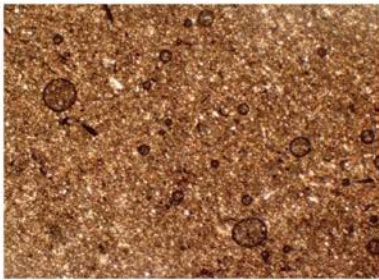


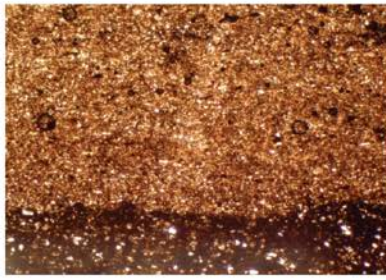
Appendix 6-B. Petrographic analysis of Pennsylvania wells to corroborate mineralogy interpretations

Petrographic Analysis of well API #3700920034								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
7,310		25	ND	5	ND	2	68	100
7,500		23	ND	ND	ND	2	75	100
7,690		15	11	40	5	4	25	100

ND = Not detected



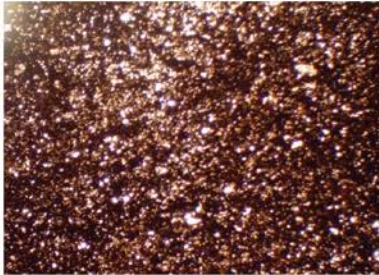
7,310 ft 4x



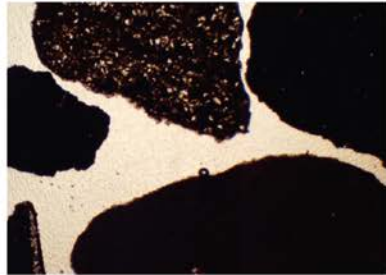
7,310 ft 4xa



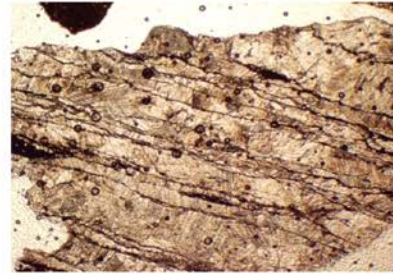
7,500 ft 2x



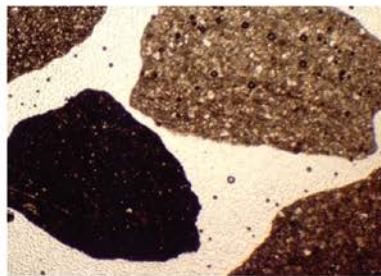
7,500 ft 2xb



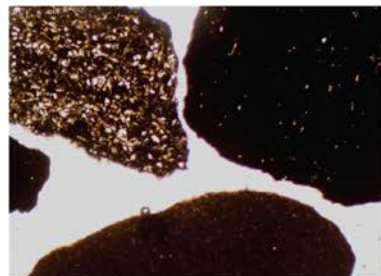
7,690 ft 2x



7,690 ft 2xa



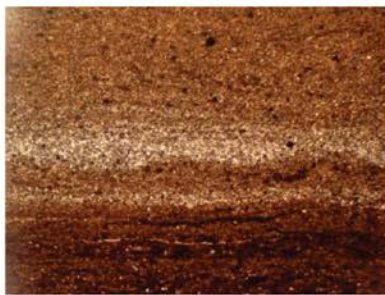
7,690 ft 2xc



7,690 ft 2xd

Petrographic Analysis of well API #3701990063								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
8,415		ND	ND	ND	ND	ND	100	100
8,722		80	5	15	ND	ND	ND	100
8,892		15	63	20	ND	2	ND	100

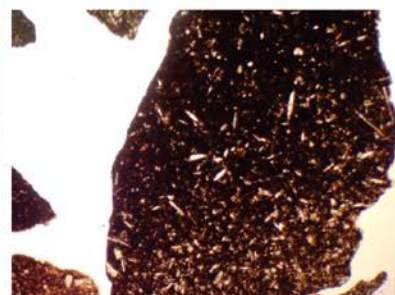
ND = Not detected



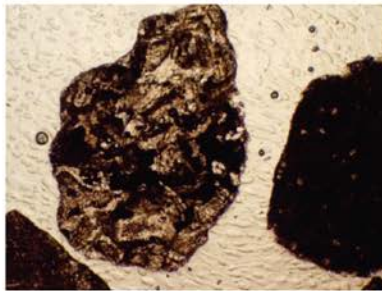
8,415 ft 2x



8,415 ft 2xa



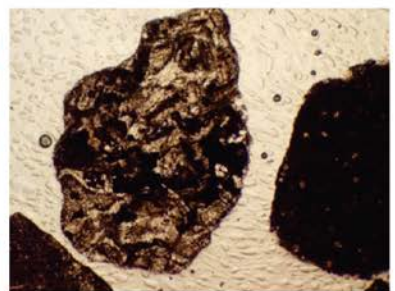
8,722 ft 2x



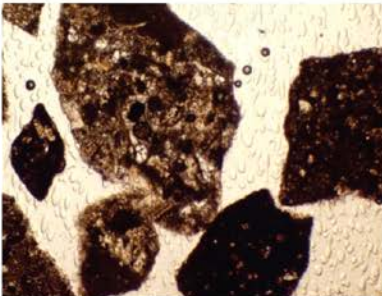
8,722 ft 4x



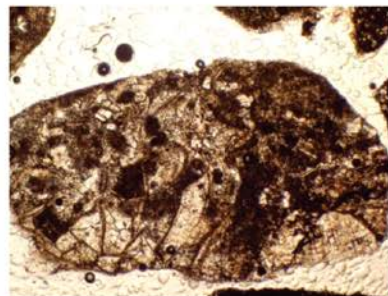
8,722 ft 4xa



8,892 ft 4x



8,892 ft 4xa



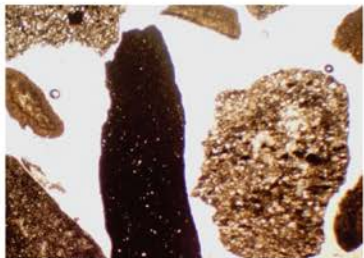
8,892 ft 4xb



8,892 ft 4xc

Petrographic Analysis of well API #3703520276								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
14,020		5	10	75	ND	5	5	100
14,240		40	8	52	ND	ND	ND	100
14,480		15	50	25	5	0	5	100

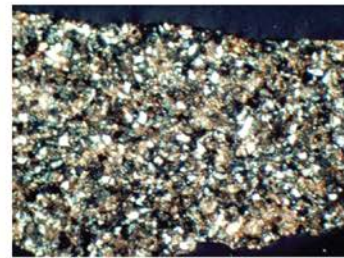
ND = Not detected



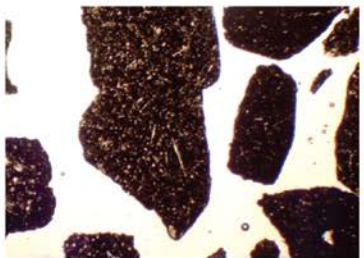
14,020 ft 2x



14,020 ft 4x



14,020 ft 4xa



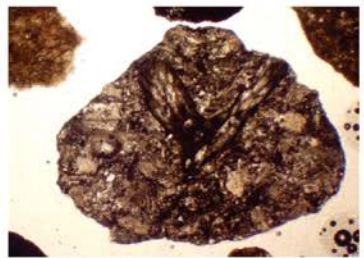
14,240 ft 2x



14,240 ft 4x



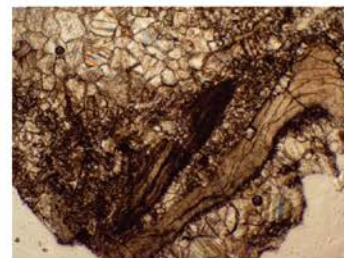
14,240 ft 4xa



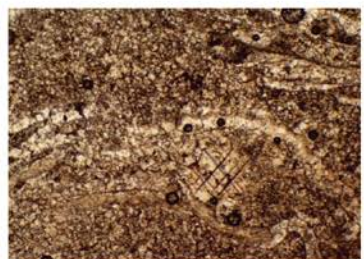
14,480 ft 2x



14,480ft 2xa



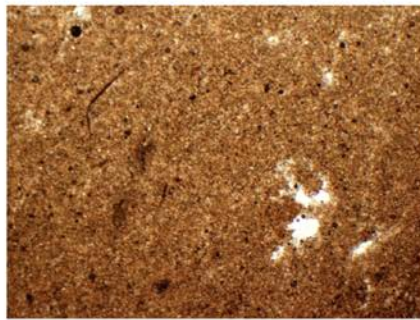
14,480 ft 4x



14,480 ft 4xa

Petrographic Analysis of well API #3704920049								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
3,715		ND	ND	ND	ND	1	99	100
3,953		ND	ND	ND	ND	3	97	100
4,096		ND	50	45	3	2	0	100

ND = Not detected



3,715 ft 2x



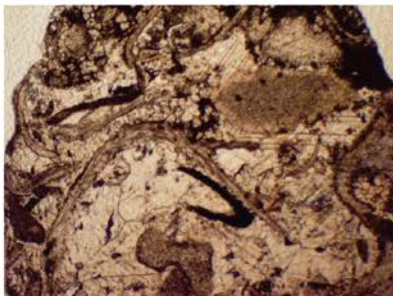
3,715 ft 2xa



3,953 ft 2x



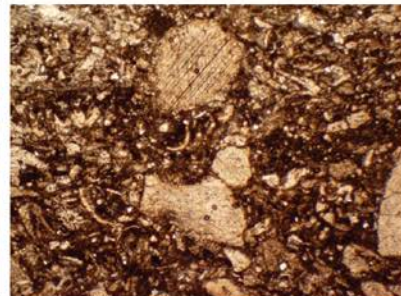
3,953 ft 2xa



4,096 ft 2x



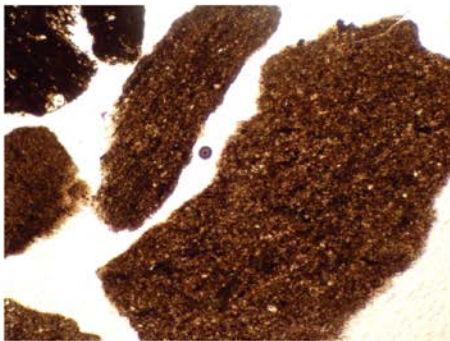
4,096 ft 2xa



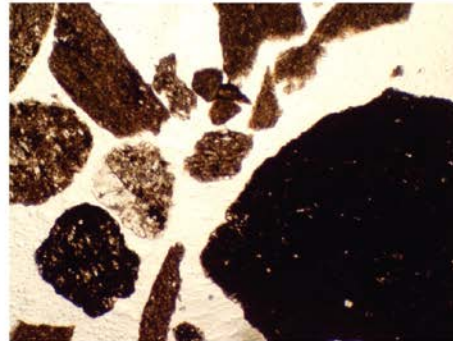
4,096 ft 2xb

Petrographic Analysis of well API #3706720001								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
3,660		10	ND	85	2	3	ND	100
3,750		88	10	ND	ND	2	ND	100

ND = Not detected



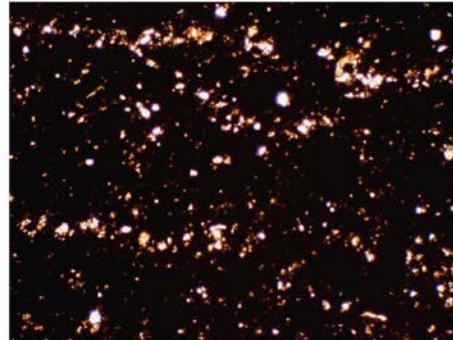
3,660 ft 4x



3,660 ft 4xa



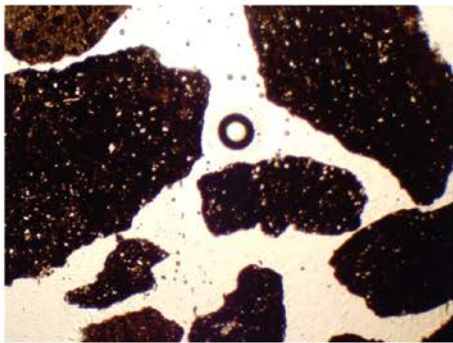
3,750 ft 2x



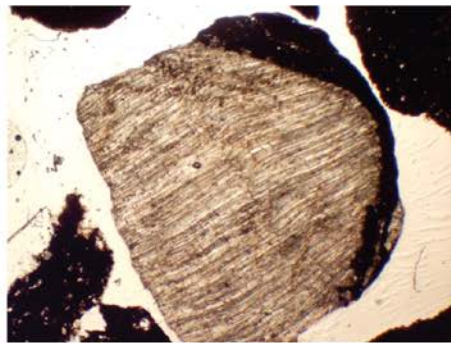
3,750 ft 4x

Petrographic Analysis of well API #3708720002								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
5,060		49	5	25	2	4	15	100
5,230		ND	12	86	ND	2	ND	100

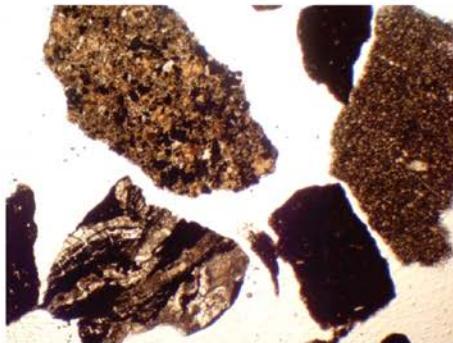
ND = Not detected



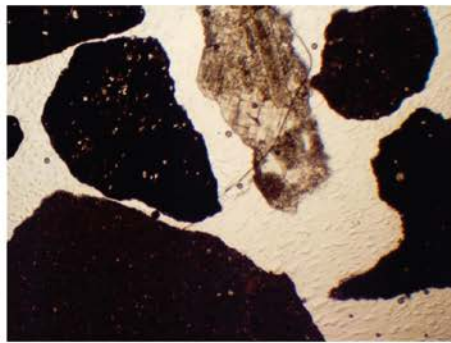
5,060 ft 2x



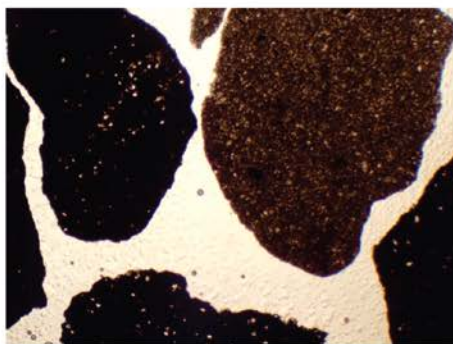
5,060 ft 2xa



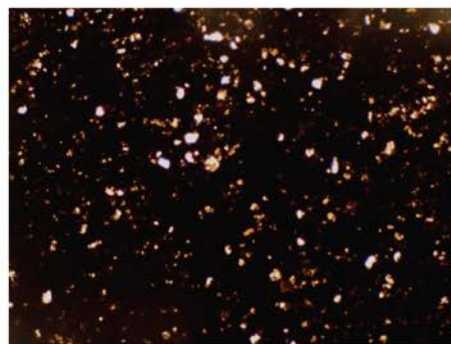
5,230 ft 2x



5,230 ft 2xa



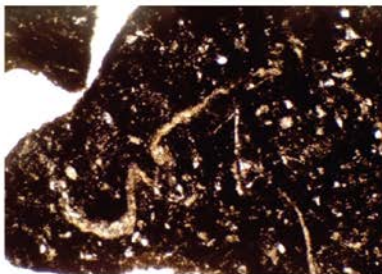
5,230 ft 2xb



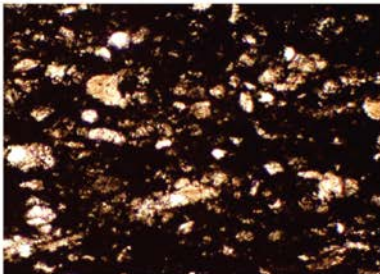
5,230 ft 4x

Petrographic Analysis of well API #3710320003								
Sample Depth (ft below surface)	Composition	~80% carbonate 15% clay 5% TOC	Calcite (with minor dolomite)	Calcite (with minor dolomite)	Calcite	Quartz	Clay	Total
	Sample	Laminated black (Organic-rich?) calcareous mudrock with common fossils	Grainstone/packstone	Wackestone/mudstone	Calcite	Quartz	Non-organic clay-rich shale	
13,440		82	ND	10	ND	8	ND	100
13,580		55	ND	29	ND	6	10	100

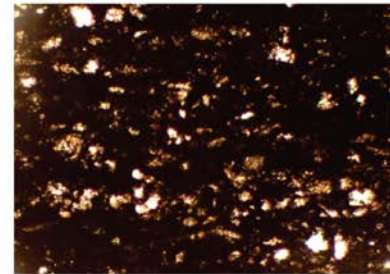
ND = Not detected



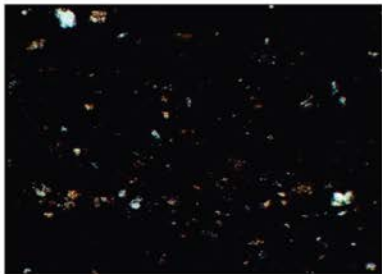
13,440 ft 4x



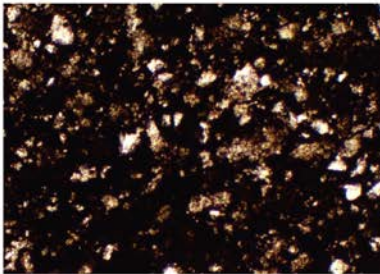
13,440 ft 10x



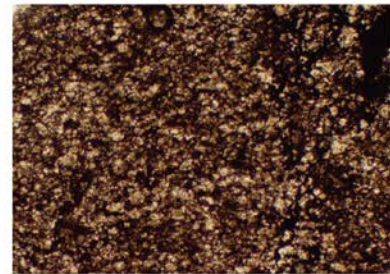
13,440 ft 10xa



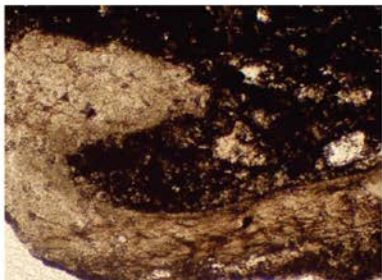
13,440 ft 10xb



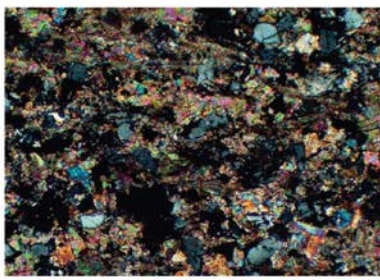
13,580 ft 10x



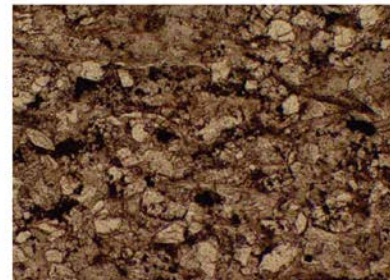
13,580 ft 10xa



13,580 ft 10xb



13,580 ft 10xc



33,580 ft 10xd