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APPENDIX 1

Appendix 1 contains the data base developed for this report. The data base lists the point identification and location of each data point used for the assessment and provides stratigraphic and lithologic interpretations made at each data point.

Appendix 1

Appendix 1 contains the data base developed for this report. The data base lists the point identification and location of each data point used for the assessment and provides stratigraphic and lithologic interpretations made at each data point. Data point identification provides a map number and the original point identification. The map number is used to identify the data point on the location map (figure A of plate 1) and cross sections (figures C, D, and E of plate 1). The point ID identifies each point by its original name. Map numbers 1-6 are U.S. Geological Survey drill holes, 7-145 are company coal test holes, 146-167 are oil and gas holes, 168-213 are published stratigraphic sections; and 214-226 are control points where information is based on published geologic descriptions. Locational information includes the latitude and longitude for each data point and the surface elevation and total depth for each drill hole. Stratigraphic interpretations include the elevation of the Calico sequence boundary (Csb.), elevation of the Drip Tank sequence boundary (Dsb.), and thickness of the combined Calico and A-sequences (Thk. C-A). Elevations of these sequence boundaries are obtained by subtracting the down hole depth of the sequence boundary from the surface elevation of the drill hole. An elevation with an asterisk indicates that the hole was not drilled deep enough to penetrate the sequence boundary; however the depth to the sequence boundary is inferred by correlations to nearby drill holes. The thickness of the combined Calico and A-sequences is determined by the difference between the Calico and Drip Tank sequence boundaries in the drill hole. In measured section the thickness of the combined Calico and A-sequences is based on the measured interval between the base of the Calico bed and Drip Tank member; an asterisk indicates that the thickness is estimated from a partial measured section. Lithologic interpretations include the net thickness of coal and total number of coal beds in the Calico and A-sequences; the depth to the upper and lowermost coal bed is provided for each drill hole. Total coal values in 8 drill holes have been adjusted to allow for potential coal beds in undrilled parts of the coal-bearing interval; additional coal bed thicknesses are estimated from nearby drill holes. The data points, measured coal thicknesses and estimated total coal thicknesses are shown below. Lithologic interpretations also provide the net coal thickness and number of coal beds within several bed thickness categories. Bed thicknesses are reported according to Wood and others (1983) whereby two coal beds are considered a single bed if the thickness of an intervening parting is less than the thickness of either the overlying or underlying bed of coal.

Map number	Point identification	Actual coal measured from geophysical logs (ft)	Total estimated coal in Calico and A-sequences based on correlations to nearby drill holes (ft)
4	K-1-DR	88	110
8	73-37-19	147	157
83	G-24-1	81	86
93	L-41-1	81	89
95	N-35-3	88	105
119	DH-203	39	44
130	DH-324	39	45
139	DH-365	62	70

Data point identification		Data point location				Stratigraphic interpretations			Lithologic interpretations																
									Net Coal in Calico and A-sequences (values are in ft)				Net coal thickness (in ft) and number of coal beds in bed thickness categories												
Map No.	Point ID	Longitude	Latitude	Surface Elev. (ft)	Total Depth (ft)	* Elev. Csb. (ft)	Elev. Dsb. (ft)	* Thk. C-A seq. (ft)	* Total Coal	#. beds	Depth top coal	Depth bottom coal	1.0-2.4	#. beds	2.5-3.4	#. beds	3.5-7.4	#. beds	7.5-14.0	#. beds	14.1-20.0	# beds	> 20.0	#. beds
1	KP-1-BR	111.77917	37.89109	7676	1095	5776*	7176	1400*	100	9	614	1028	3	2	0	0	14	3	12	1	35	2	36	1
2	KP-5-SC	111.99306	37.77930	7790	675	6960*			44	2	438	563	0	0	0	0	4	1	0	0	0	0	40	1
3	KP-4-PL	111.97040	37.66105	6880	220	6460*			10	1	166	176	0	0	0	0	0	0	10	1	0	0	0	0
4	K-1-DR	111.70249	37.59981	7360	804	6250*	7150	900*	110*	14	317	799	6	5	6	2	17	3	19	2	15	1	25	1
5	CT-1-91	111.49186	37.45609	6370	1057	5329	6164	835	64	16	278	889	12	9	6	2	14	3	11	1	0	0	21	1
6	SMP-1-91	111.52324	37.36871	5247	963	4303	5107	804	95	19	316	905	13	10	9	3	14	3	0	0	36	2	23	1
7	73-37-10	111.66252	37.60202	6680	1220	5160*	6110	950*	106	13	694	1172	6	4	3	1	21	4	14	1	15	1	47	2
8	73-37-19	111.72372	37.58157	7250	1040	6060*	6910	850*	157*	22	529	981	9	6	6	2	41	8	20	2	71	4	0	0
9	73-37-21	111.68451	37.57020	7620	1925	5650*	6510	860*	164	21	1232	1868	8	5	9	3	19	4	56	6	32	2	40	1
10	73-37-22	111.67005	37.57580	7420	1872	5470*	6215	745*	133	18	1314	1793	8	5	6	2	19	3	65	6	35	2	0	0
11	73-37-23	111.64399	37.56888	6485	1205	5255*	5935	680*	108	11	666	1088	5	3	0	0	16	3	28	3	0	0	59	2
12	73-37-28	111.69221	37.56674	7685	1903	5725*	6535	810*	157	21	1265	1894	2	2	6	1	65	12	32	3	0	0	52	2
13	73-37-29	111.70131	37.56751	7790	1927	5840*	6705	865*	146	21	1311	1860	6	6	6	2	32	7	18	2	15	1	69	3
14	73-37-33	111.68224	37.54815	6470	900	5480*	6170	690*	94	11	348	849	2	1	6	2	30	5	13	1	17	1	26	1
15	73-38-10	111.67531	37.52903	6550	1180	5290*	5935	645*	66	13	683	1150	6	3	6	2	33	6	21	2	0	0	0	0
16	73-38-14	111.66691	37.50029	6480	1164	5270*	5905	635*	119	18	634	1083	14	8	3	1	24	5	23	2	0	0	55	2
17	73-38-25	111.63755	37.48219	6190	1104	5010*	5670	660*	127	18	566	1045	13	7	9	3	10	2	20	2	51	3	24	1
18	U5	111.66811	37.59554	6750	1180	5320*	6230	910*	98	11	638	1120	5	3	3	1	10	2	23	2	31	2	26	1
19	EP-6	111.64231	37.59694	6725	1415	5025*			92	14	919	1366	4	3	3	1	31	5	38	4	16	1	0	0
20	EP-7	111.58590	37.55498	6810	878	5700*			50	20	257	811	18	15	3	1	9	2	20	2	0	0	0	0
21	EP-8	111.61871	37.57849	6738	945	5538*	6393	855*	90	16	443	904	10	6	6	2	8	2	66	6	0	0	0	0
22	EP-20	111.63026	37.67739	6230	720	5040*	6190	1150*	65	8	138	661	4	2	3	1	12	2	24	2	0	0	22	1
23	EP-21	111.63351	37.64969	6384	1035	4894*	6124	1230*	59	17	404	954	13	10	3	1	22	4	21	2	0	0	0	0
24	EP-22	111.62225	37.65534	6420	1092	4960*	6140	1180*	51	13	332	1061	8	6	3	1	18	4	22	2	0	0	0	0
25	EP-23	111.62220	37.63444	6440	1112	4900*	5990	1090*	63	15	509	1015	10	7	0	0	26	5	27	3	0	0	0	0
26	EP-24	111.63236	37.62645	6580	1307	4930*	5970	1040*	101	26	697	1268	20	16	12	4	14	2	36	3	19	1	0	0
27	EP-26	111.63278	37.55471	6360	1027	5335	6120	785	88	21	374	992	18	10	9	3	26	5	35	3	0	0	0	0
28	EP-27	111.61356	37.54729	6780	1002	5680*	6560	880*	66	21	303	891	18	12	9	3	26	3	35	3	0	0	0	0
29	EP-28	111.60558	37.52955	6710	880	5610*	6450	840*	124	19	357	861	12	7	9	3	29	5	14	1	33	2	27	1
30	EP-30	111.61617	37.52214	6720	830	5720*	6318	598*	71	16	447	827	8	7	0	0	31	6	17	2	15	1	0	0
31	EP-32	111.58788	37.52176	6650	1040	5610*	6450	840*	94	28	266	973	22	18	9	3	20	4	9	1	34	2	0	0
32	77-KP-1	111.49590	37.45407	6360	1073	5323*	6140	817*	56	16	269	817	16	11	6	2	4	1	10	1	20	1	0	0
33	77-KP-2	111.45891	37.43873	6410	805	5290*	6225	935*	57	11	333	789	2	1	3	1	43	8	9	1	0	0	0	0
34	77-KP-3	111.41145	37.44014	6340	850	5250*	6220	970*	28	9	168	741	8	5	0	0	20	4	0	0	0	0	0	0
35	77-KP-4	111.44883	37.48718	6540	803	5490*	6480	990*	35	11	147	675	5	4	9	3	21	4	0	0	0	0	0	0
36	77-KP-5	111.42491	37.49652	6820	853	5730*	6800	1070*	17	7	100	713	6	4	3	1	8	2	0	0	0	0	0	0
37	77-KP-6	111.55053	37.48894	6460	1243	5328	6135	807	77	27	371	900	19	19	6	2	10	2	27	3	15	1	0	0
38	77-KP-7	111.53319	37.50179	6340	843	5270*	6075	805*	89	15	355	758	9	7	0	0	30	6	0	0	19	1	31	1
39	77-KP-8	111.49313	37.50237	6340	861	5270*	6240	970*	34	9	198	750	8	6	0	0	10	2	0	0	16	1	0	0
40	77-KP-9	111.53159	37.52516	6390	851	5260*	6170	910*	48	13	313	804	10	7	3	1	22	4	13	1	0	0	0	0
41	77-KP-10	111.51858	37.47951	6430	851	5300*	6200	900*	78	17	347	737	11	8	6	2	14	3	15	2	32	2	0	0
42	77-KP-11	111.58776	37.49766	6684	1385	5479	6254	775	114	22	517	1016	15	12	6	2	29	5	13	1	16	1	35	1
43	77-KP-12	111.56679	37.51100	6610	851	5570*	6380	810*	104	17	320	839	7	7	9	3	17	3	0	0	50	3	21	1
44	77-KP-13	111.54175	37.48041	6450	852	5320*	6130	810*	81	27	388	830	26	20	9	3	4	1	9	1	33	2	0	0
45	DH-73	111.48326	37.46097	6439	881	5339*	6229	890*	67	18	311	771	12	8	6	2	30	6	19	2	0	0	0	0

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Map No.	Point ID	Longitude	Latitude	Surface Elev. (ft)	Total Depth (ft)	* Elev. Csb. (ft)	Elev. Dsb. (ft)	* Thk. C-A seq. (ft)	* Total Coal	#. beds	Depth top coal	Depth bottom coal	1.0-2.4	#. beds	2.5-3.4	#. beds	3.5-7.4	#. beds	7.5-14.0	#. beds	14.1-20.0	# beds	> 20.0	#. beds
46	DH-23	111.52170	37.37074	5267	970	4311	5142	831	82	15	318	840	8	5	12	4	11	2	34	3	17	1	0	0
47	DH-28	111.52286	37.40633	5878	1120	4786	5588	802	106	18	421	952	2	1	12	4	48	9	44	4	0	0	0	0
48	DH-44	111.43663	37.39827	6481	810	5501*	6331	830*	51	24	221	678	22	18	3	1	16	4	10	1	0	0	0	0
49	DH-172	111.45921	37.43499	6340	796	5290*	6130	840*	60	21	248	736	19	12	12	4	18	4	11	1	0	0	0	0
50	DH-176	111.43900	37.42204	6280	798	5250*	6130	880*	67	23	196	715	21	16	6	2	13	3	11	1	16	1	0	0
51	DH-180	111.41059	37.42010	6180	793	5140*	6060	920*	45	16	158	694	20	13	3	1	5	1	0	0	17	1	0	0
52	DH-182	111.42350	37.41666	6160	796	5145*	6060	915*	38	18	155	692	20	15	3	1	4	1	11	1	0	0	0	0
53	DH-189	111.45833	37.41859	6280	793	5270*	6100	830*	43	9	249	689	6	4	0	0	11	2	26	3	0	0	0	0
54	DH-193	111.44226	37.40658	6360	793	5420*	6220	800*	59	22	186	633	19	15	9	3	5	1	26	3	0	0	0	0
55	DH-194	111.42666	37.41155	6250	717	5280*	6135	855*	45	15	151	642	11	8	9	3	17	3	8	1	0	0	0	0
56	DH-202	111.42137	37.38680	6556	786	5656*	6481	825*	56	19	192	665	16	12	12	4	0	0	28	3	0	0	0	0
57	DH-223	111.47584	37.43852	6350	889	5270*	6120	850*	78	24	283	848	19	14	6	2	17	4	36	4	0	0	0	0
58	DH-224	111.47896	37.43555	6325	703	5255*	6085	830*	69	22	306	696	19	13	6	2	18	4	26	3	0	0	0	0
59	DH-227	111.48976	37.44147	6285	800	5205*	6045	840*	79	20	317	756	18	13	9	3	10	2	0	0	18	1	24	1
60	DH-232	111.50453	37.42822	6230	992	5150*	5935	785*	90	26	358	900	22	17	3	1	20	4	25	3	20	1	0	0
61	DH-235	111.49987	37.41979	6170	797	5200*	5990	790*	75	19	452	793	12	10	6	2	23	5	9	1	0	0	25	1
62	DH-241	111.48321	37.39962	6170	903	5280*	6020	740*	88	21	312	770	15	10	6	2	28	6	21	2	18	1	0	0
63	DH-247	111.47663	37.39273	6160	805	5290*	5990	700*	80	28	255	765	22	18	12	4	14	3	32	3	0	0	0	0
64	DH-254	111.52139	37.43507	6110	846	5090*	5855	765*	130	19	369	843	15	10	3	1	9	2	27	3	0	0	76	3
65	DH-255	111.52092	37.42923	6040	851	5030*	5810	780*	110	24	356	836	17	12	9	3	19	4	43	4	0	0	22	1
66	DH-258	111.52980	37.41613	5865	856	4855*	5635	780*	99	26	361	829	16	13	3	1	46	9	16	2	18	1	0	0
67	DH-259	111.51717	37.40051	5780	850	4840*	5630	790*	108	22	311	819	16	12	6	2	23	4	35	3	0	0	28	1
68	DH-263	111.51385	37.37419	5435	852	4515*	5305	790*	96	20	323	823	16	11	3	1	27	4	31	3	19	1	0	0
69	A-34-1	111.62844	37.37990	6050	2344	3730	4530	800	94	30	1689	2280	27	17	21	7	19	4	9	1	18	1	0	0
70	A-46-1	111.62832	37.33600	6235	2391	3915	4685	770	95	26	1742	2280	20	10	24	8	16	4	35	4	0	0	0	0
71	C-25-3	111.62196	37.40972	5976	2697	3521	4346	825	102	23	1830	2408	21	12	9	3	21	4	16	2	35	2	0	0
72	C-29-3	111.62230	37.39653	5940	2383	3557	4380	823	91	26	1705	2266	22	16	15	5	17	4	0	0	0	0	37	1
73	C-40-3	111.62286	37.35597	6210	2236	3900*	4710	810*	91	19	1750	2181	8	5	15	5	31	6	22	2	15	1	0	0
74	C-42-3	111.62402	37.34838	6245	2350	3965	4740	775	83	17	1758	2192	4	2	15	5	32	7	17	2	15	1	0	0
75	D-51-3	111.61801	37.31682	6268	2370	3988	4748	760	49	15	1713	2163	9	6	9	3	31	6	0	0	0	0	0	0
76	E-20-3	111.61336	37.42863	6140	2340	3890	4630	740	93	22	1720	2209	12	10	9	3	27	6	24	2	0	0	21	1
77	E-36-1	111.61067	37.37296	5989	2375	3589*	4429	840*	98	19	1767	2320	6	4	15	5	29	6	30	3	18	1	0	0
78	E-38-1	111.61112	37.36564	6059	2435	3714	4549	835	98	19	1750	2299	14	7	9	3	20	4	55	5	0	0	0	0
79	F-29-3	111.60943	37.39628	5970	2325	3540*	4390	850*	87	21	1814	2294	16	9	21	7	15	3	0	0	35	2	0	0
80	F-44-1	111.60745	37.34406	6265	2263	3945*	4795	850*	83	23	1639	2179	15	9	15	5	29	6	24	3	0	0	0	0
81	G-4-3	111.60457	37.48790	6720	1357	5430	6130	700	145	19	748	1187	12	6	9	3	20	4	33	3	20	1	51	2
82	G-8-1	111.60287	37.47377	6117	1200	5112	5797	685	104	14	380	851	2	1	6	2	40	8	0	0	56	3	0	0
83	G-24-1	111.60274	37.41564	6106	2200	3756*	4596	840*	86*	22	1714	2180	18	11	15	5	18	4	11	1	19	1	0	0
84	G-26-1	111.60129	37.40762	6075	2446	3690	4485	795	124	26	1834	2341	30	17	3	1	19	4	33	3	0	0	39	1
85	I-25-4	111.59252	37.41012	5454	1800	3834	4614	780	135	15	1075	1573	7	4	6	2	12	3	16	2	51	3	43	1
86	J-29-2	111.59099	37.39775	6072	2342	3737	4512	775	123	28	1759	2293	25	14	6	2	26	6	49	5	17	1	0	0
87	K-15-4	111.58477	37.44677	5987	1646	4602	5397	795	74	14	741	1256	4	3	3	1	28	6	39	4	0	0	0	0
88	K-17-4	111.58357	37.43940	5670	1298	4450	5250	800	125	28	573	1174	16	10	15	5	37	8	40	4	17	1	0	0
89	L-8-1	111.58106	37.47382	6615	1460	5235	5930	695	101	22	772	1255	11	8	9	3	33	7	26	3	0	0	22	1
90	L-11-4	111.58006	37.46065	6327	1400	4993	5737	744	90	13	725	1244	4	2	0	0	26	6	28	3	32	2	0	0

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Map No.	Point ID	Longitude	Latitude	Surface Elev. (ft)	Total Depth (ft)	* Elev. Csb. (ft)	Elev. Dsb. (ft)	* Thk. C-A seq. (ft)	* Total Coal	#. beds	Depth top coal	Depth bottom coal	1.0-2.4	#. beds	2.5-3.4	#. beds	3.5-7.4	#. beds	7.5-14.0	#. beds	14.1-20.0	# beds	> 20.0	#. beds
91	L-36-4	111.57968	37.37066	6020	2315	3690*	4405	715*	120	30	1758	2307	23	16	12	4	27	6	29	3	0	0	29	1
92	L-38-4	111.58042	37.36312	6074	2380	3679*	4359	680*	118	23	1870	2376	16	10	6	2	36	7	20	2	18	1	22	1
93	L-41-1	111.57925	37.35355	6028	2280	3648*	4388	740*	89*	16	1802	2197	11	8	3	1	11	2	40	4	16	1	0	0
94	M-21-2	111.57668	37.42618	5585	1400	4315	5165	850	77	16	679	1169	10	6	9	3	25	4	18	2	15	1	0	0
95	N-35-3	111.57324	37.37388	6022	2118	3772*	4502	730*	105*	19	1672	2081	17	10	12	4	15	3	0	0	16	1	28	1
96	O-20-1	111.56559	37.43048	5727	1297	4542	5297	755	120	23	626	1251	15	9	12	4	26	5	31	3	36	2	0	0
97	O-30-1	111.57276	37.39326	5297	1375	4007	4777	770	142	20	726	1217	12	7	9	3	24	5	38	3	0	0	59	2
98	P-25-3	111.56499	37.40958	5650	1400	4170*	5010	840*	120	19	860	1370	7	4	15	5	17	4	53	5	0	0	28	1
99	Q-24-2	111.55948	37.41504	5761	1396	4361*	5161	800*	129	21	825	1315	11	6	15	5	20	4	42	4	17	1	24	1
100	Q-30-4	111.55654	37.39156	5505	1397	4115	4905	810	118	24	810	1339	21	13	9	3	8	2	44	4	36	2	0	0
101	Q-35-1	111.55629	37.37599	5198	1191	3968*	4743	775*	154	24	646	1168	11	8	6	2	34	7	40	4	32	2	31	1
102	R-39-3	111.55381	37.36035	5153	1335	3843	4593	750	145	17	723	1273	4	2	18	6	21	4	33	3	17	1	52	1
103	U-37-4	111.53778	37.36625	5180	1100	4110	4875	765	129	16	461	995	1	1	9	3	40	8	35	3	0	0	44	1
104	U-40-1	111.53795	37.35861	5090	1060	4050	4810	760	122	17	511	1027	10	5	6	2	32	7	20	2	0	0	54	1
105	V-34-1	111.53534	37.37977	5312	1198	4247	5032	785	141	22	488	981	12	6	12	4	24	5	36	4	36	2	21	1
106	W-36-3	111.53292	37.37003	5214	1265	4191	4964	773	104	16	406	931	9	8	6	2	11	2	32	3	0	0	46	1
107	W-39-3	111.53294	37.35976	5081	935	4111*	4856	745*	122	16	415	900	6	3	12	4	35	7	10	1	0	0	59	1
108	X-32-4	111.52584	37.38591	5680	1182	4490*	5280	790*	152	24	625	1086	15	8	6	2	41	9	25	2	32	2	33	1
109	X-36-2	111.52857	37.37291	5295	1097	4265	5095	830	116	27	407	943	25	15	15	5	11	2	28	3	15	1	22	1
110	DH-1	111.52471	37.33768	5091	998	4061*	4786	725*	88	22	490	975	11	8	27	9	11	2	9	1	30	2	0	0
111	DH-2	111.53201	37.32004	5076	843	4236	4986	750	70	14	337	798	5	3	12	4	23	4	30	3	0	0	0	0
112	DH-5	111.51483	37.28180	5571	814	4711*	5501	790*	45	15	298	678	13	9	9	3	7	1	16	2	0	0	0	0
113	DH-6	111.50425	37.27787	5531	810	4691*	5481	790*	67	20	212	652	14	12	9	3	16	3	9	1	19	1	0	0
114	DH-7	111.51626	37.26494	5400	798	4600*	5365	765*	57	18	273	668	19	13	0	0	11	2	27	3	0	0	0	0
115	DH-12	111.49818	37.26538	5549	903	4659	5474	815	61	18	291	827	15	12	3	1	10	2	18	2	18	1	0	0
116	DH-13	111.54597	37.35376	5104	1380	3864	4629	765	99	22	701	1189	24	14	0	0	31	6	0	0	0	0	44	2
117	DH-115	111.52688	37.23580	5249	759	4359*	5149	790*	52	15	397	734	12	10	6	2	4	1	8	1	0	0	22	1
118	DH-201	111.53659	37.21645	5167	653	4287*			26	7	454	626	5	4	0	0	10	2	11	1	0	0	0	0
119	DH-203	111.54389	37.22500	5125	710	4255*	5040	785*	44*	9	429	620	3	3	9	3	9	2	0	0	18	1	0	0
120	DH-231	111.54390	37.26806	5220	665	4420*	5190	770*	35	10	354	640	3	3	9	3	13	3	10	1	0	0	0	0
121	DH-245	111.54993	37.24592	5087	635	4217*	5027	810*	32	10	425	595	6	5	0	0	26	5	0	0	0	0	0	0
122	DH-301	111.57736	37.23423	5000	1400	4110	4900	790	36	11	515	664	6	5	3	1	27	5	0	0	0	0	0	0
123	DH-304	111.57688	37.24388	4975	750	4075*	4860	785*	41	23	302	691	22	19	6	2	4	1	9	1	0	0	0	0
124	DH-310	111.59625	37.25193	4970	815	4000*	4790	790*	33	14	403	754	9	9	6	2	8	2	10	1	0	0	0	0
125	DH-311	111.60590	37.25218	5000	850	3980*	4750	770*	38	13	415	790	13	9	0	0	14	3	11	1	0	0	0	0
126	DH-314	111.57952	37.26030	4980	746	4100*	4860	760*	51	15	391	732	10	9	6	2	9	2	10	1	16	1	0	0
127	DH-316	111.59657	37.26040	4970	800	4000*	4760	760*	53	20	421	760	17	15	3	1	10	2	8	1	15	1	0	0
128	DH-319	111.58779	37.26693	4880	705	4080*	4840	760*	53	15	230	654	14	10	0	0	15	3	9	1	15	1	0	0
129	DH-322	111.55249	37.27511	5220	1015	4375	5165	790	67	27	262	811	26	22	6	2	4	1	14	1	17	1	0	0
130	DH-324	111.57861	37.27515	5170	885	4170*	4950	780*	45*	11	537	856	10	8	6	2	0	0	0	0	0	0	23	1
131	DH-334	111.54161	37.29038	5470	975	4585	5400	815	52	25	378	850	26	20	3	1	23	4	0	0	0	0	0	0
132	DH-336	111.55995	37.29000	5325	800	4395*	5235	840*	63	16	314	795	19	13	0	0	4	1	12	1	0	0	28	1
133	DH-340	111.59573	37.29012	5110	870	4090*	4860	770*	48	20	417	822	18	16	3	1	7	1	20	2	0	0	0	0
134	DH-346	111.58188	37.30536	5420	970	4250*	5030	780*	54	16	597	957	9	8	9	3	14	3	22	2	0	0	0	0
135	DH-348	111.60338	37.30471	5300	1055	4060*	4830	770*	45	13	654	1026	8	6	12	4	5	1	20	2	0	0	0	0

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Map No.	Point ID	Longitude	Latitude	Surface Elev. (ft)	Total Depth (ft)	* Elev. Csb. (ft)	Elev. Dsb. (ft)	* Thk. C-A seq. (ft)	* Total Coal	#. beds	Depth top coal	Depth bottom coal	1.0-2.4	#. beds	2.5-3.4	#. beds	3.5-7.4	#. beds	7.5-14.0	#. beds	14.1-20.0	# beds	> 20.0	#. beds
136	DH-354	111.62448	37.24456	4910	905	3880*	4650	770*	28	18	525	803	17	16	0	0	11	2	0	0	0	0	0	0
137	DH-362	111.60525	37.28051	5080	960	3990*	4745	755*	54	17	625	889	16	12	3	1	13	3	0	0	0	0	22	1
138	DH-364	111.53311	37.29105	5510	1100	4660*	5405	745*	52	21	369	789	15	14	6	2	14	3	17	2	0	0	0	0
139	DH-365	111.52483	37.29820	5580	699	4710*	5520	810*	70*	13	420	696	8	6	0	0	18	4	21	2	15	1	0	0
140	DH-378	111.62864	37.21634	4960	925	3870*	4620	750*	23	17	532	904	14	14	9	3	0	0	0	0	0	0	0	0
141	DH-381	111.52279	37.28339	5570	769	4730*	5520	790*	48	20	352	719	22	14	9	3	17	3	0	0	0	0	0	0
142	DH-383	111.57712	37.29689	5460	965	4310*	5070	760*	58	21	541	923	23	17	3	1	7	1	25	2	0	0	0	0
143	Diamanti-1	111.56020	37.15117	5240	658	4420*	5180	760*	18	9	486	606	7	7	3	1	0	0	8	1	0	0	0	0
144	DH-211	111.48485	37.33938	5340	770	4500*	5230	730*	97	18	279	766	12	8	9	3	11	2	41	4	0	0	24	1
145	DH-6-72	111.59883	37.46090	5880	1200	4870*	5630	760*	83	18	394	891	10	5	15	5	17	4	24	3	17	1	0	0
146	BF-1-33	111.80330	37.80912	7218	7974	6408																		
147	Byrd-Oil	111.38419	37.35681	6150	10044	5850																		
148	Cleary-Pet	111.37071	37.33943	5941	6465	5781																		
149	Fed-Sky-1	111.83749	37.53743	7128	7094	6698																		
150	JV-1	111.97818	37.72016	8110	11180	6930	7890	960	10	2	908	952	0	0	0	0	10	2	0	0	0	0	0	0
151	JV-41-27	111.98795	37.73796	7912	8702	7132			22	5	378	554	5	3	0	0	7	1	10	1	0	0	0	0
152	Liston	111.81000	37.68878	7070	5010	2345	3470	1125	71	10	3769	4435	0	0	6	2	23	5	20	2	0	0	22	1
153	LV-2-18	111.72709	37.58845	7606	7921	6236	7091	855	107	17	605	1260	2	2	3	1	36	7	66	7	0	0	0	0
154	Rees-Can-2	111.40932	37.37589	6594	9015	5774	6594	820	70	11	62	670	2	2	3	1	30	5	20	2	15	1	0	0
155	Skyline-A	111.61073	37.55733	6860	7450	5695	6585	890	52	12	351	870	4	3	3	1	36	7	9	1	0	0	0	0
156	Tibbet-Can-1	111.72638	37.32307	6167	4243	3887	4717	830	9	3	1874	1962	2	1	3	1	4	1	0	0	0	0	0	0
157	Trap-Can	111.71875	37.58261	7387	7636	6197	7037	840	114	12	549	1085	0	0	0	0	28	6	44	4	15	1	27	1
158	UV-1	111.72361	37.59280	7560		6342	7210	868	91	14	470	1118	6	3	6	2	30	6	12	1	15	1	22	1
159	UV-2	111.74778	37.68256	7701	6655	7421																		
160	UV-2a	111.71373	37.61226	7095	6521	6555																		
161	UV-3	111.74472	37.67359	7671	6648	7351																		
162	UV-11	111.73371	37.64331	7519	7125	7064																		
163	UV-12	111.72722	37.61788	7294	7220	6714			65	11	140	433	4	2	9	3	21	4	12	1	19	1	0	0
164	UV-17x	111.73131	37.63770	7508	7025	6996																		
165	UV-21	111.72866	37.60978	7230	9951	6580			74	11	110	435	4	2	3	1	23	5	12	1	32	2	0	0
166	UV-27	111.71942	37.60117	7380	7321	6572			78	13	5	702	4	2	9	3	38	7	0	0	0	0	27	1
167	UV-South-1	111.69049	37.51163	6861	3208	5071	5851	780	97	12	1080	1700	7	4	0	0	12	2	44	5	0	0	34	1
168	BV4	111.82122	37.46618					800	7	2			0	0	3	1	4	1	0	0	0	0	0	0
169	C1	111.64269	37.71058					1000	36	5			2	1	0	0	4	1	30	3	0	0	0	0
170	C2	111.68270	37.68808					1050	40	10			3	2	12	4	8	2	17	2	0	0	0	0
171	CC1	111.57820	37.61543						14	4			1	1	3	1	10	2	0	0	0	0	0	0
172	CC2	111.53702	37.55266					1000	37	9			5	3	0	0	32	6	0	0	0	0	0	0
173	CM9	111.02006	37.18240						2	2			2	2	0	0	0	0	0	0	0	0	0	0
174	CMNW1	111.14038	37.26174						0	0			0	0	0	0	0	0	0	0	0	0	0	0
175	CP15	111.82971	37.53214					800	5	1			0	0	0	0	5	1	0	0	0	0	0	0
176	DC1	111.61901	37.69599					1100	23	6			5	4	0	0	0	0	18	2	0	0	0	0
177	DC2	111.60590	37.67489						26	5			4	3	0	0	7	1	0	0	15	1	0	0
178	GB7	111.44759	37.18193					725	13	6			5	4	3	1	5	1	0	0	0	0	0	0
179	GB19	111.42726	37.22998					790	43	9			8	5	0	0	14	2	21	2	0	0	0	0
180	GP1	111.80898	37.78553					1160	56	11			6	5	3	1	17	3	11	1	19	1	0	0

Data point identification		Data point location				Stratigraphic interpretations			Lithologic interpretations															
									Net Coal in Calico and A-sequences (values are in ft)				Net coal thickness (in ft) and number of coal beds in bed thickness categories											
Map No.	Point ID	Longitude	Latitude	Surface Elev. (ft)	Total Depth (ft)	* Elev. Csb. (ft)	Elev. Dsb. (ft)	* Thk. C-A seq. (ft)	* Total Coal	#. beds	Depth top coal	Depth bottom coal	1.0-2.4	#. beds	2.5-3.4	#. beds	3.5-7.4	#. beds	7.5-14.0	#. beds	14.1-20.0	# beds	> 20.0	#. beds
181	H5	111.92516	37.60241						5	2			1	1	0	0	4	1	0	0	0	0	0	0
182	H17	111.90134	37.54537					850	16	3			1	1	3	1	0	0	12	1	0	0	0	0
183	H26	111.87681	37.51877						13	6			4	4	0	0	9	2	0	0	0	0	0	0
184	HF7	111.86294	37.35016					890	1	1			1	1	0	0	0	0	0	0	0	0	0	0
185	NB7	111.61219	37.13881					720	3	1			0	0	3	1	0	0	0	0	0	0	0	0
186	NB8	111.59264	37.15122					720	5	4			5	4	0	0	0	0	0	0	0	0	0	0
187	NB12	111.51907	37.20443					850	32	7			8	4	0	0	7	1	17	2	0	0	0	0
188	NBNW4	111.73344	37.19761					750	1	1			1	1	0	0	0	0	0	0	0	0	0	0
189	NBSE1	111.61743	37.12282					800	1	1			1	1	0	0	0	0	0	0	0	0	0	0
190	NBSE8	111.54597	37.08804					790	17	8			6	5	6	2	5	1	0	0	0	0	0	0
191	NBSE12	111.50682	37.11676						4	3			4	3	0	0	0	0	0	0	0	0	0	0
192	NBSW1	111.65514	37.12404					775	3	3			3	3	0	0	0	0	0	0	0	0	0	0
193	PL1	111.99657	37.67165					950	27	2			0	0	0	0	0	0	11	1	16	1	0	0
194	PL11	111.95158	37.63706					950	22	2			0	0	0	0	0	0	22	2	0	0	0	0
195	RHC	111.91823	37.19414					702																
196	S6	111.42748	37.50258					1100*	6	3			3	2	3	1	0	0	0	0	0	0	0	0
197	S7	111.60248	37.09128					700	4	2			4	2	0	0	0	0	0	0	0	0	0	0
198	S8	111.59205	37.09985					700	8	4			5	3	3	1	0	0	0	0	0	0	0	0
199	S17	111.50703	37.20509					750	46	14			12	8	3	1	16	3	15	2	0	0	0	0
200	S21	111.38188	37.24611					790*	78	17			9	5	15	5	23	5	10	1	0	0	21	1
201	S22	111.37197	37.25121					800*	64	19			13	9	9	3	34	6	8	1	0	0	0	0
202	S23	111.36592	37.29192					780*	67	16			13	9	12	4	4	1	8	1	0	0	30	1
203	S24	111.35909	37.32031					760	14	8			9	7	0	0	5	1	0	0	0	0	0	0
204	S25	111.31725	37.32245					840*	20	9			10	6	6	2	4	1	0	0	0	0	0	0
205	S26	111.28034	37.34722						8	4			5	3	3	1	0	0	0	0	0	0	0	0
206	S27	111.28200	37.37577					1060*	1	1			1	1	0	0	0	0	0	0	0	0	0	0
207	S28	111.29987	37.44613					1060*	0	0			0	0	0	0	0	0	0	0	0	0	0	0
208	S30	111.12097	37.22158					900*	6	3			3	2	3	1	0	0	0	0	0	0	0	0
209	S32	111.09251	37.22743						0	0			0	0	0	0	0	0	0	0	0	0	0	0
210	S34	111.01593	37.22609					1100*	0	0			0	0	0	0	0	0	0	0	0	0	0	0
211	TC1	111.54110	37.16979					770	22	12			16	11	0	0	6	1	0	0	0	0	0	0
212	WHR1	111.68559	37.87749					1580	0	0			0	0	0	0	0	0	0	0	0	0	0	0
213	WHR2	111.74660	37.87126						58	7			0	0	3	1	10	2	30	3	15	1	0	0
214		111.76739	37.68632					1000																
215		111.74013	37.65241					1000																
216		111.50868	37.60964						0	0			0	0	0	0	0	0	0	0	0	0	0	0
217		111.48949	37.59624					1100																
218		111.48724	37.56715						0	0			0	0	0	0	0	0	0	0	0	0	0	0
219		111.41923	37.51808						0	0			0	0	0	0	0	0	0	0	0	0	0	0
220		111.11067	37.19458						0	0			0	0	0	0	0	0	0	0	0	0	0	0
221		111.57336	37.14957					740																
222		111.65367	37.16162					740																
223		111.74949	37.23766					780																
224		111.75791	37.18605						0	0			0	0	0	0	0	0	0	0	0	0	0	0
225		111.87301	37.33589						0	0			0	0	0	0	0	0	0	0	0	0	0	0
226		111.96056	37.76837					1050																

APPENDIX 2

Appendix 2 provides coal resource estimates for each 7.5' quadrangle and township within the Kaiparowits Plateau. Coal tonnages are calculated for all coal beds in the Calico and A-sequences that are greater than 1 foot thick (fig. 11) using an average density for bituminous coal of 1,800 short tons per acre-foot. Coal resources are reported in millions of short tons only for areas where the entire coal-bearing interval is preserved. Locations of 7.5' quadrangles and townships are given in figure 2

Appendix 2

Coal resource for the Calico and A-sequences reported by 7.5' quadrangle

7.5' Quadrangle Name	Reliability	ESTIMATED COAL RESOURCES (in millions of shrt tons) Overburden categories (thickness in ft) 0-1000	1000-2000	2000-3000	3000-6000	>6000	Total
Barker Reservoir	Identified	0	226.4	627.6	1114.4	0	1968.4
	Hypothetical	0	0	0	218.1	0	218.1
	Total	0	226.4	627.6	1332.5	0	2186.5
Basin Canyon	Identified	168.9	0.5	0	0	0	169.4
	Hypothetical	38.9	0	0	0	0	38.9
	Total	207.8	0.5	0	0	0	208.3
Blackburn Canyon	Identified	17.8	0	0	0	0	17.8
	Hypothetical	19.7	0	0	0	0	19.7
	Total	37.5	0	0	0	0	37.5
Butler Valley	Identified	36	80.1	243.6	11.9	0	371.6
	Hypothetical	3.9	9	758.8	7.5	0	779.2
	Total	39.9	89.1	1002.4	19.4	0	1150.8
Canaan Creek	Identified	583.1	919.8	0	0	0	1502.9
	Total	583.1	919.8	0	0	0	1502.9
Canaan Peak	Identified	87.5	189	612.6	653	0	1542.1
	Hypothetical	0	0	592.3	928.3	0	1520.6
	Total	87.5	189	1204.9	1581.3	0	3062.7
Carcass Canyon	Identified	2109.9	531.4	0	0	0	2641.3
	Total	2109.9	531.4	0	0	0	2641.3
Collet Top	Identified	1798.6	556.9	0	0	0	2355.5
	Hypothetical	0	0	0	0	0	0
	Total	1798.6	556.9	0	0	0	2355.5
Dave Canyon	Identified	110.5	210.8	0	0	0	321.3
	Total	110.5	210.8	0	0	0	321.3
Death Ridge	Identified	1094.2	4088.4	1408.6	0.1	0	6591.3
	Hypothetical	0	0	125.4	0	0	125.4
	Total	1094.2	4088.4	1534	0.1	0	6716.7
East of the Navajo	Identified	466.8	0	0	0	0	466.8
	Hypothetical	32.7	0	0	0	0	32.7
	Total	499.5	0	0	0	0	499.5
Fourmile Bench	Identified	0	320.9	1833.7	0	0	2154.6
	Hypothetical	2.8	107	295.6	0	0	405.4
	Total	2.8	427.9	2129.3	0	0	2560

Coal resource for the Calico and A-sequences reported by 7.5' quadrangle (continued)

7.5' Quadrangle Name	Reliability	ESTIMATED COAL RESOURCES (in millions of shrt tons)					
		Overburden categories (thickness in ft)					
		0-1000	1000-2000	2000-3000	3000-6000	>6000	Total
Glen Canyon City	Identified	6.3	0	0	0	0	6.3
	Total	6.3	0	0	0	0	6.3
Grass Lakes	Hypothetical	0	0	133.7	1105	123.8	1362.5
	Total	0	0	133.7	1105	123.8	1362.5
Griffin Point	Identified	38.8	520.6	402.4	557	29.7	1548.5
	Hypothetical	0	75.9	226.3	1017.2	149.9	1469.3
	Total	38.8	596.5	628.7	1574.2	179.6	3017.8
Henrieville	Identified	74.3	80.2	89.8	0	0	244.3
	Hypothetical	0	0	1.2	0	0	1.2
	Total	74.3	80.2	91	0	0	245.5
Horse Flat	Identified	4.5	19.8	47.5	0	0	71.8
	Hypothetical	0	8.2	85.8	0	0	94
	Total	4.5	28	133.3	0	0	165.8
Horse Mountain	Identified	103.3	837.8	2666.7	65.4	0	3673.2
	Hypothetical	0	2.6	1705.1	611.2	0	2318.9
	Total	103.3	840.4	4371.8	676.6	0	5992.1
Lone Rock	Identified	83.1	0	0	0	0	83.1
	Total	83.1	0	0	0	0	83.1
Mazuki Point	Identified	3.7	0	0	0	0	3.7
	Total	3.7	0	0	0	0	3.7
East of the Navajo	Identified	44.9	0	0	0	0	44.9
	Total	44.9	0	0	0	0	44.9
Needle Eye Point	Identified	3056.7	0	0	0	0	3056.7
	Hypothetical	173.4	0	0	0	0	173.4
	Total	3230.1	0	0	0	0	3230.1
Nipple Butte	Identified	141	226	0	0	0	367
	Hypothetical	33.1	23.9	0	0	0	57
	Total	174.1	249.9	0	0	0	424
Petes Cove	Identified	1654	4479.6	891.2	0	0	7024.8
	Total	1654	4479.6	891.2	0	0	7024.8
Pine Lake	Identified	192.7	179.7	267.1	163.9	0	803.4
	Hypothetical	0	0	59.3	410	384	853.3
	Total	192.7	179.7	326.4	573.9	384	1656.7
Posy Lake	Identified	10.7	144.9	185.6	73.1	0	414.3
	Hypothetical	42	41.1	27.4	7.7	0	118.2
	Total	52.7	186	213	80.8	0	532.5
Seep Flat	Identified	45	20.2	0	0	0	65.2
	Total	45	20.2	0	0	0	65.2
Ship Mountain Point	Identified	2059.9	1678.4	1064.2	0	0	4802.5
	Total	2059.9	1678.4	1064.2	0	0	4802.5
Sit Down Bench	Identified	89.6	0	0	0	0	89.6
	Total	89.6	0	0	0	0	89.6
Smoky Hollow	Identified	676.2	21.8	0	0	0	698
	Total	676.2	21.8	0	0	0	698
Sooner Bench	Identified	0.1	0	0	0	0	0.1
	Total	0.1	0	0	0	0	0.1

Coal resource for the Calico and A-sequences reported by 7.5' quadrangle (continued)

		ESTIMATED COAL RESOURCES (in millions of shrt tons)					
7.5' Quadrangle Name	Reliability	Overburden categories (thickness in ft)					
		0-1000	1000-2000	2000-3000	3000-6000	>6000	Total
Sweetwater Creek	Identified	74.4	219.8	224.2	376.4	0	894.8
	Hypothetical	0	192.6	559.8	2886.4	650.6	4289.4
	Total	74.4	412.4	784	3262.8	650.6	5184.2
Tibbet Bench	Identified	1080.2	40	0	0	0	1120.2
	Total	1080.2	40	0	0	0	1120.2
Upper Valley	Identified	93.3	231.2	251.7	1443.7	46.5	2066.4
	Hypothetical	19.2	54.7	76.4	724.2	350.8	1225.3
	Total	112.5	285.9	328.1	2167.9	397.3	3291.7
Wide Hollow Reservoir	Identified	1.2	25	0	0	0	26.2
	Total	1.2	25	0	0	0	26.2
Total		16372.9	16364.2	15463.6	12374.5	1735.3	62310.5

Coal resources for the Calico and A-sequences reported by township

		ESTIMATED COAL RESOURCES (in millions of shrt tons)					
Township Range	Reliability	Overburden categories (thickness in ft)					
		0-1000	1000-2000	2000-3000	3000-6000	>6000	Total
33S 1W	hypothetical	0	0	0	506.9	108.3	615.2
	total	0	0	0	506.9	108.3	615.2
33S 2W	hypothetical	0	0	33.7	90.1	0	123.8
	total	0	0	33.7	90.1	0	123.8
33S 1E	identified	0	94.9	655.4	1046.6	0	1796.9
	hypothetical	0	0	0	218.9	0	218.9
	total	0	94.9	655.4	1265.5	0	2015.8
33S 2E	identified	10.5	48.8	93.3	7.3	0	159.9
	hypothetical	42	41.1	27.4	6.9	0	117.4
	total	52.5	89.9	120.7	14.2	0	277.3
34S 1W	identified	0	0	45.3	49.9	0	95.2
	hypothetical	0	0	30.9	3301.8	98.8	3431.5
	total	0	0	76.2	3351.7	98.8	3526.7
34S 2W	identified	7.5	121.2	113.1	74.4	0	316.2
	hypothetical	0	192.6	659.8	555.5	0	1407.9
	total	7.5	313.8	772.9	629.9	0	1724.1
34S 1E	identified	33.2	589.7	284.5	278.9	0	1186.3
	hypothetical	0	75.9	195.4	253.7	0	525
	total	33.2	665.6	479.9	532.6	0	1711.3
34S 2E	identified	1.4	45	0	0	0	46.4
	total	1.4	45	0	0	0	46.4
35S 1W	identified	0	0	6	405.7	54.4	466.1
	hypothetical	0	0	0	378.6	1305.7	1684.3
	total	0	0	6	784.3	1360.1	2150.4
35S 2W	identified	111.3	150.2	165.6	249	0	676.1
	total	111.3	150.2	165.6	249	0	676.1
35S 1E	identified	20	190.5	188.9	356.4	6.9	762.7
	hypothetical	2.8	28.2	21.8	99.3	24.2	176.3
	total	22.8	218.7	210.7	455.7	31.1	939
35S 2E	identified	2.1	0	0	0	0	2.1
	total	2.1	0	0	0	0	2.1
36S 1W	identified	19.4	45.1	203.9	303.9	14.9	587.2
	hypothetical	0	0	94.1	629.1	122.1	845.3
	total	19.4	45.1	298	933	137	1432.5
36S 2W	identified	131.1	85.2	15.8	0.3	0	232.4
	total	131.1	85.2	15.8	0.3	0	232.4
36S 1E	identified	104.2	217.8	189.5	948.8	0	1460.3
	hypothetical	16.4	26.5	24.4	313.3	0	380.6
	total	120.6	244.3	213.9	1262.1	0	1840.9
36S 2E	identified	539.3	875.9	0	0	0	1415.2
	total	539.3	875.9	0	0	0	1415.2
36S 3E	identified	103.5	167.4	0	0	0	270.9
	total	103.5	167.4	0	0	0	270.9
37S 1W	identified	93.4	111.5	106.7	0	0	311.6
	hypothetical	0	0	84.8	90.5	0	175.3
	total	93.4	111.5	191.5	90.5	0	486.9
37S 1E	identified	27.9	292.6	940.2	660.4	0	1921.1
	hypothetical	0	0	148.1	852.3	0	1000.4
	total	27.9	292.6	1088.3	1512.7	0	2921.5
37S 2E	identified	912.1	3140.9	133.2	0	0	4186.2
	total	912.1	3140.9	133.2	0	0	4186.2
37S 3E	identified	642	448.5	0	0	0	1090.5
	total	642	448.5	0	0	0	1090.5

Coal resources for the Calico and A-sequences reported by township (continued)

		ESTIMATED COAL RESOURCES (in millions of shrt tons)					
Township Range	Reliability	Overburden categories (thickness in ft)					
		0-1000	1000-2000	2000-3000	3000-6000	>6000	Total
37S 4E	identified	19.8	1.6	0	0	0	21.4
	total	19.8	1.6	0	0	0	21.4
38S 1W	identified	31.5	0	0	0	0	31.5
	total	31.5	0	0	0	0	31.5
38S 1E	identified	53.9	161.1	298.3	0	0	513.3
	hypothetical	0	0	745.9	55.1	0	801
	total	53.9	161.1	1044.2	55.1	0	1314.3
38S 2E	identified	171.7	1439.9	1810.7	65.4	0	3487.7
	hypothetical	0	0	70.6	290.6	0	361.2
	total	171.7	1439.9	1881.3	356	0	3848.9
38S 3E	identified	2227.5	1333	1	0	0	3561.5
	total	2227.5	1333	1	0	0	3561.5
38S 4E	identified	780.5	212.5	0	0	0	993
	total	780.5	212.5	0	0	0	993
38S 5E	identified	30	17.9	0	0	0	47.9
	hypothetical	9.2	0	0	0	0	9.2
	total	39.2	17.9	0	0	0	57.1
39S 1W	identified	3.2	2.3	0	0	0	5.5
	hypothetical	1	0.5	0	0	0	1.5
	total	4.2	2.8	0	0	0	7
39S 1E	identified	8.3	21.6	94.9	11.9	0	136.7
	hypothetical	2.9	13.4	681.9	32.8	0	731
	total	11.2	35	776.8	44.7	0	867.7
39S 2E	identified	0	16.8	1492.5	0	0	1509.3
	hypothetical	0	3.1	1549.7	240.2	0	1793
	total	0	19.9	3042.2	240.2	0	3302.3
39S 3E	identified	82.5	3228.4	1268.5	0	0	4579.4
	total	82.5	3228.4	1268.5	0	0	4579.4
39S 4E	identified	1741.9	647.9	0	0	0	2389.8
	total	1741.9	647.9	0	0	0	2389.8
39S 5E	identified	2485.3	2.4	0	0	0	2487.7
	hypothetical	181.4	0	0	0	0	181.4
	total	2666.7	2.4	0	0	0	2669.1
39S 6E	identified	27.8	0.5	0	0	0	28.3
	total	27.8	0.5	0	0	0	28.3
40S 1W	identified	3.3	2.9	0	0	0	6.2
	total	3.3	2.9	0	0	0	6.2
40S 1E	identified	0.2	24	57.8	0	0	82
	hypothetical	0	10.7	62.6	0	0	73.3
	total	0.2	34.7	120.4	0	0	155.3
40S 2E	identified	0	108.3	1492.9	0	0	1601.2
	hypothetical	0	35.4	169.8	0	0	205.2
	total	0	143.7	1662.7	0	0	1806.4
40S 3E	identified	556.9	1414	1105.5	0	0	3076.4
	total	556.9	1414	1105.5	0	0	3076.4
40S 4E	identified	243.9	0	0	0	0	243.9
	hypothetical	1.5	0	0	0	0	1.5
	total	245.4	0	0	0	0	245.4
40S 5E	identified	873.8	0	0	0	0	873.8
	hypothetical	11.4	0	0	0	0	11.4
	total	885.2	0	0	0	0	885.2
40S 6E	identified	87.5	0	0	0	0	87.5
	hypothetical	28.5	0	0	0	0	28.5
	total	116	0	0	0	0	116

Coal resources for the Calico and A-sequences reported by township (continued)

		ESTIMATED COAL RESOURCES (in millions of shrt tons)					
Township Range	Reliability	Overburden categories (thickness in ft)					
		0-1000	1000-2000	2000-3000	3000-6000	>6000	Total
40S 7E	identified	0	0	0	0	0	0
	hypothetical	3.8	0	0	0	0	3.8
	total	3.8	0	0	0	0	3.8
41S 2E	identified	62.6	285.5	49.4	0	0	397.5
	hypothetical	19.9	87.6	46.2	0	0	153.7
	total	82.5	373.1	95.6	0	0	551.2
41S 3E	identified	1109.8	265.9	3.6	0	0	1379.3
	total	1109.8	265.9	3.6	0	0	1379.3
41S 4E	identified	1546.7	21.8	0	0	0	1568.5
	hypothetical	26.5	0	0	0	0	26.5
	total	1573.2	21.8	0	0	0	1595
41S 5E	identified	567	0	0	0	0	567
	total	567	0	0	0	0	567
41S 6E	hypothetical	2.4	0	0	0	0	2.4
	total	2.4	0	0	0	0	2.4
41S 7E	identified	28	0	0	0	0	28
	total	28	0	0	0	0	28
41S 8E	identified	3.1	0	0	0	0	3.1
	total	3.1	0	0	0	0	3.1
42S 2E	identified	60.9	11.5	0	0	0	72.4
	hypothetical	16	0	0	0	0	16
	total	76.9	11.5	0	0	0	88.4
42S 3E	identified	331	4.2	0	0	0	335.2
	total	331	4.2	0	0	0	335.2
42S 4E	identified	69.5	0	0	0	0	69.5
	total	69.5	0	0	0	0	69.5
42S 5E	identified	0.1	0	0	0	0	0.1
	total	0.1	0	0	0	0	0.1
42S 8E	identified	18.6	0	0	0	0	18.6
	total	18.6	0	0	0	0	18.6
43S 2E	identified	0.5	0	0	0	0	0.5
	total	0.5	0	0	0	0	0.5
43S 3E	identified	21	0	0	0	0	21
	total	21	0	0	0	0	21
Total		16372.9	16364.2	15463.6	12374.5	1735.3	62310.5

APPENDIX 3

Appendix 3 contains summaries of coal bed measurements, coal quality, and resource estimates from previously published geologic investigations within the Kaiparowits Plateau. Quadrangle localities are shown in figure 2 in the text.

Appendix 3

Summaries of coal beds for each 7.5' quadrangle in the Kaiparowits Plateau

Summary of coals exposed in outcrops of the John Henry Member of the Straight Cliffs Formation along the eastern and southeastern parts of the Kaiparowits Plateau

[1] Quadrangle	[2] Thickness data for coals in outcrops (in feet)			Comments
	Christensen	[3] Rees	Alvey	
Basin Canyon (Doelling and Graham, 1972)	3.0	1.0	2.0	Coal is found only in southwest part of quadrangle.
Blackburn Canyon	------	------	------	Coal data is not available for this quadrangle, however, data in surrounding areas indicate that significant coal deposits are unlikely in this area.
Canaan Creek (Zeller, 1973b)	25.0 25.0 1 bed	11.3 8.0 3 beds	26.0 20.5 3 beds	A lower local zone is 30 ft thick and has 10 ft of coal in 2 beds. Christensen zone is 110 ft thick. Rees equivalent coal zone is 30 ft thick. Alvey zone is 170 ft thick. Strata dip as much as 20 degrees in southwest part of quadrangle.
Carcass Canyon (Zeller, 1973a)	30.0 11.0 6 beds	14.0 10.0 2 beds	19.0 17.0 2 beds	Christensen zone is 120 ft thick. Rees equivalent coal zone is 50 ft thick. Alvey zone is 70 ft thick.
Collet Top (Zeller, 1978)	18.4 12.6 2 beds	8.2 6.2 2 beds	21.3 11.8 3 beds	Christensen zone is 80 ft thick. Rees coal zone is 120 ft thick. Alvey zone is 100 ft thick.
Dave Canyon (Zeller, 1973d)	26.9 15.0 5 beds	1.8 1.8 1 bed	13.0 13.0 1 bed	Christensen zone is 100 ft thick. Rees equivalent coal zone is 20 ft thick. Alvey zone is 160 ft thick. Coals are in western most part of quadrangle .
Death Ridge (Zeller, 1973c)	Only upper 20 ft exposed (see comment)	32.5 7.0 8 beds	18.2 12.0 2 beds	Only upper 20 ft of Christensen zone is exposed; zone has at least 80 ft of coal in a 115 ft interval in drill hole. Rees equivalent zone is 160 ft thick. Alvey zone is 120 ft thick. Coals are exposed in northwestern part of quadrangle and underlie remainder of area. Coal-bearing strata dip as much as 22 degrees in western part of quadrangle.
East of the Navajo (Zeller, 1990b)	51.4 29.6 7 beds	5.2 1.7 4 beds	7.0 6.0 2 beds	Lower coal zone has 7.6 ft coal in 2 beds that are 3.8 ft thick. Christensen zone is 75 ft thick. Rees zone is 175 ft thick. Alvey zone is 40 ft thick. Very little coal in eastern half of quadrangle. Most coal outcrops in western half of quadrangle are burned. Coals are still burning in southeast part of quadrangle.
Griffin Point (Bowers, 1973b)	16.5 12.0 2 beds	27.2 19 6 beds	27.3 17.9 5 beds	Coals are in zones a through e. Zone a is 100 ft thick and correlates to Christensen zone. Zones b and c are 140 ft thick and reported with Rees zone in this table . Zones d and e are 130 ft thick and correlate to the Alvey zone. Coals outcrops in eastern half of quadrangle but dip steeply into subsurface and are deeply buried in western half of quadrangle. Dips in western areas are as high as 40 degrees. Northern coal-bearing areas are faulted.

[1] Source of data is shown in parentheses.

[2] Top figure is maximum total coal in beds >1 ft thick. Middle figure is thickest coal bed in these zone in entire quadrangle. Lower figure is number of coal beds at locality of maximum coal. Bed thicknesses are determined according to U.S. Geological Survey. Circular 891 (Wood and others, 1983)

[3] Includes local unnamed coals between the Christensen and Alvey coal zones.

Summaries of coal beds for each 7.5' quadrangle in the Kaiparowits Plateau (continued)

Summary of coals exposed in outcrops of the John Henry Member of the Straight Cliffs Formation along the eastern and southeastern parts of the Kaiparowits Plateau (continued)

[1] Quadrangle	[2] Thickness data for coals in outcrops (in feet)			Comments
	Christen-sen	[3] Rees	Alvey	
Horse Mountain (Bowers, 1991a)	------	------	------	Coals are in subsurface only at depths from 500-3,500 feet. Beds dip 7-24 degrees in northern part of quadrangle. Christensen, Rees, and Alvey zones contain coal in the eastern quadrangle but coals are likely too thin and pinch out to west.
Mazuki Point (Peterson and Barnum, 1973b)	6.5 3.0 3 beds	------	------	Christensen coal zone is 210 ft thick and is the only coal zone in the John Henry Member in this quadrangle.
Navajo Point (Peterson and Barnum, 1973a)	6.5 3.7 3 beds	------	------	Christensen coal zone is 210 ft thick and is the only coal zone in the John Henry Member in this quadrangle.
Needle Eye Point (Zeller, 1990a)	33.4 23.3 2 beds	29.9 19.3 6 beds	5.7 5.7 1 bed	A local zone below the Christensen zone has 7.4 ft of coal in one bed. Christensen zone is 80 ft thick. Rees zone is 190 ft thick. Alvey zone is 40 ft thick. Coals are burned on outcrop over much of quadrangle and are still burning in many places.
Petes Cove (Zeller, 1990c)	not exposed	10.3 5.0 3 beds	16.5 11.5 2 beds	Most coals are in subsurface. Drill hole data show that the Christensen zone is 150 ft thick, and has 50.5 ft total coal in 4 beds and the thickest bed is 15.5 ft thick. Rees zone is about 120 ft thick. Alvey zone is 90 ft thick. Total coal in subsurface is about 100 ft.
Ship Mountain Point (Zeller and Vaninetti, 1990)	------	------	-----	There are no significant outcrops of coal in this quadrangle. However, the quadrangle is entirely underlain by coal in the John Henry Member.
Sooner Bench (Peterson, 1975)	------	------	------	John Henry Member is in southwest part of quadrangle only and has no coal in outcrops.
Seep Flat (Zeller and Stephens, 1973)	22.0 12.9 7 beds	3.0 3.0 1 bed	9.2 5.0 4 beds	Christensen zone is 120 ft thick. Rees zone is about 10 ft thick. Alvey zone is 70 ft thick. The only significant coal bed is in the Christensen coal zone in the southwest corner of the quadrangle.
Upper Valley (Bowers, 1973a)	17.8+ 6.0+ 4 beds	8.6 6.1 2 beds	23.5 15.5 3 beds	Coals are in zones a through e. Zone a is 70 ft thick and correlates to the Christensen zone . Zones b and c are 60 ft thick and are described as the Rees zone in this table. Zones d and e are 150 ft thick and correlate to the Alvey zone. Coals are steeply inclined where exposed in eastern part of quadrangle and generally deeply buried (> 3000 ft) in rest of quadrangle.
Wide Hollow Reservoir (Stephens, 1973)	15.5* 10.6* 2 beds*	15.6* 5.5* 6 beds*	1.5* 1.5* 1 bed*	A local zone below the Christensen zone has 2.0 ft of coal in one bed*. Christensen zone is 130 ft thick. Rees equivalent zones is 70 ft thick. Alvey zone is 30 ft thick. Coals are in small erosional remnants scattered throughout western part of quadrangle and are generally burned. Coals are thickest in western and southern parts of quadrangle but thin and pinch out to northeast. *Additional coal thicknesses are reported by Stephens (1973) but are not included in table because coals are impure.

[1] Source of data is shown in parentheses.

[2] Top figure is maximum total coal in beds >1 ft thick. Middle figure is thickest coal bed in these zone in entire quadrangle. Lower figure is number of coal beds at locality of maximum coal. Bed thicknesses are determined according to U.S. Geological Survey. Circular 891 Wood and others, 1983)

[3] Includes local unnamed coals between the Christensen and Alvey coal zones.

Summaries of coal beds for each 7.5' quadrangle in the Kaiparowits Plateau (continued)

Summary of coals exposed in outcrops of the upper part of the Straight Cliffs Formation along the western margin of the Kaiparowits Plateau (continued)

[1] Quadrangle	[2] Thickness data for coals in outcrops (in feet) Henderson coal zone	Comments
Butler Valley (Bowers, 1983)	7.6 4.3 2 beds	Henderson zone is about 15 ft thick. Coals contain numerous partings. Coal-bearing outcrops dip as high as 62 degrees and are faulted throughout much of the quadrangle.
Canaan Peak (Bowers, 1981)	16.2 8.5 2 beds	Henderson zone is about 40 ft thick. Coals contain many partings. In the southern part of the quadrangle, coals are faulted in outcrops and dip as much as 30 degrees in the subsurface.
Calico Peak (Doelling and Graham, 1972)	------	Coals are located along eastern margin of quadrangle only. Coal-bearing strata dip >45 degrees. Coal thicknesses are not available but coals are probably < 2.5 ft thick.
Five Mile Valley (Doelling and Graham, 1972)	------	No significant coal is in the upper part of the Straight Cliffs Formation in this quadrangle.
Four Mile Bench (Bowers, 1991b)	------	All coals are in the subsurface between depths of 1,000-2,500 ft.
Henrieville (Bowers, 1975)	15.4 12.4 2 beds	Henderson zone is about 40 ft thick. Coals are lenticular, split abruptly, and have many partings. Coal-bearing rocks of the Straight Cliffs Formation underlie eastern half of quadrangle only. Coals dip from 6 to 20 degrees in outcrops.
Horse Flat (Bowers, 1993)	3.5 2.3 2 beds	Henderson zone is about 10 ft thick. Coals outcrop only in northwest part of quadrangle, are highly faulted, and dip >45 degrees. Coals are deeply buried throughout remainder of quadrangle at depths from 1,000-2,400 ft.
Pine Lake (Bowers, 1973c)	27.0 13.9 3 beds	Henderson zone is about 35 ft thick. Core from the Henderson zone in the northwest part of the quadrangle contains as much as 29 feet of coal in a 36-ft thick interval. Local coals as thick as 3.5 are found above Henderson coal zone. Coals dip as much as 20 degrees in subsurface in central part of quadrangle and are at depths > 5,000 ft in northeastern part of quadrangle.

[1] Source of data is shown in parentheses.

[2] Top figure is maximum total coal in beds >1 ft thick. Middle figure is thickest coal bed in coal zone. Lower figure is number of coal beds at locality of maximum coal. Bed thicknesses are determined according to U.S. Geological Survey Circular 891 (Wood and others, 1983).

Summaries of coal beds for each 7.5' quadrangle in the Kaiparowits Plateau (continued)

Summary of coals exposed in the Middle member of the Straight Cliffs Formation along the southern margin of the Kaiparowits Plateau (continued)

[1] Quadrangle	[2] Major coal zone	Comment
Glen Canyon City (Waldrop and Sutton, 1966)	Contains 1-3 coal beds that are < 2 ft thick.	Major coal zone is 250 ft thick. Coals are in northeastern most part of quadrangle only.
Lone Rock (Waldrop and Peterson, 1967)	Contains 1 to 8 beds that are 1-6.9 ft thick and average 2.5 ft thick.	Major coal zone is as much as 375 ft thick. Coal beds are lenticular.
Lower Coyote Springs	----------	No coal data is available and no significant coals are likely to be in quadrangle.
Nipple Butte (Waldrop and Sutton, 1967a)	Contains lenticular coals < 2.3 ft thick. Coal beds average 0.6 ft thick.	Major coal zone is 250 ft thick. Coal beds are lenticular.
Sit Down Bench (Peterson and Horton, 1966)	Contains several coal beds > 5 ft thick. One coal bed is 14.2 ft thick.	Major coal zone is 500 ft thick. Coal are generally burned as far back as 200-300 ft from outcrop. Coals in southwest part of quadrangle may be entirely burned.
Smoky Hollow (Peterson, 1967)	Contains several coals from 5-15 ft thick and numerous coals < 5 ft thick.	Major coal zone is 550 ft thick. Coal are generally burned as far back as 200-300 ft from outcrop.
Tibbet Bench (Waldrop and Sutton, 1967b)	Contains numerous coals > 4 ft thick and several coals that are 10-17.3 ft thick Coals average 2.7 ft thick.	Major coal zone is 450 ft thick. Coals increase in thickness to northeast. Individual beds are lenticular and not in well defined zones.

[1] Sources of data are shown in parentheses.

[2] Bed thicknesses are determined according to U.S. Geological Survey Circular 891 (Wood and others, 1983).

Quality of Coals in the John Henry Member, Kaiparowits Plateau, Utah

Sample interval	Down hole depth (ft)	M %	VM %	FC %	S %	A %	Btu/ lb	Coal Zone	Moist mineral-matter free Btu and apparent rank
CT-J (5 samples)	613.4-617.6	8.47-14.34	35.2-39.96	34.76-41.62	1.00-2.02	6.45-17.56	9,717-10,832	Christensen	11,110-12,590 Subbituminous A and High volatile C Bituminous
CT-L (9 samples)	633.3-643.7	11.08-15.55	34.5-41.07	41.49-44.57	0.43-1.52	3.68-6.81	10,459-11,721	Christensen	11,220-12,580 Subbituminous A and High volatile C Bituminous
CT-M (5 samples)	648.1-652.8	10.99-13.83	34.95-37.69	37.69-44.02	0.75-2.21	5.33-16.37	9,727-10,968	Christensen	11,560-11,830 High volatile C Bituminous
CT-N (4 samples)	655.8-662.2	10.72-12.47	37.79-40.38	39.03-44.49	0.67-1.45	4.85-12.46	10,336-11,382	Christensen	11,790-12,060 High volatile C Bituminous

Apparent rank determined from proximate and ultimate analyses and gross calorific values (Btu/Lb) of coals collected from core hole CT-1-91 located in sec. 5, T. 39 S., R. 4 E. Core hole CT-1-91 is listed as data point 5 in this report. Proximate and ultimate analyses and gross calorific values as shown in table are based on unpublished data by Brenda Pierce (U.S. Geological Survey, 1996). Apparent rank calculated using the Parr formula (American Society for Testing and Materials, 1995). Moisture (M), volatile matter (VM), fixed carbon (FC), sulfur (S), ash (A), gross calorific value (Btu/lb).

Sample number	Down hole depth (ft)	M %	VM %	FC %	S %	A %	Btu/ lb	Coal Zone	Moist mineral-matter free Btu and apparent rank
SMP-E (3 samples)	483.0-486.8	8.18-9.69	42.64-43.77	42.54-44.39	0.48-0.69	3.28-5.51	11,940-11,981	Rees ?	12,390-12,750 High volatile C Bituminous
SMP-F (3 samples)	497.6-501.2	8.28-9.32	41.65-43.86	41.84-44.74	0.44-0.56	2.66-8.23	11,488-12,381	Rees ?	12,470-12,760 High volatile C Bituminous
SMP-H (17 samples)	581.2-603.0	0.67-7.85	27.95-50.74	24.91-45.36	0.48-2.34	4.27-42.50	6,962-12,387	Rees	12,700-13,710 High volatile B and C Bituminous
SMP-J (13 samples)	682.4-712.3	5.48-7.93	35.3-44.52	34.57-47.99	0.28-1.01	2.33-24.65	9,464-12,477	Christensen	12,360-13,590 High volatile B and C Bituminous
SMP-K (15 samples)	759.0-781.0	4.47-7.08	35.35-46.46	32.09-45.50	0.36-2.27	3.45-26.4	9,002-12,620	lower	12,610-16,720 High volatile A, B, and C Bituminous

Apparent rank determined from proximate and ultimate analyses and gross calorific values (Btu/Lb) of coals (queried where uncertain) collected from core hole SMP-1-91 located in sec. 6, T. 40 S., R. 4 E. Core hole SMP-1-91 is listed as data point 6 in this report. Proximate and ultimate analyses and gross calorific values as shown in table are based on unpublished data by Brenda Pierce (U.S. Geological Survey, 1996). Apparent rank calculated using the Parr formula (American Society for Testing and Materials, 1995). Moisture (M), volatile matter (VM), fixed carbon (FC), sulfur (S), ash (A), gross calorific value (Btu/lb).

Sample number	Down hole depth (ft)	M %	VM %	FC %	S %	A %	Btu/ lb	Coal Zone	Moist mineral-matter free Btu and apparent rank
D204048	313-319	20.4	34.7	37.7	1.0	7.2	9,440	Alvey	10,240 subbituminous B
D204049	336-351	19.7	35.1	37.0	1.0	8.2	9,510	Alvey	10,440 subbituminous B
D204050	547-555	18.4	35.0	36.3	0.6	10.3	9,280	Rees	10,450 subbituminous B
D204051	603-608	15.6	29.6	29.9	0.7	24.9	7,640	Rees	10,460 subbituminous B
D204052	617-625	17.2	33.4	34.8	0.8	14.6	8,990	Rees	10,680 subbituminous A
D204053	702-713	21.1	34.7	39.8	0.5	4.4	9,830	Christensen	10,320 subbituminous B
D204054	713-727	20.1	33.3	40.9	0.5	5.7	9,840	Christensen	10,490 subbituminous B
D204055	775-780	19.7	34.6	39.9	0.6	5.8	9,860	Christensen	10,520 subbituminous A

Apparent rank determined from proximate and ultimate analyses and gross calorific values (Btu/Lb) of coals collected from core hole K-DR-1 located in sec. 8, T. 37 S., R. 2 E. Core hole K-DR-1 is listed as data point 4 in this report. Proximate and ultimate analyses and gross calorific values as shown in table are from as-received basis reported in Zeller (1979) and Affolter and Hatch (1980). Apparent rank calculated using the Parr formula (American Society for Testing and Materials, 1995). Moisture (M), volatile matter (VM), fixed carbon (FC), sulfur (S), ash (A), gross calorific value (Btu/lb).

Quality of Coals in the John Henry Member, Kaiparowits Plateau, Utah (continued)

Sample number	Down hole depth (ft)	M %	VM %	FC %	S %	A %	Btu/ lb	Coal Zone	Moist mineral-matter free Btu and apparent rank
DH-1 core	289-292	9.36	32.39	28.31	NR	29.94	NR	Henderson	----------
DH-1 core	292-298	17.57	34.36	26.37	NR	21.7	NR	Henderson	----------
DH-1 core	298-304	17.98	38.26	33.15	NR	10.61	9,740	Henderson	11,010 Subbituminous A
DH-1 core	304-307	19.77	37.23	35.12	NR	7.88	10,130	Henderson	11,080 Subbituminous A
DH-1 core	310-317	17.80	37.81	30.58	NR	13.81	NR	Henderson	----------
DH-1 core	318-324	18.89	36.71	35.96	NR	8.44	10,300	Henderson	11,350 Subbituminous A

Analyses from core of the Henderson coal zone collected from the DH-1 located in the SWNE1/4, sec. 22, T. 35 S., R. 2 W. (Doelling and Graham, 1972, p. 126). DH-1 is located 150 feet northwest of data point 151 (fig. A on pl. 1). Ranges of proximate and ultimate analyses and gross calorific values as shown in table are based on as-received values reported in Doelling and Graham (1972, p. 126). Apparent rank calculated using the Parr formula (American Society for Testing and Materials, 1995), and assumes a sulfur value of 1.0 percent. Value unknown (NR), moisture (M), volatile matter (VM), fixed carbon (FC), sulfur (S), ash (A), gross calorific value (Btu/lb).

Proximate analyses of coal in the John Henry Member collected in mines in the Kaiparowits Plateau, Utah. Values are from Doelling and Graham (1972, p. 123-127).

Mine / no. of samples analyzed	Analyses	% Moisture	% Volatile Matter	% Fixed Carbon	% Ash	% Sulfur	Heating value Btu/lb
Alvey coal zone							
Canaan Creek quadrangle							
Alvey mine (5)	as received	16.6-17.7	36.9-38.3	37.5-38.9	6.6-7.8	0.4-1.2	9,910-10,460
	dry	----------	44.6-45.9	46.1-46.8	7.9-8.6	0.6-1.5	12,170-12,540
Griffin Point quadrangle							
New Cherry Creek mine (1)	as received	15.1	41.1	39.1	4.7	0.9	10,125
	dry	----------	48.4	46.0	5.6	1.1	11,920
Cherry Creek mine (6)	as received	7.6-24.8	33.3-46.0	32.9-40.0	5.3-10.5	0.4-0.7	7,420- 9,963
	dry	----------	41.2-49.8	40.7-47.3	6.8-12.4	0.6-0.8	9,880-11,720
Corn Creek mine (1)	as received	6.2	45.0	42.0	6.8	NR	9,066
	dry	----------	48.0	44.8	7.2	-------	9,665
Rees coal zone							
Tibbet Bench quadrangle							
Spencer mine (3)	as received	3.7-5.9	38.1-45.5	47.4-51.0	3.8-5.7	0.5-1.1	10,610-12,297
	dry	----------	40.2-46.8	49.3-54.0	3.9-6.0	0.6-1.1	11,210-12,756
Christensen coal zone							
Canaan Creek quadrangle							
Schow mine (6)	as received	3.8-8.6	35.3-42.3	39.6-46.3	3.5-16.1	0.5-3.2	11,062-12,276
	dry	--------	37.5-46.1	42.1-50.1	3.8-17.1	2.3-3.4	11,870-13,073
Shurtz mine (2)	as received	7.4-12.2	39.4-39.6	44.2-49.3	3.7-4.3	0.8	11,108-11,165
	dry	---------	42.8	53.2	4.0	NR	12,057
Tibbet Bench quadrangle							
Warm Creek prospect (1)	as received	4.7	40.7	48.6	6.0	0.7	12,190
Henderson coal zone							
Pine Lake quadrangle							
Davis mine (1)	as received	11.3	41.3	39.2	8.5	0.9	10,126
	dry	-----	46.1	44.1	9.5	1.0	11,363
Pollock mine (3)	as received	16.3-22.0	37.2-40.4	30.6-36.0	7.2-10.2	0.8-1.3	8,544-9,605
	dry	----------	46.6-48.3	39.3-44.5	8.9-13.0	1.0-1.6	10,994-11,475
Tropic mine (3)	as received	20.2-20.9	NR	NR	NR	NR	8,910-9,240
	dry	---------	42.0-42.6	44.9-47.0	11.0-12.5	0.7-1.0	11,270-11,680

Proximate analyses of coals collected from outcrops of the John Henry Member, Kaiparowits Plateau, Utah. Values are based on Doelling and Graham (1972, p. 123-127).

Quadrangle / no. of samples analyzed	Analyses	% Moisture	% Volatile Matter	% Fixed Carbon	% Ash	% Sulfur	Heating value Btu/lb
Alvey coal zone							
Canaan Creek (6)	as received dry	3.6-17.4 ---------	30.8-44.3 32.0-46.8	40.4-59.1 42.9-61.3	3.0-11.2 3.2-11.9	0.8-1.0 0.9-1.0	8,726-11,210 9,263-12,650
Carcass Canyon (9)	as received dry	6.6-18.4 ---------	37.5-43.1 42.0-50.5	34.4-47.6 42.0-51.0	3.4-8.9 4.2-10.5	0.4 0.4	NR 9,930-10,859
Collet Top (1)	as received dry	16.7 ---------	38.0 45.6	29.7 35.6	15.7 18.8	1.0 1.3	8,940 10,736
Dave Canyon (2)	as received dry	8.1-11.6 ---------	41.5-44.4 46.9-48.3	36.1-42.1 40.8-45.8	5.4-9.5 5.9-10.7	1.3 1.5	10,230-10,799 11,132-12,216
Death Ridge (1)	as received dry	7.2 ---------	38.3 41.3	50.0 53.9	4.5 4.8	NR NR	10,410 11,218
Griffin Point (1)	as received dry	16.5 ---------	41.5 49.8	34.0 40.8	6.7 8.0	1.3 1.6	9,985 11,887
Ship Mountain Point (1)	as received	9.8	41.4	43.8	5.0	0.8	10,230
Upper Valley (1)	as received dry	6.6 ---------	41.1 44.0	46.3 49.6	6.0 6.4	NR NR	9,742 10,430
Rees coal zone							
Canaan Creek (2)	as received dry	5.6-8.3 ---------	36.3-44.9 38.5-49.0	35.9-38.9 38.0-42.4	7.9-22.2 8.6-23.5	NR NR	7,574-9,736 8,023-10,617
Death Ridge (1)	as received dry	7.1 ---------	45.8 49.3	41.2 44.4	4.9 5.3	NR NR	9,229 9,934
East of the Navajo (1)	as received dry	9.1 ---------	34.7 38.2	50.1 55.1	7.1 7.8	0.9 0.9	10,220 11,242
Needle Eye Point (2)	as received dry	12.3-23.7 ---------	37.6-40.8 46.4-49.2	29.5-38.6 38.6-45.3	7.3-9.2 8.3-12.2	1.1-1.2 1.5-1.6	8,453-10,142 11,056-11,562
Upper Valley (1)	as received dry	5.7 ---------	46.8 49.6	41.2 44.5	5.6 5.9	NR NR	9,385 9,952
Christensen coal zone							
Canaan Creek (2)	as received dry	4.6-6.3 ---------	43.8-46.1 46.7-48.3	40.9-44.7 43.7-46.9	4.6-9.0 4.8-9.6	NR NR	9,736-9,873 10,205-10,537
Carcass Canyon (7)	as received dry	4.4-25.4 ---------	35.6-52.5 44.6-54.9	28.9-49.1 37.6-51.7	3.4-10.1 3.7-13.5	0.4 0.4	NR 9,780-11,234
Death Ridge (2)	as received dry	5.4-6.0 ---------	41.0 43.3-43.6	46.6-48.3 49.6-51.1	5.3-6.4 5.6-6.8	NR NR	10,958-11,244 11,657-11,886
Needle Eye Point (7)	as received dry	6.7-14.6 NR	20.3-51.7 NR	20.5-66.2 NR	4.6-17.8 NR	0.4-1.3 NR	9,785-11,785 NR
Seep Flat (1)	as received dry	10.4 ---------	36.0 40.2	47.5 53.0	6.1 6.8	0.9 1.0	11,100 12,388
Tibbet Bench (4)	as received dry	11.2-24.2 ---------	35.9-42.6 45.3-48.0	33.9-38.1 40.6-45.7	6.0-10.1 7.9-11.5	0.9-1.2 1.1-1.4	8,778-9,858 11,112-11,582
Henderson coal zone							
Henrieville (2)	as received dry	17.7-22.7 ---------	34.6-35.6 43.6-44.7	32.5-37.8 42.1-46.0	8.6-9.6 10.4-12.4	0.6-0.7 0.8	7,768-9,510 10,049-11,555
Pine Lake (2)	as received dry	13.1-28.6 ---------	37.8 43.5-45.0	40.9 41.1-44.5	6.7 7.7-10.5	1.5 0.9-1.7	7,372-11,367 10,362-13,081

Previous Coal Resource Estimates of the Kaiparowits Plateau

Quadrangle	Coal resources (millions short tons)		Comments
	Doelling and Graham (1972)	U.S. Geological Survey	
Butler Valley	0.5	not calculated	Lenticularity of coal beds makes resources difficult to calculate and the area has low potential for coal development due to thin and discontinuous coal beds, steep dips, and numerous faults (Bowers, 1983). Figures reported by Doelling and Graham (1972) include areas in adjoining Slickrock Bench quadrangle.
Canaan Creek	398	600 (Zeller, 1973b)	Total coal resources estimated for beds > 4 ft thick and < 2,000 ft deep (Zeller, 1973b).
Carcass Canyon	629	700 Zeller (1973a)	Estimate made for total coal in beds > 4 ft thick and having < 2,000 ft of overburden; resource calculations were not made for individual coals because of limited exposures, lenticular coal beds, and lack of subsurface data (Zeller, 1973a).
Collet Top	470	920 Zeller (1978)	Total coal resources calculated for coal beds > 4.8 ft thick. All coals in quadrangle have < 1,000 ft of overburden (Zeller, 1978).
Dave Canyon	170	200 Zeller (1973d)	Estimate made for total coal in beds > 4 ft thick and having < 2,000 ft of overburden; resource calculations were not made for individual coals because of limited exposures, lack of coal quality and lenticular coal beds (Zeller, 1973d).
Death Ridge	1,060	1,500 (Zeller, 1973c)	Total coal resources estimated for beds > 4 ft thick and < 2,000 ft deep (Zeller, 1973c). Much of the resource is below 1,000-1,500 ft of overburden and lower part of Christensen coal zone was not included in estimate as bed continuity was unknown (Zeller, 1973c).
East of the Navajo	28	60 (Zeller, 1973c	Estimate made for coal beds > 4 ft thick; sufficient data was not available for resource appraisal (Zeller, 1990b).
Griffin point	449	178 (Bowers, 1973b)	Estimated inferred resources of total coal were made for coals > 1 ft thick and < 2,000 ft deep; considerable coal is likely present at greater depths (Bowers, 1973b).
Henrieville	43	16 (Bowers, 1975).	Inferred resources calculated for coal beds > 4 ft thick and <1,200 ft deep; additional coal is probably at depths between 800-2,500 ft in the northeastern part of the quadrangle (Bowers, 1975).
Lone Rock	38	not calculated	
Needle Eye Point	683	800 Zeller (1990a)	Estimate by Zeller (1990a) for coal beds > 4 ft thick; resource calculations were not made because of poor exposures, lack of coal quality, lenticular coal beds, and extensive burning.
Petes Cove	809	3,500 Zeller, 1990c)	Estimate of total coal in beds > 4 ft thick (Zeller, 1990c).
Pine Lake	611	216 (Bowers, 1973c)	Inferred resource calculated for coal beds > 4 ft thick and < 2,500 ft deep; additional coal is probably at depths between 1,500-7,000 ft in the eastern part of the quadrangle (Bowers, 1973c).
Seep Flat	28	2 Zeller and Stephens (1973)	Estimate made by Zeller and Stephens (1973) for total coal in beds > 4 ft thick. Zeller and Stephens (1973) did not calculate resource because of limited exposures, lack of coal quality data and lenticular nature of coal beds.
Ship Mountain Point	1,266	not calculated	
Sit Down Bench	18	not calculated	Formerly called Gunsight Butte NE
Smoky Hollow	430	not calculated	Formerly called Gunsight Butte NW
Tibbet Bench	272	not calculated	Formerly called Nipple Butte NE
Upper Valley	147	169 (Bowers, 1973a)	Estimated inferred resources of total coal was made for coals > 1 ft thick and for depths < 2,500 ft. Additional coal is likely at greater depths (Bowers, 1973a).