DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Table 26. - Semiquantitative spectrographic, chemical, and radiometric analyses of ashed core samples of lignite from Ludlow Member of Fort Union Formation, Slim Buttes, Harding County, S. Dak.

[Analyses shown graphically on plate 19 in U.S. Geol. Survey Prof. Paper 463, 1965. For explanation of code used in semiquantitative spectrographic analyses see Prof. Paper 463, p. 51. 0, looked for but not detected. Analysts: Spectrographic, Mona Frank; Chemical, Roosevelt Moore, Radiometric, C. G. Angelo]

Core hole	Sample No.	Location (section, township, and range)	Bed thickness (feet)	Source of sample	Ash (percent)	Chemical: Uranium in ash (percent)	Chemical: Uranium in sample (percent)	Radiometric: Equivalent uranium	Si	Al	Fe	Ca	Na	Mg	K	As	Mo	Ba	Ti	P	Sr	B	Zr	Mn	Ni	V	Y	Cu	La	Co	Pb	Li	Ce	Cr	Ga	Sc	Yb	Sn	Be	Nb	Ag	Other elements
Mendenhall beds																																										
SD-1	106305	NENW 12 17N 7E	1.7	Upper 1.00 ft.....	15	0.35	0.051	0.038	2+	2+	1	2+	2-	2-	3+	3-	4+	3	3-	2-	3-	3	4	4-	3-	4	5+	4-	4-	4	5	0	4-	5	5+	5-	6+	0	6+	0	6-	Nd, 4-; Zn, 4-.
	306	.....do.....	1.7	Basal 0.70 ft.....	22	.046	.010	.009	1	2+	1	2+	3+	2-	3+	4+	4	3-	3-	4+	4+	3-	5+	4-	4-	4-	5+	4-	4-	5+	5	0	5-	5+	5+	5-	6+	5-	6-	0	6-	Nd, 5+.
	308	.....do.....	2.1	Upper 1.10 ft.....	19	.021	.004	.003	2+	2+	1	2+	3+	2-	3+	4+	4	3	3-	3-	4+	3-	5+	4-	4	4-	5+	4-	4-	4-	5+	0	0	5	5+	5-	6+	5-	6-	0	6-	Nd, 4-.
	309	.....do.....	2.1	Basal 1.00 ft.....	13	.023	.003	.002	2+	2+	2-	1	2-	2-	3+	0	4-	3-	3	0	4+	3	5+	4-	5+	4	5+	4-	4-	5-	5	4	5-	5	5+	5-	6+	5-	6-	0	6-	Nd, 5+.
	311	.....do.....	8.7	Upper 2.00 ft.....	11	.027	.003	.003	2+	2+	2-	1	2-	2-	3+	4	4-	3-	3	0	4+	3	5+	4+	4-	4-	5+	4-	5+	5-	5+	4	0	5	5+	5-	6+	5-	6-	0	6-	Nd, 5.
	312	.....do.....	8.7	Next 3.35 ft.....	12	.011	.001	.001	2+	2+	1	2+	2-	2-	3+	0	5	3-	3-	3-	4+	3-	4-	4+	5+	4-	5+	4-	5+	5-	5	4	0	5-	5+	5-	6+	5-	6-	0	6-	Nd, 5.
	313	.....do.....	8.7	Basal 3.35 ft.....	13	.007	<.001	<.001	2+	2+	1	2+	2-	2-	3+	0	5	3-	3-	3-	4+	3	4-	4+	4-	4-	5+	4	5+	5-	5+	4	5-	5	5+	5-	6+	5-	6-	0	6-	Nd, 5.
SD-25	113133	NESE 36 18N 7E	5.8	.....	16	.004	<.001	<.001	2+	1	2+	2+	2	2-	2-	0	5-	3-	3-	0	4+	3-	5+	4+	4-	4-	5+	4-	5+	5-	5	4	5-	5+	5+	5-	6+	0	6-	0	6-	Nd, 5.
SD-24	116385	NWNW 31 18N 8E	8.4	Upper 1.00 ft.....	44	.003	.001	<.001	1	2+	2-	2	3+	3+	2-	0	5-	3-	3	0	4+	4+	4-	4	4-	4-	5+	4-	5+	5-	5+	4	0	5+	5+	5-	6+	0	6-	0	6-	Zn, 4.
	387	.....do.....	8.4	1.00 ft, begin 2 ft from top.	37	.006	.002	<.001	1	2+	3+	2+	3+	3+	2-	0	5-	3	3-	0	4+	3-	4-	4+	5+	4-	5+	4-	5+	5-	5	4	0	5+	5+	5-	6+	0	6+	0	6-	Nd, 5.
	389	.....do.....	8.4	1.00 ft, begin 4 ft from top.	12	.003	<.001	<.001	2+	2+	3	1	2+	2-	3+	0	5	3	3-	0	4+	3-	4-	4+	5+	4-	5+	4-	5+	5-	5-	4	0	5	5+	5-	6+	0	7+	0	6-	Nd, 5.
	391	.....do.....	8.4	1.00 ft, begin 6 ft from top.	10	.003	<.001	<.001	2+	2+	3	1	2+	2-	3+	0	5	3	3-	0	4+	3-	4-	4+	5+	4-	5+	4-	5-	5-	5-	4	0	5-	5+	5-	6+	0	7+	0	6-	Nd, 5.
Upper Olesrud bed																																										
SD-18A	112688	SWNE 5 17N 8E	6.3	Upper 0.70 ft.....	51	0.016	0.008	0.008	1	1	2+	2	3	3+	0	4	5+	3-	3+	0	4+	4-	4-	4-	4	4	5+	4	5	5+	4-	5	0	5	5+	5	6+	0	6+	0	7+	
	689	.....do.....	6.3	Next 1.00 ft.....	15	.098	.015	.013	2	2+	1	2	2-	3+	0	3-	3	3-	3-	0	4+	3-	4-	4-	4+	4	5	4	5	3	5-	0	4-	5	5+	6+	6+	0	7+	0	7+	
	690	.....do.....	6.3	.....do.....	10	.12	.012	.011	2	2+	1	2+	2	2-	3	4+	4+	3-	3-	0	4+	3	5+	4+	4-	4-	5	4	5+	5+	5-	0	0	5	5+	6+	6+	0	7+	0	6-	
	691	.....do.....	6.3	.....do.....	16	.055	.009	.008	2	2	1	2	2-	2-	0	4+	4+	3-	4	0	4+	3-	5+	4	4-	4-	5	4-	5	4-	5-	0	0	5	5+	0	6+	0	7+	0	6-	
	692	.....do.....	6.3	.....do.....	14	.053	.008	.007	2	2	1	2	2-	2-	3	0	4+	3-	4	0	4+	3-	5+	4+	4-	4-	5	4	5	5	5-	0	0	5	5+	5-	6+	0	6	0	6-	
	693	.....do.....	6.3	Basal 1.60 ft.....	13	.041	.005	.004	2+	2+	1	2	2-	2-	3+	0	3-	3-	3-	0	4+	3	4-	4	4-	4-	5+	4	5	5-	5-	0	5-	5	5+	5-	6+	0	6+	0	6-	
SD-36	112732	SWNE 32 18N 8E	6.8	Upper 2.00 ft.....	9	.006	<.001	<.001	2	2+	3+	1	1	2	3+	0	4-	3	4+	3-	3-	3	4-	3-	5+	4-	4-	4-	5+	5-	0	0	5+	5	5+	5-	6+	5-	6+	0	6-	
	734	.....do.....	6.8	Next 1.00 ft.....	11	.002	<.001	<.001	2+	2+	2-	1	2+	2-	3+	0	4-	3	3-	3-	3-	3	5+	4	5+	4-	5	4	5	5-	5-	0	0	5	5+	5-	6	5-	6+	0	6-	
	736	.....do.....	6.8	1.00 ft, begin 4 ft from top.	9	.002	<.001	<.001	2	2+	3-	1	2+	2	3+	0	4-	3	3-	3	3-	3	5+	4	5+	4-	5	4-	5	5-	0	0	0	5	5+	5-	6	0	6-	0	6-	
	738	.....do.....	6.8	Basal 0.95 ft.....	11	.004	<.001	<.001	2+	2+	2-	1	1	2-	2-	0	4-	3	4+	0	4+	3	5+	4	5+	4-	5+	4	5	5-	5-	0	5-	5	5+	5-	6+	5-	6	0	7+	
SD-38	715	SESW 32 18N 8E	6.1	Upper 1.00 ft.....	22	.032	.007	.007	2+	2+	2+	1	2-	2-	3+	4+	4+	3	3-	0	4+	3-	4-	3-	4+	4	5+	4+	4-	4	5+	0	0	5	5+	5-	6+	0	6	0	6-	Nd, 5.
	717	.....do.....	6.1	1.00 ft, begin 2 ft from top.	9	.042	.004	.003	2+	2+	2-	1	2+	2-	3+	0	4	3	3-	0	4+	3-	4-	4+	5+	4-	5+	4-	5+	5-	5-	4	0	5-	5+	5-	6+	0	6-	0	6-	
	719	.....do.....	6.1	1.00 ft. begin 4 ft from top.	9	.024	.002	.002	2+	2+	2-	1	2+	2-	3+	0	4	3	3-	0	4+	3-	4-	4+	4	4-	5+	4-	5+	5-	5	4	0	5-	5+	5-	6+	0	6-	0	6-	
Lower Olesrud bed																																										
SD-10	109512	NESE 12 17N 7E	5.5	Upper 0.22 ft.....	12	0.048	0.006	0.007	1	1	3+	2+	2+	2	3	0	4+	3	4+	0	3-	3	4	4	5+	5-	5+	4-	0	5-	5-	4	4	5+	5+	5-	6+	5-	6+	0	6-	
	513	.....do.....	5.5	Next 0.21 ft.....	13	.032	.004	.005	1	1	3+	2+	2+	2-	2-	0	4+	3	3-	0	3-	3	4	4-	5+	5-	5+	5+	0	5-	5-	4	4-	5+	5+	5-	6+	5-	6	0	6-	
	514	.....do.....	5.5	Next 0.28 ft.....	18	.052	.009	.007	1	1	1	2+	2	3+	3	0	4+	3-	4+	0	4+	3	4-	4	5+	5-	5	4-	0	5-	5	4	5-	5+	5+	6+	6+	5-	6+	0	6	
	515	.....do.....	5.5	Next 0.29 ft.....	13	.116	.015	.006	1	1	3+	2+	2	2-	3	0	4+	3	4+	3-	3-	3-	4-	4	4-	5-	5	4-	4-	5-	4-	4	5-	5	5+	5-	6+	5-	6+	0	6-	
	516	.....do.....	5.5	Next 0.23 ft.....	8	.036	.003	.002	2+	1	3	1	1	2+	3+	0	4+	3	4+	0	3-	3	5	4	4-	5	5	5+	0	5-	5-	4+	5-	5+	5+	5-	6	5-	6-	0	6-	
	517	.....do.....	5.5	Next 0.62 ft.....	17	.047	.005	.008	1	1	2-	2+	2	2-	2-	0	4+	3-	3-	0	3-	3-	4-	4	4-	4	5	4-	0	5-	5-	4	4-	5+	5+	5-	6+	5-	6	0	6-	
	518	.....do.....	5.5	Next 0.32 ft.....	10	.008	.001	<.001	2+	1	3	1	1	2+	3+	0	4	3	4+	0	3-	3	5	4+	4-	5-	5+	4-	0	5-	5	4+	0	5+	5+	5-	6+	5-	6+	0	6-	
	519	.....do.....	5.5	Next 0.59 ft.....	20	.021	.004	.003	1	1	3+	2+	2	2-	2	0	4	3	3-	0	3-	3-	5+	4	4-	5	5	4-	0	5-	5+	4+	0	5	5+	5-	6	5-	6-	0	6-	
	520	.....do.....	5.5	Next 0.47 ft.....	8	.026	.002	.001	2+	1	3	1	1	2+	3+	0	4+	3+	3-	2-	3	3	5+	4+	5+	5+	4-	4-	5-	5	4+	0	5+	5+	5-	6+	5-	6	0	6-	
	521	.....do.....	5.5	Next 0.49 ft.....	16	.013	.002	.002	1	1	3	2+	2	2	3	0	4-	3	3	0	3-	3-	4	4+	4-	5-	5+	4-	0	5-	5-	4+	0	5+	5+	5-	6+	5-	6-	0	6-	
	522	.....do.....	5.5	Next 0.58 ft.....	12	.023	.003	.002	1	1	3+	2+	2+	2	3+	0	4	3	4+	0	3-	3-	5	4+	4-	5-	5	4-	0	5-	5-	4	0	5	5+	5-	6+	5-	6-	0	6-	
	523	.....do.....	5.5	Next 0.63 ft.....	18	.044	.008	.005	1	1	2+	2+	2	2-	3+	0	4+	3	4+	3-	3-	3-	4-	4+	4-	5-	5	4-	0	5-	5-	4	5-	5+	5+	5-	6+	5-	6+	0	6-	
	524	.....do.....	5.5	Basal 0.57 ft.....	10	.003	<.001	<.001	1	1	3	2+	2+	2	3+	0	4-	3	4+	0	3-	3	5	4+	4-	5	5+	4-	0	5-	5+	4	5-	5+	5+	5-	6+	5-	6-	0	6-	
SD-11	116365	NENE 12 17N 7E	6.6	Upper 2.00 ft.....	26	.004	.001	<.001	1	1	2+	2	2-	2-	2-	0	5-	3	3	0	4+	3-	4-	4	4-	4-	5+	4-	5+	5-	5	4	0	5	5+	5-	6+	0	6-	0	0	Nd, 5.
	367	.....do.....	6.6	2.00 ft, begin 4 ft from top.	14	.003	<.001	<.001	2+	2+	3+	1	2	2	3+	0	5-	3	3-	0	4+	3-	5+	3-	5+	4-	5+	4-	5	5-	5	4	0	5-	5+	5+	6+	0	6-	0	6-	Nd, 5; Ce, 4.
	368	.....do.....	6.6	Basal 0.60 ft.....	18	.003	<.001	<.001	1	1	2+	2+	2	2-	2-	0	5-	3-	3	4+	4+	3-	4-	4+	5+	4	5+	4-	5	5-	5	4	0	5+	5+	5-	6+	0	6-	0	6-	Nd, 5.

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