



103-08360

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NORTHWEST EXPLORATION

#6 Philadelphia Creek  
Sec. 13, T2S, R101W  
Rio Blanco County  
Colorado

November 16, 1979

Prepared by \_\_\_\_\_

Approved by \_\_\_\_\_

# Gustavson Associates

EXPLORATION

EVALUATION



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DATA SHEET

Operator	Twin Arrow Drilling Company
Well	Philadelphia Creek #6
Location	735' FEL AND 2000' FNL, Sec. 13, T2S, R 101W
Elevation	6440 G.R.
<u>Spud</u>	November 3, 1979
Finish Drilling	November 8, 1979
T.D.	3738' (drillers), 3707' (logger)
Hole	12-1/4" to 134' 6-3/4" to T.D.
Logs	GR-Induction, CNL-FDC-Welex Vernal, Utah
Casing	8-5/8" - 24 lb.K-55 STC, 2-7/8" Tubing N.U.E. 6.4 lb., K-55 STC
Rig	T. A. Drilling Company, Rangely, Colorado Rig #6 Caldwell 6000' trailer mast
Compressors	1 Quincy 850, 1 Joy 850, Joy Gooster, Joy Mist Pump
Tool Pusher	Gale Covington
Drillers	C. B. Graham, John Weeks, George Todd
Geologist	Bruce Journey

## CHRONOLOGY

<u>Date</u>	<u>Depth 7:00 A.M.</u>	
November 3	.	Spudded, drilled to 134'
November 4		Cemented - Surface Casing
November 5	134'	Drilling
November 6	950'	Drilling
November 7	1939'	Drilling
November 8	2990'	Drilling - T.D.
November 9		Ran logs, set casing tubing, cemented.

FORMATION TOPS

Elevation 6447 K.B.

Mesa Verde	Surface
Mancos	1750
Mancos "A"	2133
Mancos "B"	3180
T.D.	3738

All tops from electric logs.

SUMMARY OF FLARES

<u>Depth</u>	<u>Duration</u>	<u>Length</u>
2130' (connection gas)	2 seconds	5-8' long
2779' (connection gas)	2 seconds	5-8' long
2810' (connection gas)	10 seconds	10' long
3027' (connection gas)	10 seconds	10' long
3306' (connection gas)	5 seconds	8' long
3337' (connection gas)	8 seconds	8' long
3491' (connection gas)	32 seconds	5-8' long
3521' (connection gas)	30 seconds	5-8' long

# SAMPLES

depth to	SAMPLE DESCRIPTION	date: NOVEMBER 5 page: 1 of 6
157	Well: PHILADELPHIA CREEK 6 Siltstone dark gray, sandy, slightly calcareous 75%; Shale dark gray, coarsely fissile, silty, slightly calcareous	
170 200	Shale as above 75%; Siltstone as above 25%	
200 230	Sandstone light gray, good to excellent porosity, loose grains, well sorted, rounded, medium grained, scattered black flakes 90%; Shale as above 10%	
230 260	Sandstone as above 90%; Shale as above 10%	
260 290	Sandstone as above 60%; Shale as above 30%; Siltstone light gray, slightly sandy 10%	
290 320	Shale dark gray, slightly fissile, coaly streaks 100%	
320 350	Sandstone light gray, fine to medium grain, well sorted, sub-rounded, scattered black specs <sup>poor porosity</sup> 75%; Shale as above 25%	
350 380	Same as above	
380 410	Sandstone light gray, medium grain, well sorted, rounded, brown clayey "blebs", trace calcareous, excellent porosity 90%; Shale as above 10%	
410 440	Shale dark gray, slightly fissile 60%; Siltstone brown, slightly calcareous 30%; Sandstone light gray, fine grained, well sorted, subrounded, <sup>poor porosity</sup> 10%	
440 470	Same as above	
470 500	Same as above	
500 530	Shale as above 75%; Sandstone as above 25%	
530 560	Same as above	
560 590	Shale as above 60%; Sandstone as above 20%; Siltstone light brown, slightly calcareous 20%	
590 620	Shale as above 90%; Sandstone as above 10%	
620 650	Sandstone light gray, calcareous, fine grain, well sorted, subrounded, scattered black specs <sup>poor porosity</sup> 60%; Shale dark gray, coarsely fissile, calcareous 40%	
650 680	Shale dark gray, coarsely fissile, pyritic, calcareous 75%; Sandstone as above 25%	
680 710	Shale as above 75%; Sandstone light gray, loose grains, excellent porosity, calcareous, subrounded, well sorted, medium to fine grain 25%	GUSTAVSON ASSOCIATES 2111-30th Street Boulder, Colorado 80521 (303) 443-2200
710 740	Shale as above 60%; Sandstone light gray, fine grain, well sorted, subrounded, <sup>poor porosity</sup> 40%	

depth to	SAMPLE DESCRIPTION	date: November 6 page: 2 of 6
740 770	Well: Philadelphia Creek 6 Shale dark gray, coarsely fissile, carbonaceous streaks 70%; Sandstone light gray, trace salt + pepper, fine grain, well sorted, subrounded, calcareous, poor porosity 30%	
770 800	Same as above with scattered loose sand grains	
Sample skip	800-840	
840 880	Shale as above 60%; Sandstone as above 20%; Siltstone dark gray to brown, trace sandy, calcareous 20%	
880 910	Same as above	
910 940	Same as above	
940 970	Sandstone light gray, fine grain, well sorted, subrounded, fair porosity, slightly calcareous 75%; Shale as above 25%	
970 1000	Same as above	
1000 1030	Sandstone light to dark gray, fine <sup>to medium</sup> grain, well sorted, subrounded, fair porosity, slightly calcareous, carbonaceous streaks 100%	
1030 1060	Shale dark gray, coarsely fissile, silty 75%; Sandstone as above 25%	
1060 1090	Sandstone as above 75%; Shale as above 25%	
1090 1120	Sandstone as above 85%; Shale as above 15%	
1120 1150	Sandstone dark gray, medium grain, medium sorted, subrounded, poor porosity 60%; Shale as above 40%	
1150 1180	Shale dark gray, silty, coarsely fissile 60%; Sandstone dark gray as above 20%; Siltstone brown to dark gray, sandy, argillaceous 20%	
1180 1210	Sandstone light gray, fine grain, well sorted, subrounded, fair porosity 75%; Shale as above 25%	
1210 1240	Shale as above 75%; Sandstone as above 25%	
1240 1270	Shale as above 75%; Sandstone as above 15%; Siltstone brown 10%	
1270 1300	Sandstone light gray, <sup>shaly streaks</sup> as above 60%; Shale as above 40%	
1300 1330	Shale as above 75%; Sandstone as above 25%	
1330 1360	Sandstone dark gray, shaly streaks, medium grain, medium sorted, subrounded, <sup>fair porosity</sup> clayey patches 75%; Shale as above, sandy patches 25%	
1360 1390	Shale dark gray, coal streaks, carbonaceous patches, coarsely fissile 75%; Sandstone as above 25%	GUSTAVSON ASSOCIATES 2111-30th Street Boulder, Colorado 80521 (303) 443-2209

depth to	SAMPLE DESCRIPTION	date: November 6 page: 3 of 6
1390 1420	(GRAB SAMPLE NO 8A6) Shale dark gray, coarsely fissile, silty 75%; Sandstone light gray, fine grain, well sorted, <sup>poor porosity</sup> subrounded 15%; Siltstone dark gray to brown, argillaceous 10%	
1420 1450	Same as above	
1450 1480	Shale as above 75%; Sandstone light gray, loose grains, fine grain, well sorted, subrounded, excellent porosity 25% (trace glauconite); trace coal	
1480 1510	Sandstone as above 75%; Shale as above 20%; Coal 5%	
1510 1540	Shale as above 60%; Sandstone tan, hard, slightly silicious, fine grain, well sorted, subrounded 20%; Siltstone brown, slightly sandy, argillaceous 20%	
1540 1570	Sandstone gray, medium grain, medium sorted, subrounded, poor porosity, coal and shaly streaks, occasional carbonaceous streak 80%; Shale as above 20%	
1570 1600	Shale as above with white patches, coal streaks, carbonaceous flakes 60%; Sandstone light gray, fine grain, well sorted, subrounded, silicious, no porosity 20%; Siltstone gray-tan, sd sandy, argillaceous 20%; trace red siltstone; trace coal	
1600 1630	Same as above	
1630 1660	Sandstone light gray, silicious, fine grain, well sorted, subrounded 75%; Shale dark gray, coarsely fissile, 15%; Siltstone dark gray, argillaceous 10%	
1660 1690	Sandstone light gray, loose grains, subround, medium to fine grain, well sorted, excellent porosity 75%; Shale as above 25%	
1690 1720	Shale dark gray, coarsely fissile, 100%	
1720 1750	Shale as above 75%; Sandstone light gray to dark gray, fine to medium grain, medium sorted, subrounded, shaly streaks 15%; Siltstone dark gray, slightly sandy 10%	
1750 1780	Sandstone light gray, fine grain, well sorted, subrounded, trace <sup>poor porosity</sup> glauconite 75%; Shale as above 25%	
1780 1810	Sandstone as above 85%; Shale as above 15%	
1810 1840	Shale as above 75%; Sandstone as above 25%	
1840 1870	Same as above	
1870 1910	Shale dark gray, coarsely fissile silty 75%; Sandstone dark gray, fine grain, well sorted, subrounded, poor porosity 25%	
1910 1930	Shale as above 100%	
1930 1960	Same as above	

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depth to	SAMPLE DESCRIPTION	date: November 7 page: 4 of 6
1960 1990	Well: Philadelphia Creek #6 Shale dark gray, coarsely fissile, silty 100%	
1990 2020	Same as above	
2020 2050	Same as above	
2050 2080	Shale as above 75%; Siltstone dark gray, argillaceous 25%	
2080 2110	Shale as above 100%; scattered shell fragments	
2110 2140	Shale as above 100% - 2130 2 second flint 5-8' long a-c. no flint	
2140 2170	Shale as above 75 60%; Sandstone light gray, <del>medium to fine</del> grain, well sorted, subrounded, poor porosity, shale streaks 40%	
2170 2200	Same as above	
2200 2230	Sandstone light gray, <sup>stp</sup> fine grain, well sorted, subrounded, slightly calcareous, poor trace glauconite porosity 50%; Shale as above 50%	
2230 2260	Sandstone as above 60%; Shale as above 40%	
2260 2290	Shale dark gray, coarsely fissile, silty, <sup>slightly sandy</sup> pyrite 75%; Sandstone as above 25%	
2290 2320	Shale as above, trace pyrite 100%	
2320 2350	Shale as above 75%; Siltstone dark gray, argillaceous, 25%	
2350 2380	Same as above	
2380 2410	Same as above	
2410 2440	Same as above	
2440 2470	Shale as above 100%	
2470 2500	lost circulation no sample	
2500 2530	Shale dark gray, coarsely fissile, silty, trace sandy 100%	
2530 2560	Shale as above 75%; Sandstone light to dark gray, fine grain, well sorted, subrounded, poor porosity, shaly streaks 25%	
2560 2590	Same as above	
2590 2620	Shale as above 90%; Sandstone as above 10%	
2620 2650	Shale as above 75%; Sandstone as above 15%; Siltstone light green 10%	
2650 2680	Shale as above 75%; Siltstone dark gray, argillaceous 25%	
2680 2710	Same as above	
2710 2740	Same as above	
2740 2770	Shale as above 75%; Siltstone as above 15%; Sandstone light gray, salt + pepper, fine grain, subrounded, well sorted, poor porosity, slight yellow fluorescence	

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depth to	SAMPLE DESCRIPTION	date: November 8 page 5 of 6
2770 2800	Well: Philadelphia Creek # 6 Shale dark gray, coarsely fissile, silty 75%; Sandstone light to dark gray, fine grain, well sorted, subrounded, poor porosity, slight yellow fluorescence 25%	<sup>salt + pepper</sup>
2800 2830	Shale as above 60%; Sandstone as above 40% - yellow fluorescence	
2830 2860	Same as above	
2860 2890	Shale as above 40%; Sandstone as above - no fluorescence 40%; Siltstone dark gray, argillaceous 20%	
2890 2920	Sandstone light gray, salt + pepper, friable, fine grain, well sorted, subrounded, good porosity, no fluorescence 50%; Shale as above 30%; Siltstone as above 20%	
2930 2960	Shale as above 75%; Sandstone as above 25%	
2960 2990	Shale as above 50%; Sandstone as above 30%; Siltstone dark gray, argillaceous 20%	
2990 3020	Same as above	
3020 3050	Shale as above 60%; Sandstone as above 40%	
3050 3080	Same as above	
3080 3110	Shale as above 80%; Sandstone as above 10%; Siltstone dark gray, argillaceous 10%	
3110 3140	Shale as above 80%; Sandstone as above 10%; Siltstone light green 10%	
3140 3170	Shale as above 75%; Sandstone light gray, salt + pepper, medium grain, well sorted, subrounded, trace glauconite 25% poor porosity	
3170 3200	Shale as above 60%; Sandstone as above 40%	
3200 3230	Shale as above 75%; Sandstone as above 25%	
3230 3260	Same as above	
3260 3290	Shale as above 60%; Sandstone as above 40%	
3290 3320	Sandstone as above 60% - slight yellow fluorescence; Shale as above 40%	
3320 3350	Shale as above 60%; Sandstone as above - slight yellow fluorescence 40%	
3350 3380	Same as above no fluorescence	
3380 3410	Shale as above 50%; Sandstone as above 50%	
3410 3440	Sandstone as above 60%; Shale as above 40%	
3440 3470	Same as above Sandstone as above 75%; Shale as above 25%	
3470 3500	Same as above with slight yellow fluorescence	
3500 3530	Same as above	
3530 3560	Same as above no fluorescence	
3560 3590	Same as above	

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