Total Organic Carbon and Pyrolysis Analyses

Anschutz Exploration Corporation

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Denver, CO 80202

April 12, 2011

API	State	County	Operator	Lease	Formation	Sample Type	Black Shale	Dark Gray Shale	Medium Gray Shale	Light Gray Shale	Green Shale	Red Shale	Carbonate	Siltstone	Sandstone	HCl Reaction	Top Depth	Base Depth	Avg. Depth	Amorphous Kerogen Percentage	Structured Kerogen Percentage	Framboidal Pyrite	Granular Pyrite	Massive Pyrite	Leco TOC	Rock-Eval TOC	S1	S2	S3	Tmax	Tmax %Roe	Tmax Unreliable	VR %Ro	HI	OI	S1+S2	Free Oil S1/TOC * 100	PI	UV Fluorescence Intensity	UV Streaming Cut	UV Reaction Rating	Comments
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Heebner	cuttings		10	20				70			5	1210	1220	1215						0.74													very strong	yes	5	1210-1220(A)
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Heebner	cuttings		100								1	1210.1	1220.1	1215.05						12.51													strong	yes	4	1210-1220(B) Hand Picked (survey?)
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Heebner	cuttings		10	20				70			5	1220	1230	1225						1.05													very strong	yes	5	streaming only from dark shale piece
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Villas	cuttings		20	10				70			5	1690	1700	1695						1.98													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Villas	cuttings		20	20				60			4	1720	1720	1720						1.81													weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Villas	cuttings		10	40	10			40			4	1770	1780	1775						0.32													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Villas	cuttings		10	50	20			20			4	1950	1960	1955						0.35													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		30	40				30			4	2710	2720	2715						0.38		0.43	2.48	0.36	435	0.67			653	95	2.91	113	0.15	weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		30	40				30			3	2720	2730	2725						0.67													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		40	40	20						3	2730	2740	2735						0.51													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		60	20	10			10			3	2740	2750	2745						0.71													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		30	50	10			10			2	2750	2760	2755						0.59													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		30	50	10			10			3	2760	2770	2765						0.61													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		50	30		20					3	2770	2780	2775						0.67													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		40	20		30		10			3	2780	2790	2785						0.55													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		50	20		20		10			3	2790	2800	2795						1.13		0.50	1.10	0.46	431	0.60			97	41	1.60	44	0.31	none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings		50	20		20		10			2	2800	2810	2805						1.06		0.37	0.92	0.42	430	0.58			87	40	1.29	35	0.29	none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	10	40	30		10		10			3	2810	2820	2815						0.87													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	10	40	30		10		10			3	2820	2830	2825						1.09		0.32	0.71	0.61	430	0.58			65	56	1.03	29	0.31	very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	10	10	30		40		10			3	2830	2840	2835						0.83													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings											2710	2960	2835						2.35		0.90	2.82	0.48	433	0.63			120	20	3.72	38	0.24				hand picked by IGS
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	10	20	20		50					2	2850	2860	2855						0.74													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20	30	10		40					2	2870	2880	2875						1.69		0.35	1.63	0.42	428	0.54			96	25	1.98	21	0.18	very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20	20	10		50					2	2880	2890	2885						0.74													weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20	20	20		40					2	2890	2900	2895						0.79													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20	20	20		40					2	2900	2910	2905						0.83													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20	20	20		40					2	2910	2920	2915						0.92													none		0	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20	20	20		40					2	2920	2930	2925						0.63													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	20		30		50					3	2930	2940	2935						0.45													weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	30	10	20		40					2	2940	2950	2945						0.42													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Chattanooga	cuttings	10	30	10		50					2	2950	2960	2955						0.68													weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings			10	20			70			2	3560	3570	3565						1.25		0.20	0.55	0.09	435	0.67			44	7	0.75	16	0.27	very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings			10	20			70			2	3560.1	3570.1	3565.1						1.25		0.44	2.02	0.54	435	0.67			162	95	2.46	35	0.18	very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings		20	10	20			50			2	3570	3580	3575						0.38													medium		3	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings			10	40	40		10			2	3580	3590	3585						0.10													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings											3560	3620	3590						1.12		1.18	2.58	1.19	434	0.65			230	106	3.76	105	0.31				hand picked by IGS
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings			40		50		10			1	3590	3600	3595						0.26													weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings			60	10	10		20			1	3600	3610	3605						0.22													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Maquoketa	cuttings	10	20	50		20					1	3610	3620	3615						0.22													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1		cuttings		30	50		20					1	3620	3630	3625						0.24													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Decorah	cuttings		10	20				70			5	3750	3760	3755						0.19													strong		4	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1		cuttings	10	10	20	30			30			5	3760	3770	3765						0.12													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Platteville	cuttings		20	20	20			40			5	3780	3790	3785						0.14													very weak		1	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Platteville	cuttings	10	10	20	20			40			5	3790	3800	3795						0.32													medium	yes	3	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Simpson Sand	cuttings	5	15	20	50	10					5	3800	3810	3805						0.55													weak		2	
15131200440000	Kansas	Nemaha	Pendleton Land & Expl.	Hermesch #1	Basal Simpson	cuttings	10	20	20	10			40			4	3850	3860	3855						0.53													very strong	yes	5	

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