Weatherford LABORATORIES

WEATHERFORD LABORATORIES
X-RAY DIFFRACTION
(WEIGHT %)

Client: Cabot Oil & Gas Corporation
Well: Cabot Reconnaissance No. 3
Area: Wayne County, WV
Sample Type: Conventional Core

File No: HH-77041
Date: 06/10/15
Analyst: R. Schulze

Barcode Number	XRD Number	Well Name	Sample Number	Sample Depth (ft)	CLAYS				CARBONATES				OTHER MINERALS							TOTALS			Kübler	Crystallite
					Chlorite	Kaolinite	Illite/Mica	Mx I/S*	Calcite	Dolomite[1]	Dolomite(Fe/Ca+)[2]	Siderite	Quartz	K-spar	Plag.	Pyrite	Gypsum	Apatite	Barite	Clays	Carb.	Other	Index	Size (Å)
6110766488	1	JP Smith	4 CK(A)	10489.00	2	Tr	4	2	51	1	7	0	13	15	4	1	0	0	0	8	59	33	0.593	146
6110766488	2	JP Smith	4 CK(B)	10489.00	4	Tr	3	1	14	3	14	0	13	36	12	Tr	0	0	0	8	31	61	0.577	150
6110766490	3	JP Smith	5 CK(A)	10499.50	1	Tr	4	1	53	0	Tr	0	16	3	21	1	0	0	0	6	53	41	0.445	202
6110766490	4	JP Smith	5 CK(B)	10499.50	3	Tr	40	6	12	0	Tr	0	18	5	14	2	Tr	0	0	49	12	39	0.461	194
6110766492	5	JP Smith	6 CK(A)	13729.50	7	Tr	22	8	Tr	0	Tr	0	16	16	15	1	Tr	15	0	37	Tr	63	0.510	172
6110767791	6	McCoy	7 CK(A)	15535.00	9	Tr	30	7	5	5	10	0	14	8	10	2	Tr	Tr	0	46	20	34	0.532	164
6110767791	7	McCoy	7 CK(B)	15535.00	9	Tr	21	3	9	4	22	0	17	4	10	1	Tr	0	0	33	35	32	0.510	173
6110767791	8	McCoy	7 CK(C)	15535.00	5	Tr	14	4	52	2	8	0	12	Tr	2	1	0	0	0	23	62	15	0.515	170
6110767793	9	McCoy	8 CK(A)	15539.00	3	Tr	8	2	66	1	7	0	8	1	4	Tr	Tr	0	0	13	74	13	0.551	158
6110767793	10	McCoy	8 CK(B)	15539.00	2	Tr	4	2	61	1	5	0	15	1	6	3	0	0	0	8	67	25	0.533	164
6110764352	11	Fee 9674	1 CK(A)	16211.00	Tr	Tr	12	3	68	3	9	0	3	1	1	Tr	0	0	0	15	80	5	0.466	191
6110764352	12	Fee 9674	1 CK(B)	16211.00	Tr	Tr	6	1	85	2	2	0	3	0	1	Tr	0	0	0	7	89	4	0.433	208
6110764354	13	Fee 9674	2 CK(A)	16234.50	Tr	Tr	8	1	81	1	4	0	4	Tr	1	Tr	0	0	0	9	86	5	0.404	226
6110764354	14	Fee 9674	2 CK(B)	16234.50	1	Tr	9	1	76	3	6	0	3	Tr	Tr	1	0	0	0	11	85	4	0.398	230
6110764934	15	Gainer Lee	3 CK(A)	18532.00	4	Tr	31	2	31	4	12	0	9	Tr	5	2	0	Tr	0	37	47	16	0.442	203
6110764934	16	Gainer Lee	3 CK(B)	18532.00	1	Tr	4	1	84	1	3	0	4	Tr	2	Tr	0	0	0	6	88	6	0.315	308
				Average	3	Tr	14	3	47	2	7	0	10	5	7	1	Tr	1	0	20	56	24	0.480	191

* Ordered interstratified mixed-layer illite/smectite; Approximately 15-25% expandable interlayers.

[1] Dolomite species interpretation based on the d-spacing of the highest intensity peak of dolomite group minerals; other dolomite species may be present.

[2] Dolomite species interpretation based on the d-spacing of the highest intensity peak of dolomite group minerals (which increases with calcium in excess of 50:50 Ca:Mg or subsitution of Fe for Mg).