

APPENDIX A

BARNES & TUCKER DRILL HOLE DATA - LOWER KITTANNING (B) SEAM

Indiana, Canada and Cheatfield Counties, West Virginia

GILBERT ASSOCIATES, INC.

By

Don T. Boyd Company

Mining Engineers

January 1991

Hole No.	Location Township	Elev. at Top of Hole (feet)	Elev. at Base of Hole (feet)	Depth (feet)	Total Core Length (feet)	Coal Seam Characteristics		Gravel Layers		Distance to Se. Mine (feet)	Final Thicknesses (feet)		Fracture Analysis (At Request)						Age Factor Temp.				
						Interval included in Sample (feet)	Detail	Interval (feet)	Gravel (feet)		Gravel (feet)	Gravel (feet)	Fracture Type	Fracture Width (in)	Fracture Depth (in)	Fracture Length (in)	Fracture Orientation						
CH-1	Barnes	1782	483	1299	1299	11.30	-	83.00	0	33.00	1430	4.75	4.75	17.75	1	Dark shale	2.00	22.13	67.08	8.72	2.08	180.43	2180
CH-2	Barnes	1771	484	1287	1287	11.30	-	83.00	0	46.50	1427	14.55	14.55	17.75	1	Shale, dark	1.40	22.49	67.25	8.76	2.99	141.74	2210
CH-3	Barnes	1765	489	1276	1276	11.30	-	83.00	0	46.50	1426	11.47	11.47	17.75	1	Shale, dark	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-4	Barnes	1761	491	1269	1269	11.30	Barren/Dirty shale	23.75	0	37.25	1424	7.58	7.58	17.75	1	Dark shale	1.71	20.34	67.76	10.18	4.64	181.72	2090
CH-5	Barnes	1756	496	1260	1260	11.30	Soft, sandy	23.75	0	37.25	1424	7.58	7.58	17.75	1	Shale, dark	1.04	20.43	67.69	8.44	3.14	170.25	2140
CH-6	Barnes	1751	497	1254	1254	11.30	Soft, sandy	23.75	0	37.25	1424	7.58	7.58	17.75	1	Shale, dark	1.35	20.37	67.56	7.27	2.30	171.72	2140
CH-7	Barnes	1747	499	1248	1248	11.30	Barry	21.20	0	42.59	1422	20.42	22.42	7.17	1	Dark shale	1.37	22.79	67.94	8.09	2.79	171.72	2140
CH-8	Barnes	1743	501	1242	1242	11.30	Barry-sulfur bands	21.20	0	20.50	1421	5.20	5.20	5.20	2	Sandstone	1.63	22.97	68.08	10.32	3.65	171.72	2090
CH-9	Barnes	1739	503	1236	1236	11.30	Silver streaks	21.20	0	24.25	1421	6.50	6.50	12.16	2	Sandstone	1.06	23.64	68.40	7.04	3.01	141.74	2210
CH-10	Barnes	1735	505	1230	1230	11.30	Shale	21.20	0	-	-	-	-	8.16	1	Dark shale	1.70	20.50	67.20	70.00	3.59	171.72	2090
CH-11	Barnes	1731	507	1224	1224	11.30	-	42.50	0	22.00	1420	16.53	22.42	-	1	Dark shale	1.19	22.91	68.81	7.52	3.31	141.74	2210
CH-12	Barnes	1727	509	1218	1218	11.30	Barry	42.50	0	15.00	-	6.16	6.16	42.16	2	2" shale-2" shale core zone	0.97	23.34	69.29	6.38	2.41	141.74	2210
CH-13	Barnes	1723	511	1212	1212	11.30	Barry, fine </td <td>24.00</td> <td>0</td> <td>41.50</td> <td>-</td> <td>14.55</td> <td>10.25</td> <td>-</td> <td>1</td> <td>Dark shale</td> <td>0.83</td> <td>20.96</td> <td>69.80</td> <td>8.66</td> <td>3.67</td> <td>141.74</td> <td>2210</td>	24.00	0	41.50	-	14.55	10.25	-	1	Dark shale	0.83	20.96	69.80	8.66	3.67	141.74	2210
CH-14	Barnes	1719	513	1206	1206	11.30	Barry-sulfur bands	42.25	0	18.25	1420	18.25	18.25	18.25	1	Shale, dark	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-15	Barnes	1715	515	1200	1200	11.30	Barry	38.00	0	17.30	1420	17.82	10.92	14.09	1	Shale, dark	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-16	Barnes	1711	517	1194	1194	11.30	Barry	38.00	0	-	-	23.74	23.74	8.50	1	Dark shale, SS	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-17	Barnes	1707	519	1188	1188	11.30	Barry	38.00	0	5.00	-	-	7.75	1.72	2	Sandstone	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-18	Barnes	1703	521	1182	1182	11.30	Barry	41.00	0	1.00	-	1.00	-	20.16	2	Block shale-under Sandstone	-	-	-	-	-	-	-
CH-19	Barnes	1699	523	1176	1176	11.30	Barry	41.00	0	-	-	1.16	1.16	31.34	1	Dark shale	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-20	Barnes	1695	525	1170	1170	11.30	Barry	41.00	0	15.00	-	8.42	8.42	-	2	Sandstone	-	-	-	-	-	-	-
CH-21	Barnes	1691	527	1164	1164	11.30	Barry	39.00	0	35.00	1423	-	-	-	1	Dark shale	-	-	-	-	-	-	-
CH-22	Barnes	1687	529	1158	1158	11.30	Barry	39.00	0	9	-	16.55	22.92	-	1	Shale, dark	2.90	20.12	67.12	11.90	3.33	141.74	2210
CH-23	Barnes	1683	531	1152	1152	11.30	Barry	40.00	0	2	-	16.55	18.22	-	1	Shale, dark	1.30	21.24	70.47	7.22	1.03	141.74	2210
CH-24	Barnes	1679	533	1146	1146	11.30	Barry	40.00	0	66.00	1420	6.29	9.29	-	2	Sandstone, gray	-	-	-	-	-	-	-
CH-25	Barnes	1675	535	1140	1140	11.30	Barry	40.00	0	-	-	7.30	7.30	30.63	2	Sandstone, gray	-	-	-	-	-	-	-
CH-26	Barnes	1671	537	1134	1134	11.30	Barry	40.00	0	2.30	-	7.30	7.30	1.90	1	Shale, dark	-	-	-	-	-	-	-
CH-27	Barnes	1667	539	1128	1128	11.30	Barry	40.00	0	0	-	8.25	8.25	40.67	2	Sandstone, gray	-	-	-	-	-	-	-
CH-28	Barnes	1663	541	1122	1122	11.30	Barry	30.00	0	0	-	16.55	49.16	-	1	Shale, dark	-	-	-	-	-	-	-
CH-29	Barnes	1659	543	1116	1116	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-30	Barnes	1655	545	1110	1110	11.30	Barry	30.00	0	0	-	16.55	20.33	-	1	Shale, dark, gray	-	-	-	-	-	-	-
CH-31	Barnes	1651	547	1104	1104	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-32	Barnes	1647	549	1098	1098	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-33	Barnes	1643	551	1092	1092	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-34	Barnes	1639	553	1086	1086	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-35	Barnes	1635	555	1080	1080	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-36	Barnes	1631	557	1074	1074	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-37	Barnes	1627	559	1068	1068	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-38	Barnes	1623	561	1062	1062	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-39	Barnes	1619	563	1056	1056	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-40	Barnes	1615	565	1050	1050	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-41	Barnes	1611	567	1044	1044	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-42	Barnes	1607	569	1038	1038	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-43	Barnes	1603	571	1032	1032	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-44	Barnes	1599	573	1026	1026	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-45	Barnes	1595	575	1020	1020	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-46	Barnes	1591	577	1014	1014	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-47	Barnes	1587	579	1008	1008	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-48	Barnes	1583	581	1002	1002	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-49	Barnes	1579	583	996	996	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-50	Barnes	1575	585	990	990	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-51	Barnes	1571	587	984	984	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-52	Barnes	1567	589	978	978	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-53	Barnes	1563	591	972	972	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
CH-54	Barnes	1559	593	966	966	11.30	Barry	30.00	0	0	-	-	-	-	-	-	-	-	-	-	-	-</	