium gray.
5120	5130	Shale, medium gray, silty.
5130	5160	Shale, medium gray, silty. Little fine, free quartz.
5160	5200	Shale, medium gray, light gray siltstone.
5200	5210	Shale, medium fine medium light gray. Light gray siltstone. Medium light gray argillaceous limestone.
5210	5230	Shale, medium gray, gray red, and light olive gray. Light gray limestone.
5230	5270	Shale, gray red and medium gray. Light gray siltstone. Fine, free quartz.
5270	5290	Limestone, white to medium gray, fine grained. Medium gray and gray red shale.
5290	5300	Shale, medium to greenish gray and little gray red. Little light to medium gray fragmental limestone.
5300	5320	Limestone, light to very light gray, fine grained. Medium gray shale.
5320	5330	Limestone, light to medium light gray, fine grained. medium gray shale, little very fine grained sandstone.
5330	5350	Sandstone, very fine grained, calcareous cement. Medium gray and gray red shale.
5350	5360	Shale, medium gray and pale red. Little very fine grained, calcareous sandstone.
5360	5370	Sandstone, very fine to fine grained, subangular clear. Medium gray and gray red shale.
5370	5400	Shale, medium gray and gray red. Little fine free quartz.
5410	5420	Dolomite, light gray, fine grained, argillaceous. Medium gray shale.
5420	5430	Dolomite, white to very light gray, argillaceous, fine grained, dense. White chert. Medium gray shale.
5430	5440	Shale, medium gray. White to light gray limestone.
5440	5450	Shale, medium to medium dark gray.
5450	5470	Limestone, white to very light gray, fine grained, dense. Medium gray shale.
5470	5490	Limestone, light to medium light gray, fine grained, dense. Little medium gray shale.
5490	5500	Limestone, white, fine grained, dense. Medium gray shale.
5500	5510	Shale, medium to medium dark gray and little gray red. Little white, fine grained, dense limestone.

5510	5520	Shale, medium to medium dark gray and gray red. Little fine, free quartz.
5520	5530	Shale, pale red and medium gray.
5530	5540	Shale, medium to medium gray and gray red.
5540	5560	Dolomite, white, very fine grained dense. Medium to medium dark gray shale.
5560	5570	Shale, medium to medium dark gray and little very light to light gray.
5570	5600	Shale, medium to medium dark gray. Medium gray, fine grain dolomite.
5600	5610	Dolomite, medium gray, fine grained, dense. Medium gray shale.
5610	5620	Shale, medium gray.
5620	5630	Shale, medium gray. Medium light to medium gray, fine grained dense dolomite.
5630	5640	Shale, medium gray, iron stained. Free, fine grained iron stained quartz.
5640	5660	Shale, grayish red and medium gray. Little fine grained free quartz.
5660	5690	Shale, pale red silty, slightly calcareous and medium gray.
5690	5700	Sandstone, fine to medium grained rounded to subrounded, iron stained. Pale red calcareous shale.
5700	5730	Shale, medium to medium dark gray and pale red silty. Little free fine quartz.
5740	5770	Shale, medium gray and pale red calcareous, silty.
5770	5790	Siltstone, pale red, calcareous, argillaceous. Medium gray shale.
5790	5810	Siltstone, pale red, calcareous, argillaceous, arenaceous. Medium gray shale.
5820	5840	Siltstone same as above.
5840	5850	Siltstone, pale red, calcareous, argillaceous, arenaceous. Medium gray shale.
5850	5970	Sandstone, very fine to fine grained, pale red, calcareous, argillaceous.
5970	6040	Sandstone, pale reddish brown, very fine to fine grained, calcareous, argillaceous.
6040	6050	Sandstone, pale reddish brown, argillaceous, fine to very fine grained. Little, light to medium light gray fine grained limestone. Little white anhydrite. Medium gray shale.
6050	6070	Limestone, very light gray fine grained, dense.
6070	6080	Limestone, very light to light gray, fine grained, pinpoint porosity.
6080	6090	Sandstone, very fine grained, calcareous, iron stained.
6090	6100	Sandstone same as above. Little very light gray limestone.
6100	6110	Sandstone, very fine grained iron stained. Medium gray shale. Little very light gray fine grained limestone.
6110	6140	Shale, medium gray, iron stained very fine grained sandstone.
6140	6170	Shale, medium gray and gray red. Little very fine grained iron stained sandstone.

6170	6180	Siltstone, pale gray, calcareous, argillaceous. Medium gray shale.
6180	6210	Shale, medium gray. Pale red siltstone.
6210	6220	Dolomite, pale red, micro sucrosic. Medium gray shale, medium to dark gray. Pale red micro sucrosic dolomite.
6230	6240	Shale, medium dark to dark gray and gray red. Little light gray fine grained limestone.
6240	6250	Shale, pale red argillaceous and medium to medium dark gray.
6250	6260	Limestone, light to light brownish gray, fine grained dense. Medium gray shale.
6260	6270	Dolomite, white to very light gray, fine grained dense. Medium gray shale
6270	6280	Shale, medium gray. White fine grained limestone.
6280	6290	Limestone, light to medium light gray, fine grained, dense. Medium gray shale.
6290	6300	Limestone, light to medium gray, fine grained, good pinpoint porosity. White anhydrite. Medium gray shale.
6300	6310	Anhydrite, white to very light gray. Very light gray, fine grained dense limestone.
6310	6330	Limestone, very light to light gray. Medium gray shale white anhydrite.
6330	6350	Shale, medium gray. Light to medium light gray limestone. White anhydrite.
6350	6370	Limestone, light to medium light gray, fine grained, pinpoint porosity.
6370	6390	Limestone, light to medium gray, fine grained dense, some pinpoint porosity, oolitic.
6390	6400	Limestone, same as above, no oolites.
6400	6410	Dolomite, light gray, fine grained dense, white anhydrite. Medium gray, fine grained limestone.
6410	6420	Anhydrite, white. Medium dark gray shale. Medium gray limestone. Pyrite.
6420	6440	Anhydrite, white. Medium dark gray shale.
6440	6460	Anhydrite, white. Medium light to medium gray, fine grained limestone. Medium gray shale.
6460	6470	Limestone, medium light to medium gray, fine grained, slightly oolitic. White anhydrite. Medium gray shale.
6470	6480	Dolomite, medium light gray, fine grained dense. White anhydrite.
6480	6510	Limestone, medium gray, fine grained dense, pinpoint porosity.
6510	6530	Limestone, medium light to medium gray, fine grained, dense.
6530		Circulation 55 minutes. Limestone, light to medium light gray, fine grained dense. Medium light gray micro sucrosic dolomite.
6530	6540	Shale, medium to medium dark gray. Light gray are grained, dense dolomite. Medium gray limestone.
6540	6550	Anhydrite, white. Medium gray shale.
6550	6560	Anhydrite, white. Medium gray fragmental limestone.

6560	6570	Shale, medium gray. Medium light gray limestone. White anhydrite.
6570	6580	Anhydrite, white. Medium gray shale. Medium light gray limestone.
6580	6600	Dolomite, medium light gray fine grained.
6601	6602	Shale, medium gray, halite crystals.
6602	6603	Shale, medium gray, calcareous.
6603	6604	Shale, medium gray, cavities filled with halite crystals.
6604	6605	Anhydrite, medium gray.
6605	6609	Shale, medium gray and white anhydrite.
6609	6614	Anhydrite, white to medium gray.
6614	6619	Anhydrite, medium gray.
6619	6624	Anhydrite, medium light to medium gray.
6624	6625 1/2	Limestone, medium to medium dark gray, fine grained dense, tight.
6625 1/2	6627 1/2	Shale, medium gray.
6627 1/2	6629	Anhydrite, medium gray.
6629	6639	Anhydrite, white to medium gray, salty.
6639	6644	Anhydrite, medium light to medium gray, salty.
6644	6645	Anhydrite, yellowish gray, salty.
6645	6657	Anhydrite, white to medium gray.
6657	6661	Limestone, medium to medium dark gray, fine grained, tight.
6661	6663	Dolomite, very light gray, fine grained, chalky, tight.
6663	6668	Anhydrite, white to medium light gray.
6668	6682	Limestone, light olive to brownish gray, medium to coarse grained, tight.
6682	6703	Dolomite, very light to medium light gray, anhydritic.
6703	6709	Anhydrite, medium dark gray, dense.
6710	6712	Limestone, light olive to olive gray, oolitic.
6712	6714 1/2	Limestone, pale yellowish brown to grayish brown, medium to coarse grained fragmental.
6714 1/2	6717 1/2	Anhydrite, white to medium gray.
6717 1/2	6721 1/2	Limestone, medium gray, fine grained, dense, tight.
6721 1/2	6725	Dolomite, light to medium light gray, argillaceous, fine grained, tight.
6725	6728	Dolomite, medium light gray, fine grained, tight.
6728	6736	Anhydrite, medium gray.
6736	6740 1/2	Shale, very light gray, calcareous.
6740 1/2	6744	Dolomite, very light to light gray, fine grained, argillaceous.
6744	6751	Anhydrite, light to medium dark gray.
6751	6757	Anhydrite, light to medium gray.
6757	6758	Dolomite, yellowish gray to light olive gray, anhydritic.
6758	6759	Limestone, medium gray, fine grained, dense, tight.
6759	6762 1/2	Limestone, medium dark gray, fine grained, dense, tight.
6762 1/2	6763 1/2	Limestone, light to medium light gray, fine grained tight.
6763 1/2	6764	Limestone, medium gray, fine grained, dense, tight.

6766	6772	Dolomite, light to light olive gray, fine grained argillaceous.
6772	6775	Limestone, light to medium light gray, fine grained, black specks.
6775	6778 1/2	Limestone, light olive gray, fine grained.
6778 1/2	6782	Limestone, light olive gray, fine grained, good pinpoint porosity, dolomitic.
6782	6787	Dolomite, light olive gray, fine grained, pinpoint porosity.
6787	6788	Limestone, light brownish gray to brownish gray, fine grained, dense.
6788	6797	Dolomite, light olive gray, fine grained, argillaceous.
6797	6807	Limestone, medium light gray, fine grained, fossiliferous, tight.
6807	6835 1/2	Limestone, light gray, fine grained, dense, slightly vugular porosity, fossiliferous.
6835 1/2	6841	Limestone, light gray, fine to medium grained, clastic.
6841	6847	Limestone, light gray, fine grained, dense, pinpoint porosity.
6847	6849	Limestone, light olive gray, fine grained, dense.
6849	6857	Limestone, yellowish gray, fine grained, argillaceous.
6857		Limestone, yellowish gray, fine grained, good pinpoint porosity.
6859		Limestone, yellowish gray, fine grained, dense.
6872	6876	Limestone, medium gray, fine grained dense. White anhydrite.
6876	6878 1/2	Limestone, medium light to medium gray, fine grained, dense.
6878 1/2	6880	Dolomite, light gray, fine grained, dense.
6880	6882	Limestone, medium gray, sublithographic, tight.
6882	6896	Limestone, light olive gray, fine grained, dense, tight.
6900	6926 1/2	Limestone, medium light gray, fine to medium grained, tight.
6926 1/2	6943	Limestone, medium light gray, fine grained, tight.
6943	6846 1/2	Limestone, medium light gray, fine grained, tight.
6946 1/2	6953	Limestone, light olive gray, fine to medium grained, pinpoint porosity.

