K. SHELL - LILLYBURT - 8.(3)A
Book 1

Lilly burt 1981
Core Description
Analysis

G McKinstry

407
2 of 5

K- SHELL - Lillyburt FILE A

LILLYBURT PROJECT

1981 GEOLOGICAL REPORT

VOLUME TWO

APPENDICES I TO IX INCLUSIVE

OPEN FILE
GEOLOGICAL BRANCH
ASSESSMENT REPORT

5/DJa.34

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APPENDIX I

# CHIP LOG DESCRIPTIONS

## ROTARY HOLE NO. LBR - 303

| | |
|---|---|
| DATE BEGUN: | July 5, 1981 |
| DATE FINISHED: | July 12, 1981 |
| ELEVATION: | 1552.6 |
| NORTHING: | 5471154.4 |
| EASTING: | 671828.4 |
| TOTAL DEPTH: | 263.6m |
| ANGLE: | 90 |
| AZIMUTH: | - |
| LOGS RUN: | Gamma, Neutron, Density, Caliper |

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 0 - 4.8 | Overburden | Contains carbonates predominantly, light grey |
| 4.8 - 7.6 | Overburden | Same as above |
| 7.6 - 12.1 | Claystone/ Siltstone | Approximately 60% claystone, 40% siltstone, also contains carbonates in trace amounts. Claystone, reddish brown, also trace green siltstone |
| 12.1 - 16.7 | Siltstone | Light grey and reddish brown, trace amounts of carbonates, also trace green siltstones |
| 16.7 - 21.3 | Claystone | Silty, light reddish brown with greenish bits |
| 21.3 - 25.9 | Siltstone/ Sandstone | Siltstone, reddish brown, sandstone light grey, very fine grained, approximately 50% each type |
| 25.9 - 30.4 | Siltstone/ Sandstone | Same as above, 65% Sandstone, 35% Siltstone |
| 30.4 - 35.0 | Sandstone | Light grey predominantly, some reddish brown ( 10%), 2 grain sizes, very fine grained 60%, fine grained 40% |

ROTARY HOLE NO. LBR - 303

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 35.0 - 39.6 | Siltstone | Light grey |
| 39.6 - 44.1 | Siltstone | Same as above |
| 44.1 - 48.7 | Siltstone | Medium grey, also contains red siltstone chips approximately 5%, calcite chips present |
| 48.7 - 53.34 | Sandstone | Light grey with some reddish brown (approximate 40%), very fine grained, well indurated |
| 53.34- 57.9 | Sandstone | Light grey, very fine grained, moderately well indurated 5% red chips of siltstone |
| 57.9 - 62.4 | Sandstone | Silty, light grey, contains red silty chips, white calcareous chips |
| 62.4 - 67.0 | Sandstone | Light grey, very fine grained, moderately indurated |
| 67.0 - 71.6 | Sandstone | Same as above, with bits of fine grained (approximately 10%) traces of iron staining in very fine sandstone, visible pyrite in fine sandstone |
| 71.6 - 76.2 | Siltstone | Medium grey, also contains some fine grained sandstone (10%) |
| 76.2 - 80.7 | Sandstone/ Siltstone | Sandstone (65%) light grey fine grained, salt and pepper, contains pyrite, Siltstone (30%) medium grey (pyrite chips and chert and reddish brown siltstone) 10% |
| 80.7 - 85.3 | Sandstone/ Siltstone | Same as above but sandstone (75%), Siltstone 20% and (pyrite chips, chert and reddish brown siltstone) 10% |
| 85.3 - 89.9 | Siltstone/ Claystone/ Sandstone | Siltstone (50%) light grey, contains pyrite, also contains pyrite and chert chips (8%), Claystone (35%) medium to dark grey, contains pyrite, Sandstone (7%) fine grained, light grey |
| 89.9 - 94.4 | Claystone/ Sandstone/ Siltstone | Claystone (45%) dark grey contains pyrite, iron staining, Siltstone (45%) medium to light grey, iron staining, pyrite, pyrite chips, chert, reddish brown siltstone (10%) Sandstone (30%) light grey fine grained iron stained, salt and pepper |

ROTARY HOLE NO. LBR - 303

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 94.4 - 99.0 | Claystone/ Sandstone/ Siltstone | Same as above |
| 99.0 - 103.6 | Sandstone | Medium grey, fine grained, pyrite and iron staining, calcite |
| 103.6 - 108.2 | Sandstone | Salt and pepper, medium to fine grained, equigranular |
| 108.2 - 112.7 | Sandstone | Same as above |
| 112.7 - 117.3 | Sandstone/ Siltstone | 25% medium to fine grained, salt and pepper sandstone, 75% fine grained, dark grey to black siltstone |
| 121.9 - 126.4 | Sandstone/ Siltstone | 50% salt and pepper sandstone, 50% dark grey siltstone |
| 126.4 - 131.0 | Sandstone | Fine to very fine grained, grey, some COAL and calcite chips |
| 131.0 - 135.6 | Sandstone | As above, almost a siltstone, no COAL |
| 135.6 - 140.2 | Sandstone | As above |
| 140.2 - 144.7 | Sandstone | Fine grained, dark grey, equigranular |
| 144.7 - 149.3 | Sandstone | Fine to medium grained, salt and pepper, COALY |
| 149.3 - 153.9 | Sandstone | Fine to medium grained, fine grain is dark grey, medium grain is salt and pepper, some COALY surfaces |
| 153.9 - 158.4 | Sandstone | As above |
| 158.4 - 163.0 | Sandstone | Medium grained, salt and pepper, pyrite chips |
| 163.0 - 167.6 | Siltstone | Fine to very fine grained, dark grey, carbonaceous with COALY plant fragments |
| 167.6 - 172.2 | Siltstone | As above |
| 172.2 - 176.7 | Siltstone | As above, COAL chips (2%) |
| 176.7 - 181.3 | Sandstone | Fine to very fine grained with occasional medium grained salt and pepper sandstone, fine grained chips are dark grey |
| 181.3 - 185.9 | Sandstone | Salt and pepper, medium grained, equigranular 20%, fine grained grey sandstone |

ROTARY HOLE NO. LBR - 303

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 185.9 - 190.5 | Sandstone | Fine grained, grey-brown, equigranular 10% medium grained salt and pepper sandstone |
| 190.5 - 195.0 | Sandstone | Fine grained, grey-brown, 10% salt and pepper sandstone |
| 195.0 - 199.6 | Sandstone | As above |
| 199.6 - 204.2 | Sandstone | Fine grained, grey-brown, 20% salt and pepper, some COALY fracture surfaces |
| 204.2 - 208.7 | Siltstone/ Sandstone | Dark grey siltstone, fine grained, light to dark grey sandstone medium to fine grained, sandstone shows oxidation |
| 208.7 - 213.3 | Siltstone | Mostly siltstone, dark grey, fine grained, trace of COAL chips |
| 213.3 - 217.9 | Siltstone/ Sandstone | Dark grey siltstone, fine grained, fine grained sandstone, medium grey to dark grey, traces of COAL chips |
| 217.9 - 222.5 | Siltstone/ Sandstone | Medium grey sandstone and siltstone, fine grained siltstone and sandstone, traces of COAL chips |
| 222.5 - 227.0 | Siltstone/ Sandstone | Medium grained sandstone, dark grey, and fine siltstone, calcite traces and some oxidation traces, also some COAL chips |
| 227.0 - 231.6 | Siltstone/ Sandstone | Light grey sandstone and siltstone, both fine grained, some pyrite chips, also some calcite traces |
| 231.6 - 236.2 | Siltstone/ Sandstone | Light grey sandstone and siltstone, both have fine grained traces of calcite and COAL chips |
| 236.2 - 240.7 | Siltstone/ Sandstone | Medium grained sandstone, light to dark grey, fine grained siltstone, light grey, some COAL chips |
| 140.7 - 245.3 | Sandstone | Medium grained sandstone, light to medium grey, some calcite traces and some COAL chips, as well as some oxidation of the sandstone |

# CHIP LOG DESCRIPTIONS

## ROTARY HOLE NO. LBR - 304

| | |
|---|---|
| DATE BEGUN: | June 29, 1981 |
| DATE FINISHED: | July 2, 1981 |
| ELEVATION: | 1514.7 |
| NORTHING: | 5470844.6 |
| EASTING: | 671518.1 |
| TOTAL DEPTH: | 252.6m |
| ANGLE: | 90 |
| AZIMUTH: | - |
| LOGS RUN: | Focused Electric Density, Gamma, Neutron, Caliper |

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 0 - 4.6 | Overburden | |
| 4.6 - 9.1 | Overburden | |
| 9.1 - 13.7 | Overburden | |
| 13.7 - 18.3 | Sandstone | Light grey, medium to fine grained, moderately well indurated |
| 18.3 - 21.3 | Sandstone | Medium grey, medium to fine grained, moderately indurated, trace iron staining |
| 21.3 - 25.3 | Sandstone | Medium grey, medium to fine grained, moderately indurated |
| 25.3 - 27.4 | Siltstone/ Sandstone | Dark grey siltstone mostly, with some sandstone (as before), trace COAL |
| 27.4 - 29.0 | COAL | |
| 29.0 - 30.5 | Siltstone/ Sandstone | Dark grey siltstone with very minor sandstone (very fine grained), trace COAL |
| 30.5 - 35.1 | Sandstone | Light to medium grey, very fine grained, well indurated, trace iron staining |

ROTARY HOLE NO. LBR - 304

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 35.1 - 39.6 | Sandstone | Light grey, fine grained, well indurated |
| 39.6 - 44.2 | Sandstone | Light grey, as above but slightly coarser grained |
| 44.2 - 48.8 | Siltstone/ Sandstone | Mostly medium grey siltstone with fine grained sandstone chips, trace iron staining, trace COAL |
| 48.8 - 53.3 | Siltstone | Medium grey, trace sandstone chips |
| 53.3 - 57.9 | Siltstone | Same as above |
| 57.9 - 83.2 | COAL | |
| 83.2 - 85.0 | Claystone | Dark grey, COAL traces, some fissility but not well developed |
| 85.0 - 86.3 | COAL | |
| 86.3 - 86.9 | Claystone | Dark grey, COAL traces, slightly fissile |
| 86.9 - 91.4 | Siltstone/ Mudstone | Mostly medium grey siltstone with some mudstone, trace COAL |
| 91.4 - 96.0 | Siltstone | Light grey |
| 96.0 - 100.6 | Siltstone | Medium grey, trace COAL |
| 100.6 - 105.2 | Siltstone | Medium grey |
| 105.2 - 109.7 | Siltstone | Medium grey, calcite infillings in chip |
| 109.7 - 114.3 | Siltstone/ Sandstone | Mostly medium grey siltstone with minor sandstone chips, fine grained, light grey |
| 114.3 - 118.9 | Sandstone | Light grey, fine grained, well indurated, some calcite infillings |
| 118.9 - 123.4 | Sandstone/ Mudstone | Light grey sandstone, mostly as above, with trace amounts of dark grey mudstone ( 5%), sandstone moderately indurated |
| 123.4 - 128.0 | Sandstone | Light grey, medium to fine grained, moderately indurated, trace coal and calcite |
| 128.0 - 132.6 | Sandstone/ Claystone | Light grey sandstone as above and dark grey mudstone approximately 50% each, trace COAL |
| 132.6 - 137.2 | Claystone | Dark grey, fairly soft, quite COALY |

ROTARY HOLE NO. LBR - 304

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 137.2 - 138.1 | Siltstone | Dark grey, COAL traces |
| 138.1 - 138.4 | COAL | |
| 138.4 - 146.3 | Siltstone | Dark grey, COAL traces |
| 146.3 - 150.9 | Siltstone/ Mudstone | Dark grey, siltstone predominantly with traces of mudstone and COAL traces |
| 150.9 - 155.4 | Siltstone | Medium grey, calcite traces |
| 155.4 - 160.1 | Claystone | Dark grey, calcite traces |
| 160.1 - 164.6 | Siltstone | Medium grey, siltstone predominantly with traces of mudstone and sandstone |
| 164.6 - 169.2 | Siltstone | Medium grey, calcite traces |
| 169.2 - 173.7 | Siltstone/ Mudstone | Mostly light/medium grey with minor claystone chips and traces of COAL and sandstone, fine grained |
| 173.7 - 175.3 | Siltstone/ Sandstone | Light grey with traces of COAL |
| 175.3 - 177.7 | COAL | |
| 177.7 - 178.3 | Siltstone/ Sandstone | Light grey with traces of COAL |
| 178.3 - 182.9 | Sandstone | Medium grey, fine/medium grained with traces of iron staining |
| 182.9 - 187.5 | Sandstone | Light grey, fine grained with minor claystone and COAL chips |
| 187.5 - 192.0 | Sandstone | Light grey, fine grained |
| 192.0 - 196.6 | Sandstone | Light grey, fine grained with minor amounts of dark grey mudstone and COAL chips |
| 196.6 - 201.2 | Sandstone | Light grey, fine grained |
| 201.2 - 205.7 | Siltstone | Medium grey with minor amounts of COAL (20%) and fine grained light grey sandstone (20%) |
| 205.7 - 210.3 | Sandstone | Light grey, fine grained with minor amounts of COAL (20%) and dark grey mudstone (10%) |
| 210.3 - 214.9 | Sandstone | Light grey, fine grained with trace amounts of COAL (3%) and dark grey claystone (5%) |

ROTARY HOLE NO. LBR - 304

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 214.9 - 219.5 | Sandstone | Light grey, fine grained with 20% COAL chips and 10% dark grey mudstone with trace calcite |
| 219.5 - 224.0 | Sandstone | As previous interval |
| 224.0 - 228.6 | Sandstone | Light grey, fine grained with minor amounts (20%) medium grey mudstone and calcite |
| 228.6 - 233.2 | Sandstone/ Siltstone | Light grey with trace of COAL (5%) and dark grey mudstone and calcite |
| 233.2 - 237.7 | Sandstone/ Siltstone | As previous interval |
| 237.7 - 242.3 | Siltstone/ Sandstone | Light grey fine grained sandstone with medium grey siltstone with appreciable amounts of COAL (approximately 5%) |
| 242.3 - 246.9 | Siltstone/ Sandstone | As previous interval with less COAL (Approximately 5%) |
| 246.9 - 251.5 | Siltstone | Light grey with minor amounts of light grey fine grained sandstone |

# CHIP LOG DESCRIPTIONS

## ROTARY HOLE NO. LBR-305

| | |
|---|---|
| DATE BEGUN: | July 2, 1981 |
| DATE FINISHED: | July 4, 1981 |
| ELEVATION: | 1517.5 |
| NORTHING: | 5470689.7 |
| EASTING: | 671484.9 |
| TOTAL DEPTH: | 240m |
| ANGLE: | 90 |
| AZIMUTH: | - |
| LOGS RUN: | Density Detail, Gamma, Neutron, LSD, Resistivity, Caliper |

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 0 - 4.6 | Overburden | Contains limestone , calcareous sandstone, siltstone, chert |
| 4.6 - 9.1 | Siltstone | Medium grey, some oxidized iron |
| 9.1 - 13.7 | Siltstone | Medium grey, same as above but no iron staining |
| 13.7 - 15.5 | Claystone/ Siltstone | 50% each, claystone medium grey, siltstone light grey, calcareous |
| 15.5 - 16.5 | COAL | |
| 16.5 - 18.3 | Claystone/ Siltstone | 50% each, claystone medium grey, Siltstone light grey, calcareous |
| 18.3 - 22.9 | Claystone | Medium grey |
| 22.9 - 25.9 | Siltstone | Medium grey |
| 25.9 - 30.5 | Sandstone | Medium grey, fine grained, oxidized, iron present |
| 30.5 - 35.1 | Sandstone/ Siltstone | Sandstone 80%, medium grey, medium grained, oxidized iron staining, siltstone 20%, medium grey, trace calcite chips |
| 35.1 - 39.6 | Sandstone/ Siltstone | Siltstone 60%, medium grey, oxidization of iron, some calcite/sandstone very fine grained, surface oxidization, light grey calcite chips present |

ROTARY HOLE NO. LBR-305

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 39.6 - 44.2 | Sandstone | Light grey, very fine grained, iron staining, carbonaceous-rich chips |
| 44.2 - 48.8 | Sandstone | Medium grey, very fine grained, iron staining, calcite chips, carbonaceous-rich chips |
| 48.8 - 53.34 | Sandstone | Same as above |
| 53.34- 79.9 | Siltstone | Medium grey, trace sandstone chips (5%) which is very fine grained |
| 57.9 - 62.5 | Sandstone | Very fine grained almost silty, medium grey, carbonaceous chips |
| 62.5 - 67.1 | Sandstone | Medium grey, very fine grained, carbonaceous chips, some iron staining |
| 67.1 - 71.6 | Sandstone | Light grey, very fine grained, iron staining |
| 71.6 - 76.2 | Sandstone/ Siltstone | 65% sandstone, light grey, very fine grained, iron staining/ 35% siltstone, medium grey |
| 76.2 - 80.8 | Siltstone | Medium grey, contains some very fine grained sandstone approximately 5% |
| 80.8 - 85.3 | Siltstone | Medium grey |
| 85.3 - 89.9 | Siltstone | Medium grey, same as above |
| 89.9 - 94.5 | Claystone | Dark grey, contains 5% sandstone chips which are very fine grained |
| 94.8 - 116.4 | COAL | |
| 116.4 - 121.9 | Siltstone | Dark grey |
| 121.9 - 126.5 | Siltstone | Same as above |
| 126.5 - 131.1 | Siltstone/ Sandstone | 80% siltstone dark grey/15% sandstone light grey, very fine grained, 5% carbonaceous material |
| 131.1 - 135.6 | Sandstone/ Siltstone | 50% sandstone light grey, very fine grained/45% siltstone dark grey, 5% carbonaceous material |
| 135.6 - 140.2 | Siltstone/ Sandstone | 80% siltstone medium grey/15% sandstone very fine grained, light grey, 5% carbonaceous material |
| 140.2 - 144.8 | Sandstone | 95% sandstone light grey, very fine grained, 5% carbonaceous material |

ROTARY HOLE NO. LBR-305

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 144.8 - 149.4 | Sandstone/ Siltstone | 80% sandstone, light grey, very fine grained/20% carbonaceous siltstone, trace calcite veins in sandstone |
| 149.4 - 153.9 | Sandstone/ Siltstone | 60% sandstone as above/40% siltstone as above, calcite veins present |
| 153.9 - 158.5 | Sandstone/ Siltstone | 80% sandstone, light grey, very fine grained/20% siltstone, medium grey, trace COAL chips present |
| 158.5 - 163.1 | Siltstone | Medium grey, trace COAL chips |
| 163.1 - 167.6 | Siltstone | Same as above |
| 167.6 - 172.2 | Sandstone/ Siltstone | 90% sandstone, light grey, very fine grained, calcareous/10% siltstone, medium grey |
| 172.2 - 176.8 | Siltstone/ Claystone | 60% siltstone, light grey calcareous chips present/40% claystone, dark grey |
| 176.8 - 181.4 | Claystone/ Siltstone | 80% claystone dark grey/20% siltstone light grey |
| 181.4 - 185.9 | Claystone | Dark grey, carbonaceous chips, approximately 5% |
| 185.9 - 189.0 | Sandstone | Medium grey, very fine grained, calcareous veins and surfaces |
| 189.0 - 192.0 | COAL | |
| 190.5 - 204.2 | Sandstone | Light grey, fine grained, calcareous cement |
| 204.2 - 208.8 | Sandstone | Light grey, very fine grained, calcareous cement |
| 208.8 - 213.4 | Sandstone | Medium grey, very fine grained |
| 213.4 - 217.9 | Sandstone/ Siltstone | 50% sandstone, light grey, very fine grained/50% siltstone, medium grey, calcite chips |
| 217.9 - 222.5 | Sandstone | Silty, very fine grained, light to medium grey, calcareous cement, calcite chips |
| 222.5 - 227.1 | Sandstone | Same as above |
| 227.1 - 231.6 | Sandstone | Same as above |
| 231.6 - 236.2 | Sandstone/ Siltstone | 65% sandstone, light grey, very fine grained, calcite chips but no calcareous cement/35% siltstone medium grey |
| 236.2 - 240.8 | Sandstone/ Siltstone | 80% sandstone/20% siltstone, same as above |

# CHIP LOG DESCRIPTIONS

## ROTARY HOLE NO. LBR - 307

| | |
|---|---|
| DATE BEGUN: | August 22, 1981 |
| DATE FINISHED: | August 22, 1981 |
| ELEVATION: | 1488.0 |
| NORTHING: | 5470332.0 |
| EASTING: | 671605.0 |
| TOTAL DEPTH: | 35.0 |
| ANGLE: | 90° |
| AZIMUTH: | - |
| LOGS RUN: | None |

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 0 - 2 | Overburden | Limestone pebbles, rounded, sub-spherical, ~2cm, occasional quartz rich indurated sandstone clasts, sub-rounded |
| 2 - 4 | Overburden | Same as above |
| 4 - 6 | Overburden | Same as above |
| 4 - 8 | Overburden | Same as above |
| 8 - 12 | | No Sample |
| 12 - 14 | Siltstone | Medium to dark grey, hard, blocky to platey chips |
| 14 - 16 | Siltstone | Medium grey, abundant, very fine grained, medium grey sandstone |
| 16 - 17 | | No Sample |
| 17 - 18 | COAL | Dirty |
| 18 - 20 | Siltstone | Dark grey, minor carbonaceous claystone |
| 20 - 22 | Siltstone | Medium grey, slightly platey chips, hard |
| 22 - 25 | | No Sample |
| 25 - 26 | Siltstone | Medium to dark grey, platey chips |

ROTARY HOLE NO. LBR-307

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 26 - 27 | Siltstone | As above |
| 27 - 29 | Siltstone | Medium to dark grey, abundant carbonaceous claystone |
| 29 - 31 | Siltstone | Medium to dark grey, soft platey chips, occasional lamination, occasional carbonaceous claystone, rare COAL partings |
| 31 - 33 | Siltstone | As above |
| 33 - 35 | Siltstone | As above |

# CHIP LOG DESCRIPTIONS

## ROTARY HOLE NO. LBR - 308

| | |
|---|---|
| DATE BEGUN: | August 24, 1981 |
| DATE FINISHED: | August 24, 1981 |
| ELEVATION: | 1490.0 |
| NORTHING: | 5470339.5 |
| EASTING: | 671611.9 |
| TOTAL DEPTH: | 49.0 m |
| ANGLE: | $90^{o}$ |
| AZIMUTH: | - |
| LOGS RUN: | Gamma, Neutron |

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 0 - 3 | Overburden | Pebbles, some rounded, sub-spherical, Limestone, hard, indurated, buff sandstone, quartzite |
| 3 - 6 | Overburden | As above |
| 6 - 9 | Overburden | As above |
| 9 - 12 | Overburden | As above |
| 12 - 15 | | No Sample |
| 15 - 16 | COAL | |
| 16 - 19 | Siltstone | Medium grey, angular, blocky, abundant Limestone and quartzite pebbles and fragments |
| 19 - 22 | Siltstone | Medium grey, abundant black claystone, COALY partings, occasional limestone and quartzite pebbles |
| 25 - 28 | Siltstone | As above, abundant limestone and quartzite pebbles |
| 28 - 31 | Claystone | Black, COALY parting, abundant siltstone chips and limestone and quartzite pebbles |

ROTARY HOLE NO. 308

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 31 - 34 | Claystone | Dark grey, as above |
| 34 - 37 | Siltstone | Medium grey, slightly sandy, abundant limestone and quartzite pebbles |
| 37 - 40 | Siltstone | As above |
| 40 - 43 | Siltstone | As above, occasional limestone and quartzite pebbles |
| 43 - 44 | | No Sample |
| 44 - 46 | Siltstone | As above, abundant limestone and quartzite pebbles, occasional black claystone and COAL |
| 46 - 49 | Siltstone | Occasional limestone and quartzite pebbles, medium grey, slightly sandy |

# CHIP LOG DESCRIPTIONS

## ROTARY HOLE NO. LBR - 309

| | |
|---|---|
| DATE BEGUN: | August 23, 1981 |
| DATE FINISHED: | August 24, 1981 |
| ELEVATION: | 1490.5 |
| NORTHING: | 5470365.1 |
| EASTING: | 671632.4 |
| TOTAL DEPTH: | 151.0m |
| ANGLE: | $90^{\circ}$ |
| AZIMUTH: | - |
| LOGS RUN: | Gamma, Neutron, Density, Directional, Caliper, Focused Beam Electric |

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 0 - 3 | Overburden | Predominantly siltstone, medium brown, occasional clasts limestone, and quartz pebbles |
| 3 - 6 | Siltstone | Dark grey-brown, rare quartzite pebbles |
| 6 - 9 | Sandstone | Very fine grained, light grey, hard, platey chips, rare iron stains |
| 9 - 12 | Sandstone | Fine to very fine grained, light grey, hard, blocky chips |
| 12 - 15 | Siltstone | Dark grey, minor sandstone, fine grained, light grey |
| 15 - 18 | Siltstone | Dark grey |
| 18 - 31 | COAL | |
| 31 - 34 | Siltstone | Dark grey, very hard, minor very fine grained sandstone |
| 34 - 36 | Sandstone | |
| 36 - 39 | Sandstone | Medium grey, very fine grained, minor claystone, black carbonaceous with COAL partings |

ROTARY HOLE NO. LBR - 309

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 39 - 42 | Sandstone | As above, abundant siltstone |
| 42 - 45 | Siltstone | Dark grey, hard platey chips |
| 45 - 48 | Sandstone | Very fine grained, light grey, hard platey chips, rare calcite veins, occasional carbonaceous claystone |
| 49 - 52 | Sandstone | Very fine grained, light grey, hard platey chips, occasional dark grey siltstone |
| 52 - 58 | Sandstone | Very fine grained, light grey, small hard chips |
| 58 - 61 | Sandstone | Very fine grained, medium grey |
| 61 - 64 | Siltstone | Dark grey, hard |
| 64 - 67 | Siltstone | Dark grey, rare COAL chips |
| 67 - 69 | | LOST CHIPS |
| 69 - 72 | Siltstone | Medium grey, hard, abundant, very fine grained, grey sandstone, occasional carbonaceous parting, large blocky chips |
| 72 - 75 | Siltstone | As above |
| 75 - 78 | Siltstone | As above |
| 78 - 81 | Siltstone | As above |
| 81 - 84 | Sandstone | Very fine grained, light grey, hard, occasional siltstone laminations |
| 84 - 87 | Sandstone | Very fine grained, very silty |
| 87 - 90 | Siltstone | Dark grey, platey chips, occasional carbonaceous parting |
| 90 - 93 | Siltstone | Dark grey, abundant medium grey, very fine grained sandstone, occasional carbonaceous partings, rare COAL |
| 93 - 96 | Siltstone | Medium to dark grey, hard blocky chips |
| 96 - 99 | Siltstone | As above |
| 99 - 102 | Claystone | Black, carbonaceous, occasional COALY surfaces, soft |
| 102 - 105 | Claystone | Black, carbonaceous, occasional silty, hard chips |
| 105 - 107 | Sandstone | Medium grained, medium grey, blocky, abundant siltstone |
| 107 - 109 | Siltstone | Medium grey, hard chips, occasional fine grained sandstone |

ROTARY HOLE NO. LBR - 309

| Sample Depth (m) | Lithology (Chip Samples) | |
|---|---|---|
| 109 - 114 | | |
| 114 - 117 | Sandstone | Medium grained, light grey, salt and pepper, hard chips |
| 117 - 119 | Sandstone | As above |
| 119 - 121 | Sandstone | As above |
| 121 - 124 | Sandstone | As above |
| 124 - 127 | Sandstone | As above |
| 127 - 130 | Sandstone | Medium grained, light grey, salt and pepper, platey chips, occasional black carbonaceous claystone |
| 130 - 133 | Sandstone | As above, rare claystone |
| 133 - 136 | Sandstone | As above, abundant carbonaceous claystone and COAL |
| 136 - 139 | Sandstone | Medium grained, light grey, salt and pepper |
| 139 - 142 | Sandstone | Fine grained, medium grey, occasional black claystone and COAL, occasional light grey sandstone |
| 142 - 145 | Sandstone | Fine grained, medium grey |
| 145 - 148 | Sandstone | As above |

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| | |
|---|---|
| PROJECT | LILLYBURT |
| AREA | SOUTH EAST B.C. |

| DATE | | |
|---|---|---|
| | BEGIN | July 15/81 |
| | END | July 18/81 |

**HOLE No.** LBD 300 D

PAGE 1 OF 11

**HOLE PARTICULARS**

| | | | |
|---|---|---|---|
| LOCATION | LILLYBURT<br>SOUTH EAST B.C. | | |
| ELEVATION | 1642.7 | HOLE BEARING (AZ°) | 340 |
| TOTAL DEPTH | 99.0 m | HOLE ANGLE (°)* | 060 |

**LOGGING**

| | |
|---|---|
| LOGS RUN | NONE |
| LOGGED BY | |
| OTHER TESTS | |

**COAL CORING PERFORMANCE**

| | | |
|---|---|---|
| CORE DIAMETER | | HQ |
| TOTAL | CORE RECOVERED | 82.28 |
| | LENGTH CORED | 88.5 |
| | CORE RECOVERY | 93.0 % |

**EXAMINATION**

| | |
|---|---|
| LOG USED | NONE |
| No. OF SEAMS SAMPLED | NONE |
| EXAMINER (S) | B. McKINSTRY |
| DATE | July 18/81 |

| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC. FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 10.55 | 11.3 | .75 | SST | Very strongly weathered, soft, compact to semi-stick. Light gray, fine grain. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 11.3 | | | | | | | | | | | | | |
| | | 11.3 | 12.59 | 1.29 | SST | Gray, fine grain, weathered and very soft at top but semi-stick core at base. | | | | | | | | | | | | | |
| | | 12.59 | 12.82 | .33 | SST | Gray to red, semi-stick but weathered. | | | | | | | | | | | | | |
| | | 12.82 | 13.32 | .50 | SST | Gray - green, fine grain, weathered, semi-stick. | | | | | | | | | | | | | |
| | | 13.32 | 13.54 | .22 | SLST | Rubble, gray. | | | | | | | | | | | | | |
| | | 13.54 | 13.84 | .30 | | LOST CORE | | | | | | | | | | | | | |
| | | 13.84 | 14.00 | .16 | MUD | | | | | | | | | | | | | | |
| | | 14.00 | 14.40 | .40 | | LOST CORE | | | | | | | | | | | | | |
| 1-2 | | 14.40 | 15.59 | 1.19 | SLST | Gray - dark gray, carbonaceous, broken to semi-stick. | | | | | | | | | | | | | |
| | | 15.59 | 16.29 | .70 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 17.3 | | | | | | | | | | | | | |
| | | 16.29 | 17.19 | .80 | SLST | Rubble | | | | | | | | | | | | | |
| | | 17.19 | 19.05 | 1.86 | SLST | Gray, strongly weathered, compact to semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 19.2 | | | | | | | | | | | | | |
| 2-3 | | 19.05 | 21.36 | 2.31 | SLST | Very weathered, light gray, compact, sandy. | | | | | | | | | | | | | |
| 3-4 | | 21.36 | 24.80 | 3.44 | SST | Fine grain, gray, carbonaceous, silty. Stick to semi-stick. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

**HOLE No.** LBD 300 D

FILE No. BA-267
REVISED Feb. 1981

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 24.7 | | | | | | | | | | | | | |
| 4 | | 24.80 | 24.91 | .11 | SST | Conglomeratic, gray, fine grain matrix. Rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 25.9 | | | | | | | | | | | | | |
| | | 24.91 | 26.04 | 1.13 | SST | Weakly conglomeratic, light gray. Stick to broken core, Occasional calcite veinlet. | | | | | | | | | | | | | |
| 4 | | 26.04 | 26.73 | .69 | SST | Weakly conglomeratic, as before. Semi-stick to broken. | | | | | | | | | | | | | |
| | | 26.73 | 27.03 | .30 | | LOST CORE. | | | | | | | | | | | | | |
| | | 27.03 | 27.39 | .36 | CONG. | Matrix supported, coarse grain, light gray, sandy. Broken to semi-stick. | | | | | | | | | | | | | |
| | | 27.39 | 27.64 | .25 | SST | Conglomeratic, medium grain. Broken core | | | | | | | | | | | | | |
| | | 27.64 | 27.94 | .30 | | LOST CORE | | | | | | | | | | | | | |
| | | 27.94 | 28.38 | .44 | CONGL. | Sandy, light gray as before. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 28.3 | | | | | | | | | | | | | |
| 4 | | 28.38 | 29.13 | .75 | CONGL. | Matrix supported, inequigranular, light gray, weathered. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 28.9 | | | | | | | | | | | | | |
| 5 | | 29.13 | 30.75 | 1.62 | CONGL. | Gray - dark gray, matrix supported, inequigranular, as before, coarse grain. | | | | | | | | | | | | | |
| 5 | | 30.75 | 31.95 | 1.2 | CONGL | Very coarse grain, gray, with chert and quartz pebbles. Stick to broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 32.0 | | | | | | | | | | | | | |
| 5 | | 31.95 | 32.15 | .21 | CONGL | As above. Black carbonaceous shale band at contact with underlying conglomerate. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 3000 CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | | 32.15 | 32.48 | .33 | CONGL | Coarse grain, light tan - gray. Matrix supported, as at 27.03 | | | | | | | | | | | | | |
| 5 | | 32.48 | 33.21 | .73 | CONGL | Gray, coarse grain - very coarse grain, as at 29.13 | | | | | | | | | | | | | |
| 6 | | 33.21 | 34.92 | 1.71 | SST | Light gray - tan, medium grain, trough cross-bedding, very weakly conglomeratic. Equigranular, weakly laminated. | | 59 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 35.0 | | | | | | | | | | | | | |
| 6 | | 34.92 | 35.73 | .81 | SST | As above. | | | | | | | | | | | | | |
| | | 35.73 | 36.06 | .33 | SST | Conglomeratic, medium grain - coarse grain, gray. Some lamination. | | | | | | | | | | | | | |
| | | 36.06 | 36.87 | .81 | SST | As at 33.21 | | | | | | | | | | | | | |
| | | 36.87 | 37.34 | .47 | SST | Conglomeratic as at 35.73 | | | | | | | | | | | | | |
| 6 | | 37.34 | 37.43 | .09 | CONGL | Coarse grain, gray, weathered, rubbly. | | | | | | | | | | | | | |
| 7 | | 37.43 | 37.65 | .22 | SST | Conglomeratic as at 35.73 | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 37.4 | | | | | | | | | | | | | |
| 7 | | 37.65 | 38.69 | 1.04 | SST | Conglomeratic as above. | | | | | | | | | | | | | |
| | | 38.69 | 39.81 | 1.12 | SST | Medium grain, gray, weakly laminated, semi-stick to broken. Rubble at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 39.9 | | | | | | | | | | | | | |
| 7 | | 39.81 | 39.91 | .1 | | LOST CORE | | | | | | | | | | | | | |
| 7 | | 39.91 | 40.40 | .49 | SST | Medium grain, gray, laminated grading into coarse grain sandstone at base. Semi-stick. | | | | | | | | | | | | | |
| 7 | | 40.4 | 41.6 | 1.20 | CONGL | Medium grain grading into very coarse grain matrix at base. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† +R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

+RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 3000

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | | 41.6 | 42.45 | .85 | SST | Conglomeratic with occasional coarse grain fragments in gray, medium grain, weakly laminated matrix. Broken to semi-stick core. | | | | | | | | | | | | | |
| | | 42.45 | 42.7 | .25 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 42.7 | | | | | | | | | | | | | |
| 8 | | 42.7 | 43.65 | .95 | SST | As above. Some COALY lenses along fracture planes. Rubbleyat base. | | | | | | | | | | | | | |
| | | 43.65 | 43.9 | .25 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 43.9 | | | | | | | | | | | | | |
| 8 | | 43.9 | 45.25 | 1.35 | SST | As above, broken core. | | | | | | | | | | | | | |
| | | 45.25 | 45.4 | .15 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 45.4 | | | | | | | | | | | | | |
| 8 | | 45.4 | 45.51 | .11 | SST | As above but more conglomeratic. | | | | | | | | | | | | | |
| 8-9 | | 45.51 | 46.25 | .74 | SST | Weakly conglomeratic, light gray, medium grain. Weakly laminated, with some thin carbonaceous bands along fracture planes. | | 70 | | | | | | | | | | | |
| 9 | | 46.25 | 46.69 | .44 | CONGL | Very coarse grain, gray, with quartz siltstone, sandstone and chert pebbles and cobbles. Intact to semi-intact framework. Rubbleyat base. | | | | | | | | | | | | | |
| | | 46.69 | 46.89 | .2 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 46.9 | | | | | | | | | | | | | |
| 9 | | 46.89 | 49.64 | 2.75 | CONGL | Intact framework, very coarse grain matrix as above. Broken core at top, stick core elsewhere. | | | | | | | | | | | | | |
| | | 49.64 | 50.06 | .42 | SST | Conglomeratic with medium grain, salt and pepper, weakly laminated sandstone matrix and coarse grain clasts. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 49.9 | | | | | | | | | | | | | |
| 9-10 | | 50.06 | 50.73 | .67 | SST | Conglomeratic as before. | | | | | | | | | | | | | |
| 10 | | 50.73 | 51.38 | .65 | SST | Medium grain, salt and pepper, finely laminated. | | | | | | | | | | | | | |
| | | 51.38 | 51.72 | .34 | SST | Conglomeratic as at 50.06 | | | | | | | | | | | | | |
| 10 | | 51.72 | 52.86 | 1.14 | CONGL | Intact framework, very coarse grain, semi-stick to broken core. | | | | | | | | | | | | | |
| 10 | | 52.86 | 53.00 | .14 | SST | Conglomeratic as before. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 53.0 | | | | | | | | | | | | | |
| 10 | | 53.00 | 53.14 | .14 | CONGL | As at 51.72 | | | | | | | | | | | | | |
| 10 | | 53.14 | 54.05 | .91 | CONGL | As at 51.72 | | | | | | | | | | | | | |
| 10-11 | | 54.05 | 55.13 | 1.08 | SST | Finely laminated, salt and pepper, medium grain - fine grain, carbonaceous, COALY material along laminations produces flaggy nature to rock. Broken to semi-stick. | | 64 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 55.2 | | | | | | | | | | | | | |
| 11 | | 55.13 | 56.23 | 1.10 | SST | Light gray, medium grain, salt and pepper sandstone, finely laminated. Contains carbonaceous laminations which rock fractures upon. A few carbonaceous stringers also noted. Fractures lined with milky white substance, not calcite. Small amount of iron staining noted. Core is semi-stick and rubble at the base. | | 65 | | | | | | | | | | | |
| | | 56.23 | 56.63 | .4 | CLST. | Medium gray, massive, at top intermixed with sandstone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 56.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % orb | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 56.63 | 56.88 | .25 | CLST | Same as above, sandstone and claystone mixture occurs in the middle of the unit. | | | | | | | | | | | | | |
| | | 56.88 | 57.48 | .6 | SST | Medium gray, medium grain, salt and pepper sandstone with siltstone clasts. Small fracture zone at .2 m filled with gouge. | | | | | | | | | | | | | |
| 11-12 | | 57.48 | 59.28 | 1.8 | SST | Medium to coarse grained, light gray, salt and pepper sandstone. Finely laminated, containing carbonaceous and COALY lamination upon which the rock fractures. Also contains COALY wisps and COALY stringers. | | 78 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 59.4 | | | | | | | | | | | | | |
| 12 | | 59.28 | 59.41 | .13 | SST | Same as above. | | | | | | | | | | | | | |
| | | 59.41 | 59.53 | .12 | COAL | Chunky with vitreous cleat surfaces. | | | | | | | | | | | | | |
| | | 59.53 | 59.75 | .22 | | LOST CORE | | | | | | | | | | | | | |
| | | 59.75 | 60.90 | 1.15 | SST | Light gray, medium grain, salt and pepper, Finely laminated with COAL lenses, stringers, wisps Sandstone is interbedded with occasional carbonaceous zones of .03 m. Core is semi-stick. | | 63 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 60.9 | | | | | | | | | | | | | |
| | | 60.9 | 62.4 | 1.5 | SST | Fine to medium grained, light gray salt and pepper, finely laminated. Core is stick to semi-stick. | | 66 | | | | | | | | | | | |
| | | 62.4 | 63.06 | .66 | SST | Very fine grain, medium grained, finely laminated with very fine carbonaceous inter-laminations upon which the rock fractures. Core is semi-stick. | | 73 | | | | | | | | | | | |
| 13 | | 63.06 | 63.66 | .60 | SST | Light gray, medium grain, salt and pepper with a few siltstone clasts throughout. Finely laminated, also a few very hard sandstone clasts visible. | | 48 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. CONTINUED LBD 300 D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % ar.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 63.66 | 63.81 | .15 | GOUGE | Contains carbonaceous material and siltstone set in a medium grained sandy matrix | | | | | | | | | | | | | |
| | | 63.81 | 63.99 | .18 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK 64.0 | | | | | | | | | | | | | |
| | | 63.99 | 65.77 | 1.78 | SST | Medium gray, fine grained salt and pepper sandstone. Massive. Contains dispersed very hard sandstone pebbles. Unit grades into a coarse sandstone at the base. Core is stick. A few carbonaceous lenses and wisps. | | | | | | | | | | | | | |
| | | 65.77 | 66.14 | .37 | SST | Medium grain, light gray, salt and pepper with abundant sandstone and siltstone clasts. Semi-stick and rubble at base. Also noted a few carbonaceous lenses. Carbonaceous and COALY lenses at base of unit. | | | | | | | | | | | | | |
| | | 66.14 | 66.24 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | 66.24 | 66.99 | .75 | SST | Medium grained, light gray, salt and pepper, massive with COALY stringers and COALY lenses and interlaminations upon which the core fractures. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 67.0 | | | | | | | | | | | | | |
| | | 66.99 | 67.13 | .14 | SST | Same as above, without COALY stringers and interlaminations. | | | | | | | | | | | | | |
| 14 | | 67.13 | 67.93 | .8 | SST | Medium grained, light gray, salt and pepper, finely laminated. | | 70 | | | | | | | | | | | |
| | | 67.93 | 68.53 | .6 | CLST | Medium gray, with dark interlaminations, becoming more silty towards the base. Core is semi-stick. | | 58 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 68.6 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

— FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 68.53 | 69.06 | .53 | SLST | Medium gray, dark bands. | | 70 | | | | | | | | | | | |
| | | 69.06 | 69.30 | .24 | SST | Very fine grain, light gray at base, appears to be some sediment deformation. ie. Clastic dike into the siltstone below. | | | | | | | | | | | | | |
| | | 69.30 | 69.5 | .2 | SLST | Medium gray, with dark bands, core is semi-stick. | | | | | | | | | | | | | |
| | | 69.5 | 69.9 | .4 | SST | Light gray, very fine grained, massive, Contorted bedding and cross-laminations visible. | | | | | | | | | | | | | |
| | | 69.9 | 71.32 | 1.42 | SLST | Medium gray, semi-stick core with an interbed of light gray, fine grain sandstone at .47 m - .56 m. | | | | | | | | | | | | | |
| 15 | | 71.32 | 73.92 | 2.6 | SST | Very fine grained silty sandstone. Massive. Light gray, has silty interbeds and fractured zones filled with gouge. Core is semi-stick and rubble at the base. Contains some contorted laminations towards the base of fine grained sandstone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 73.7 | | | | | | | | | | | | | |
| 15 | | 73.92 | 75.32 | 1.4 | SST | As above | | 69 | | | | | | | | | | | |
| 16 | | 75.32 | 76.92 | 1.6 | SLST | Medium gray, well laminated in places massive in others. Some fine grained sandy interlaminations, cross-bedding. Stick-core. | | 59 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 76.8 | | | | | | | | | | | | | |
| | | 76.92 | 78.72 | 1.8 | SLST | As above. Stick to semi-stick core. Dark gray claystone, interlaminations present. | | 60 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 78.6 | | | | | | | | | | | | | |
| | | 78.72 | 79.32 | .60 | SST | Very fine grain and light gray interlaminations with medium grained siltstone lamination at top, massive at base. Gouge zone at .44 m - .45 m. | | 63 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | 79.32 | 79.42 | .1 | SST | Fine to medium grained, light gray, salt and pepper, contains carbonaceous clasts. Core is rubble. | | | | | | | | | | | | | |
| | | 79.42 | 79.67 | .25 | SST | Medium gray, fine grain with abundant carbonaceous infillings, stringers and lenses. Core is rubble. | | | | | | | | | | | | | |
| | | 79.67 | 79.90 | .23 | SST | Light gray, fine grain, sandstone, with a small amount of carbonaceous infillings. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 79.9 | | | | | | | | | | | | | |
| | | 79.9 | 80.9 | 1.0 | SST | Light gray, medium to coarse grain, salt and pepper, sandstone finely laminated. Cross-bedded. Semi-stick core. Visible pyrite. A small amount of siltstone pebbles. Semi-stick core. | | 68 | | | | | | | | | | | |
| | | 80.9 | 81.06 | .16 | CLST | Highly carbonaceous. COALY shale, very fissile. | | | | | | | | | | | | | |
| | | 81.06 | 81.16 | .10 | CLST | Medium gray, contains numerous COALY stringers. Semi-stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 81.2 | | | | | | | | | | | | | |
| | | 81.16 | 83.84 | 2.68 | SST | Medium gray, to light gray, fine grain. Contorted laminations, especially within the light gray sandstone. Dispersed plant debris, occasional interlaminations of medium gray siltstone. Stick core. Calcareous. | | 66 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 83.8 | | | | | | | | | | | | | |
| 18 | | 83.84 | 83.94 | .1 | SLST | Medium gray, massive, semi-stick core. | | | | | | | | | | | | | |
| | | 83.94 | 86.34 | 2.4 | SLST | As above with numerous gouge zones .05 m in thickness. Some fracture zones are rich in carbonaceous material. Massive, core is semi-stick. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

! • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 86.34 | 87.44 | 1.10 | GOUGE | Medium gray, composed of siltstone matrix with siltstone and occasional zones of sandstone as clasts. Clasts are rounded to angular in form and some carbonaceous material along fractures in the gouge. Core is stick to semi-stick. | | | | | | | | | | | | | |
| | | 87.44 | 88.44 | 1.0 | | LOST CORE | | | | | | | | | | | | | |
| 18-19 | | 88.44 | 88.97 | .53 | GOUGE | Same as above, with a greater amount of carbonaceous material in the fractures along the gouge. Core is semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 88.7 | | | | | | | | | | | | | |
| 19 | | 88.97 | 91.97 | 3.0 | SLST | Medium gray with zones of gouge throughout. Gouge has siltstone and occasional sandstone pebbles. Core is stick to semi-stick and some carbonaceous material present in the gouge. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 91.7 | | | | | | | | | | | | | |
| | | 91.97 | 92.77 | .8 | SST | Light gray, fine grained. Core is rubble. | | | | | | | | | | | | | |
| | | 92.77 | 93.27 | .5 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK 93.3 | | | | | | | | | | | | | |
| 20 | | 93.27 | 94.43 | 1.16 | SST | Medium gray, very fine grain, contains gouge zone with sandstone clasts. Also bands of light gray, fine grain, salt and pepper, cross-laminated sandstone. Massive at top and finely laminated towards the base. | | 55 | | | | | | | | | | | |
| | | 94.43 | 94.83 | .4 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 94.8 | | | | | | | | | | | | | |
| | | 94.83 | 95.56 | .73 | SST | Light to medium gray, salt and pepper sandstone with occasional sandstone angular clasts. Finely laminated and cross-bedded. Core is semi-stick. | | 61 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† *R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
*RQD — ROCK QUALITY DESIGNATION (%)
ff — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. LBD 300 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 95.56 | 96.12 | .56 | SST | Medium gray, fine grained, well laminated, cross-bedded. Semi-stick to rubble. | | 68 | | | | | | | | | | | |
| | | 96.12 | 96.42 | .3 | | LOST CORE | | | | | | | | | | | | | |
| | | 96.42 | 96.92 | .5 | SST | Light gray, medium grained, salt and pepper, massive. Rubble core contains calcite on fracture surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 96.9 | | | | | | | | | | | | | |
| | | 96.92 | 98.57 | 1.55 | SST | Medium gray, fine grain, well laminated. Core is semi-stick to rubble with fractures along bedding. A zone of light gray, medium grained sandstone from .54 m - .56 m. Thin carbonaceous filled fractures along bedding | | 69 | | | | | | | | | | | |
| | | | | | | NOTE: This hole was abandoned at 98.57 meters due to caving problems and improperly seated casing rods. No geophysical logging was done. The drill was skidded to a new location at LBD-300A and redrilled. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 300 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| | |
|---|---|
| PROJECT | LILLYBURT |
| AREA | SOUTH EAST B.C. |

| DATE | | |
|---|---|---|
| BEGIN | July 18/1981 |
| END | July 23/1981 |

HOLE No. 300A

PAGE 1 OF 30

**HOLE PARTICULARS**

| | | | |
|---|---|---|---|
| LOCATION | LILLYBURT | | |
| | SOUTH EAST B.C. | | |
| ELEVATION | 1642.7 | HOLE BEARING (AZ°) | 329 |
| TOTAL DEPTH | 277.7 | HOLE ANGLE (°)* | 060 |

**LOGGING**

| | |
|---|---|
| LOGS RUN | NEUT/GAMMA/DENS |
| LOGGED BY | ROKE |
| OTHER TESTS | DIRECTIONAL |

**COAL CORING PERFORMANCE**

| | | |
|---|---|---|
| CORE DIAMETER | | HQ |
| TOTAL | CORE RECOVERED | 242.4 |
| | LENGTH CORED | 256.3 |
| | CORE RECOVERY | 87.3 % |

**EXAMINATION**

| | |
|---|---|
| LOG USED | GAM/NEUT/DENS |
| No. OF SEAMS SAMPLED | 2 |
| EXAMINER (S) | JP/EM/BM/PA |
| DATE | 26/07/81 |

| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC. FREQ. | RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 21.41 | 22.81 | 1.40 | SST | Light gray. Fine to medium grained. Massive to faintly laminated, at top laminations are distorted. Calcite in fillings present with good crystals. Stick core. | | | | | | | | | | | | | |
| | | 22.81 | 23.30 | 0.49 | SST | Conglomeratic throughout. 2 definite zones of pebble-rich sandstone. Pebbles are up to 0.005 m (5mm) in size. Sandstone is as above. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 23.3 | | | | | | | | | | | | | |
| | | 23.3 | 24.94 | 1.64 | CONG. | Light gray matrix with light, medium and dark gray, black, green and pink clasts. Clasts are small ranging up to 1 cm., average 2 mm. Clasts appear to be sandstone and siltstone. Iron staining at top of run. 2 sandy rich zones in run. Dispersed framework. Pebbles are rounded. | | | | | | | | | | | | | |
| | | 24.94 | 25.04 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | 25.04 | 25.79 | 0.75 | CONG. | Same composition as above but clasts are much larger - average size 1 cm., largest 3 cm. Stick core. Clasts are also chert and quartz. Intact to dispersed frame work. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 25.8 | | | | | | | | | | | | | |
| 2 | | 25.79 | 27.89 | 2.10 | CONG. | Same as above but several small gradations throughout ie. area of no fines, area of dominant fines. At base of run core is rubble. | | | | | | | | | | | | | |
| | | 27.89 | 27.99 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 28.0 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• ROD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-211A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

| HOLE No. | |
|---|---|
| CONTINUED | 300A |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M.% | ANALYTICAL DATA F.C.% | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 27.99 | 28.32 | 0.33 | CONG. | Same as above | | | | | | | | | | | | | |
| | | 28.32 | 28.82 | 0.50 | SST | Very coarse grained to conglomeratic. Same composition as conglomerate but no clasts are present. 2 small zones of approximately 2 cm each of conglomerate. | | | | | | | | | | | | | |
| | | 28.82 | 29.95 | 1.13 | CONG. | Same as above conglomerate. Numerous fractures and large amounts of iron staining. Average clast size is 0.5 cm at top and 1 cm at base. | | | | | | | | | | | | | |
| 3 | | 29.95 | 30.40 | 0.45 | SST | Light gray. Medium grained. Numerous fractures. Lots of iron staining. Several small (0.5 cm) pebbles are scattered through entire run. Semi-stick to broken core. Massive. | | | | | | | | | | | | | |
| | | 30.4 | 30.75 | 0.35 | CONG. | Average clast size 0.5 cm with clasts sub angular to rounded. Predominantly framework supported. Iron staining present. Stick core with rubble at base. | | | | | | | | | | | | | |
| | | 30.75 | 30.9 | .15 | | LOST CORE<br>MARKER BLOCK @ 30.9 | | | | | | | | | | | | | |
| | | 30.9 | 31.04 | 0.14 | CONG. | Same as above | | | | | | | | | | | | | |
| | | 31.04 | 33.2 | 2.16 | SST | Medium grained. Light gray. Massive to faintly laminated. Where laminations visible, cross bedding is present. Core ranges from stick to badly broken. Numerous fractures are present with iron staining. There are occasional clasts approximately 0.5 cm in size scattered throughout run.<br>MARKER BLOCK @ 33.2 | | 45 | | | | | | | | | | | |
| 3-4 | | 33.2 | 34.74 | 1.54 | SST | Same as above but all laminated with several pebbles throughout Stick core at top to semi stick at base. | | 58 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

| HOLE No. | 300 A |
|---|---|

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 34.74 | 35.47 | 0.73 | CONG. | Medium gray. Clasts are rounded and increase with depth Average size at top of 0.2 cm and 1 cm at base. Core is stick at top to rubble at centre and base. Small carbonaceous zones as infillings in middle of run | | | | | | | | | | | | | |
| | | 35.47 | 35.57 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 35.7 | | | | | | | | | | | | | |
| | | 35.57 | 37.33 | 1.76 | SST | Light gray. Finely laminated at top grading to massive at base. Base also contains numerous small pebbles as it grades into conglomerate below. Medium grained overall with pockets of fine grained sandstone. | | 40 | | | | | | | | | | | |
| | | 37.33 | 37.73 | 0.40 | CONG. | Medium gray. Core grades downwards from clasts of size 0.1 cm at top to 1 cm at base (average sizes). Some clasts at base up to 5 cm. Matrix is sandstone: light gray, medium grain. Clasts are intact at top, dispersed at base. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 37.5 | | | | | | | | | | | | | |
| 4-5 | | 37.73 | 40.8 | 3.07 | CONG. | Same as above at base. Some sandy rich zones up to 0.10 m in size. One COALY zone 0.10 m in size. Clasts are angular to rounded, with some distorted along a possible bedding plane. Core is stick to rubble. Some white non calcite infilling is present in several open fractures; very soft and almost chalky. | | | | | | | | | | | | | |
| | | 40.8 | 41.4 | .4 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 41.2 | | | | | | | | | | | | | |
| 5-6 | | 41.2 | 43.0 | 1.8 | CONG. | Intact framework. Stick core with trace rubble zones. Clasts are same as before but only few are distorted. Clasts are large (1.5 cm). Several fractures (closed) with material described above. Also a lot of open fractures with this material present. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

■ MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 43.0 | 43.83 | .83 | SST | Fine grain to medium grain at top. Light gray, several large angular clasts at top (1.5 cm). Faintly laminated at base. Numerous fractures. Core is semi-stick. | | | | | | | | | | | | | |
| | | 43.83 | 44.48 | .65 | CONG. | Light gray matrix of sandstone as before. Medium grain clasts are 1.5 cm., rounded, some are distorted and elongated along bedding plane. Stick core with some rubble on top. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 44.2 | | | | | | | | | | | | | |
| 6-7 | | 44.48 | 46.73 | 2.25 | CONG. | Same as above with average size of clasts increasing to 1.5 cm. Intact framework. Trace carbonaceous infillings in fractures and white material described previously. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 46.6 | | | | | | | | | | | | | |
| | | 46.73 | 48.09 | 1.36 | CONG. | Same as above, sandy lenses present in lower half, approximately .4 cm in size, but smaller at the base of the run. | | | | | | | | | | | | | |
| | | 48.09 | 48.74 | .65 | SST | Conglomeratic at top with trace of clasts in the rest of the run. Light gray, fine grain, faint laminations, cross bedded in places. Core is broken to rubble. Fractures filled with white material. | | | | | | | | | | | | | |
| | | 48.74 | 49.10 | .36 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 49.1 | | | | | | | | | | | | | |
| | | 49.10 | 49.25 | .15 | SST | Same as above, well laminated, visible pyrite. | | 83 | | | | | | | | | | | |
| | | 49.25 | 50.75 | 1.50 | CONG. | Same as above, . Clasts are well rounded, with minor distortion of some clasts. One big clast 7 cm. Coarse grain sandstone surrounds the big clast. Core is stick to rubble. | | | | | | | | | | | | | |
| | | 50.75 | 50.85 | .10 | | LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. CONTINUED 300A



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % (residual) | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50.85 | 51.20 | .35 | SST | Light gray, fine grain, faintly laminated throughout. Core is dominantly broken, some rubble, numerous fractures, some cross-bedding. Very abrupt clean contact with above conglomerate. Disseminated pyrite throughout. | | 52 | | | | | | | | | | | |
| | | 51.2 | 51.35 | .15 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 50.9 | | | | | | | | | | | | | |
| 8 | | 51.35 | 53.0 | 1.65 | SST | Appears to be as above with medium grain at the base. Top of run a COALY zone 7 cm and a rubble zone of 12 cm.. Core is well laminated at base and massive in the middle. Core is semi-stick to stick. | | 69 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 53.0 | | | | | | | | | | | | | |
| | | 53.0 | 53.30 | .3 | SST | Same as above | | | | | | | | | | | | | |
| | | 53.30 | 54.26 | .96 | SLST | Dark gray, massive. Small sandstone inclusions at the very top. It has been redrilled on top. Stick to semi-stick core and silty at the base. Trace of carbonaceous infillings. | | | | | | | | | | | | | |
| | | 54.26 | 54.36 | .10 | | LOST CORE | | | | | | | | | | | | | |
| 8-9 | | 54.36 | 57.37 | 3.01 | SST | Light gray, fine grain, massive at top to laminated. . Rubble zones, stretching .4 at top and .4 at middle of run. The middle zone has a lot of carbonaceous material. Elsewhere core is semi-stick to stick. Trace of carbonaceous infillings throughout. One large siltstone or sandstone clast, 7 cm. in size, sitting in the middle of massive sandstone. | | 54 | | | | | | | | | | | |
| | | 57.37 | 57.97 | .6 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 58.2 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

! : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 57.97 | 59.57 | 1.6 | SST | Same as above, cross-bedding present. More dominantly broken core but rubble at the base. | | 42 | | | | | | | | | | | |
| | | 59.57 | 59.69 | .12 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 59.4 | | | | | | | | | | | | | |
| 9-10 | | 59.69 | 63.45 | 3.76 | SST | Starts fine grain at top .2 m and grades into medium grain with 2 cm wide bands of conglomerate. The top portion of .2 m is interlaminated with carbonaceous material. The core breaks readily along these surfaces. Core is stick. Dominant .15 m zone similar to the top of interlaminated carbonaceous material. Core grades throughout from interlaminated to massive. | | | | | | | | | | | | | |
| | | 63.45 | 63.9 | .45 | SST | Coarse grain, massive stick core. With increasing depth, the grain size increases. Stick core with carbonaceous infilling in fractures. | | | | | | | | | | | | | |
| | | 63.9 | 64.3 | .4 | CONG. | Clasts are small (.5 cm), framework supported. Carbonaceous material present throughout run. Core is broken. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 64.3 | | | | | | | | | | | | | |
| 10-11 | | 64.3 | 64.58 | .28 | SST | Medium grain, light gray, salt and pepper, massive with carbonaceous wisps through the core. Broken core. | | | | | | | | | | | | | |
| | | 64.58 | 66.85 | 2.27 | SLST. | Medium to dark gray pockets of sand-rich siltstone throughout the core. Core is from stick to rubble. Most fractures are clean but some carbonaceous material is present. | | | | | | | | | | | | | |
| | | 66.85 | 66.90 | .05 | | LOST CORE | | | | | | | | | | | | | |
| | | 66.90 | 67.83 | .93 | SLST. | Medium gray. Top .15 m is rich in sand and also pockets of muddy zones near the base. Stick to semi-stick core massive. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.X. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 67.83 | 67.98 | .15 | SST | Light gray, fine grain, salt and pepper. Massive with trace of distorted laminations. Stick core. | | | | | | | | | | | | | |
| | | 67.98 | 68.47 | .49 | SLST | Medium gray, contains wisps and pockets of sand throughout. Carbonaceous stringers and wisps present. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 68.6 | | | | | | | | | | | | | |
| | | 68.47 | 71.49 | 3.02 | SLST | Medium gray, contains pockets of sandy and muddy rich material. Sandstone appears as wisps, also small gouge zone 1 cm. Stick core to semi-stick throughout except one broken core zone where core is muddy and carbonaceous rich. Some calcite infillings in fractures. | | | | | | | | | | | | | |
| | | 71.49 | 71.59 | .10 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 71.6 | | | | | | | | | | | | | |
| | | 71.59 | 73.85 | 2.26 | CLST | Medium gray. Contains visible sandstone interlaminations. Core is stick to broken. Silty at top. Some polished surfaces, trace of carbonaceous infillings. | | 47 For sandstone | | | | | | | | | | | |
| 12-13 | | 73.85 | 74.63 | .78 | CLST | Same as above | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 74.7 | | | | | | | | | | | | | |
| | | 74.63 | 76.23 | 1.6 | SLST | Medium gray. Interlaminated with light gray, fine grain sandstone. Core is stick with traces of calcite in some fractures. Carbonaceous material at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 76.1 | | | | | | | | | | | | | |
| | | 76.23 | 77.47 | 1.24 | SST | Light gray, fine grain salt and pepper, faint laminations throughout. 3 COALY zones in core, one on top 3 cm., one in the middle 2 cm., and one at base 4 cm. Elsewhere carbonaceous infillings and traces of calcite visible. Pyrite in some fractures, cross-bedding present. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-217A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13-14 | | 77.47 | 77.69 | .22 | CLST | Dark gray, massive, semi-stick to broken core. Clean fractures, traces of calcite. | | | | | | | | | | | | | |
| | | 77.69 | 77.96 | .27 | CLST | Same as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 78.3 | | | | | | | | | | | | | |
| | | 77.96 | 78.09 | .13 | COAL | Black, bright, vitreous. Some is flakey, some is very hard. | | | | | | | | | | | | | |
| | | 78.09 | 78.89 | .8 | SST | Light gray, very fine grain, broken core. Calcite traces on fractures. | | | | | | | | | | | | | |
| | | 78.89 | 80.52 | 1.63 | SLST | Medium grain with light gray sandstone bands and dark gray claystone bands. Core is stick to semi-stick. Some carbonaceous surfaces with large pyrite crystals. Traces of calcite. Also other fractures are clean. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 80.5 | | | | | | | | | | | | | |
| | | 80.52 | 81.67 | 1.15 | CLST | Dark gray, semi-stick. COALY stringer in the middle.(2 cm wide).Trace of calcite is present. Some polished surfaces, some shaley surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 81.7 | | | | | | | | | | | | | |
| | | 81.67 | 83.28 | 1.61 | CLST | As above, with a few COALY stringers in the middle. Numerous polished surfaces. | | | | | | | | | | | | | |
| | | 83.28 | 83.40 | .12 | SHALE | Carbonaceous (Highly), soft, vitreous, very fissile. | | | | | | | | | | | | | |
| | | 83.40 | 83.74 | .34 | COAL | Compacted powder, fairly hard, vitreous flakes throughout. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 83.8 | | | | | | | | | | | | | |
| | | 83.74 | 84.56 | .82 | SLST | Breccia zone, runs for .5 m with gouge holding the angular 1cm wide fragments together. The top .11 m of the run is badly broken and rubbley with carbonaceous material. Last .32 m is siltstone. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 84.56 | 85.59 | 1.03 | SLST | Dark gray. Lower half contains small wisps of light gray sandstone COALY wisps and pockets throughout. Numerous small closed fractures. | | | | | | | | | | | | | |
| | | 85.59 | 85.70 | .11 | COAL | Compacted powder, very soft and dull, some vitreous flakes. | | | | | | | | | | | | | |
| 15-16 | | 85.70 | 86.75 | 1.05 | SLST | Dark gray. Top .33m is intact core with numerous closed fractures and very small gouge zone. The remainder of the run is brecciated and held together by gouge. Base of run is rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 86.9 | | | | | | | | | | | | | |
| | | 86.75 | 87.65 | .9 | SLST | Dominantly brecciated throughout with pockets of intact core, similar to above run. | | | | | | | | | | | | | |
| | | 87.65 | 88.72 | 1.07 | SST | The entire run is brecciated and held together by gouge. In places is silty. Sandstone is medium gray and massive. Base of run is rubble. | | | | | | | | | | | | | |
| | | 88.72 | 88.82 | .10 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 88.8 | | | | | | | | | | | | | |
| 16-17 | | 88.82 | 90.46 | 1.64 | SLST / SST | Medium gray with light gray sandstone interlaminations. Core is semi-stick to rubbly. 2 small gouge zones 2 cm big. Sandstone laminations range up to 2 cm and the wisps are cross-bedded. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 90.5 | | | | | | | | | | | | | |
| | | 90.46 | 91.8 | 1.34 | SST | Medium to light gray, very fine grain with very fine laminations. Most laminations are distorted, there are pockets where no laminations exist. Traces of iron staining and visible pyrite. Core is semi-stick to broken for most of run with last 0.4 m extreme rubble. | | | | | | | | | | | | | |
| | | 91.8 | 92.1 | .30 | | LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 92.1 | | | | | | | | | | | | | |
| | | 92.1 | 93.32 | 1.22 | SST | Light gray, very fine grain. Interbedded siltstone (dark gray) throughout the core. Top .5 m is semi-stick, the reminder is extreme rubble. | | | | | | | | | | | | | |
| | | 93.32 | 93.42 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 93.4 | | | | | | | | | | | | | |
| | | 93.42 | 94.12 | .7 | SST | Medium gray, fine grain, massive. Trace of iron staining and some carbonaceous material. Core is rubble throughout. | | | | | | | | | | | | | |
| | | 94.12 | 95.12 | 1.0 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 95.1 | | | | | | | | | | | | | |
| 17-18 | | 95.12 | 96.62 | 1.5 | SST | Light gray, fine grained, interbedded with dark carbonaceous material producing laminations. Iron staining and cross-bedding at the base. Core is semi-stick at top, the rest rubble. Carbonaceous material throughout. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 96.6 | | | | | | | | | | | | | |
| | | 96.62 | 97.89 | 1.27 | SST | Fine grain - fine lamination throughout. Cross-bedding is present. Disseminated pyrite through the whole core. Core is semi-stick to broken with rubble at the base. Carbonaceous material present in some fractures. | | | | | | | | | | | | | |
| | | 97.89 | 98.50 | .61 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 98.5 | | | | | | | | | | | | | |
| 18-19 | | 98.50 | 101.26 | 2.76 | SLST | Dark gray. First .65 m brecciated, held together by gouge. Next .55 is slightly silty with sandy wisps. The top of this unit is brecciated, the remainder is siltstone brecciated and held together by gouge. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % air.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 101.26 | 101.46 | .20 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 101.5 | | | | | | | | | | | | | |
| | | 101.46 | 102.21 | .75 | SST | Silty, medium gray, fine grain, massive. Traces of calcite in fractures. Trace of iron staining. | | | | | | | | | | | | | |
| | | 102.21 | 102.43 | .22 | SLST | Brecciated and held together by gouge. Medium gray. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 102.4 | | | | | | | | | | | | | |
| | | 102.43 | 104.67 | 2.24 | SLST | Sandy massive. Top is slightly brecciated with trace laminations where core is rich in sand. Traces of disseminated pyrite. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 104.7 | | | | | | | | | | | | | |
| 20 | | 104.67 | 105.81 | 1.14 | SST | Massive, medium gray, very fine grain. Top is slightly silty. Core is semi-stick to rubbly with pockets of very badly broken core. Visible pyrite and disseminated pyrite through core. Traces of calcite. | | | | | | | | | | | | | |
| | | 105.81 | 105.91 | .10 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 105.9 | | | | | | | | | | | | | |
| | | 105.91 | 107.09 | 1.18 | SST | Same as above with wisps of light gray sandstone. The run is all broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 107.1 | | | | | | | | | | | | | |
| | | 107.09 | 107.26 | .17 | SST | Same as the above. | | | | | | | | | | | | | |
| | | 107.26 | 108.37 | 1.11 | SST | Light gray, medium to fine grain, salt and pepper. Core is brecciated and held together by gouge. Massive to faintly laminated. Core is rubble as base. | | | | | | | | | | | | | |
| | | 108.37 | 108.51 | .14 | | LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % arb. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 108.5 | | | | | | | | | | | | | |
| 20-21 | | 108.51 | 109.86 | 1.35 | SST | Same as above. Medium gray at base. Medium grain. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 109.8 | | | | | | | | | | | | | |
| | | 109.86 | 110.74 | .88 | SST | Badly brecciated, very poorly indurated sandstone. Top is rich in carbonaceous material. Core is rubble. Numerous carbonaceous stringers and wisps throughout the core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 110.8 | | | | | | | | | | | | | |
| | | 110.74 | 111.34 | .6 | SST | Light gray, medium grain, salt and pepper, rich in carbonaceous material, badly fractured. Core is broken to rubble. | | | | | | | | | | | | | |
| | | 111.34 | 112.12 | .78 | SLST | Brecciated and held together by gouge. Medium to dark gray. | | | | | | | | | | | | | |
| | | 112.12 | 112.22 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 112.2 | | | | | | | | | | | | | |
| | | 112.22 | 112.65 | .43 | SLST | Same as above. One COALY zone 8 cm long in center of run. | | | | | | | | | | | | | |
| 21-22 | | 112.65 | 113.20 | .55 | SST | Light gray, fine grain, salt and pepper, faintly laminated, 0.5 cm shale parting half way down the run. Core is rubble to semi-stick. Carbonaceous infillings. | | | | | | | | | | | | | |
| | | 113.20 | 113.40 | .2 | SLST | LOST CORE | | | | | | | | | | | | | |
| | | 113.40 | 113.50 | .10 | COAL | Fairly hard, semi vitreous, flakey. | | | | | | | | | | | | | |
| | | 113.50 | 113.60 | .10 | COAL | LOST CORE | | | | | | | | | | | | | |
| | | 113.60 | 114.30 | .7 | SLST | Brecciated and held together by gouge. Dark gray, massive. | | | | | | | | | | | | | |
| | | 114.30 | 114.50 | .2 | | LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 114.5 | | | | | | | | | | | | | |
| | | 114.50 | 114.58 | .08 | SLST | Same as the above. Visible pyrite and iron staining. | | | | | | | | | | | | | |
| | | 114.58 | 117.55 | 2.97 | SLST | Visible pyrite and iron staining. Sandy wisps occasionally through core. Trace of carbonaceous material. Some polished surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 117.4 | | | | | | | | | | | | | |
| 22-23 | | 117.55 | 119.14 | 1.59 | SLST | Brecciated and held together by gouge. Dark gray. Breccia more plentiful. Carbonaceous wisps in core increase at base. | | | | | | | | | | | | | |
| | | 119.14 | 119.20 | .06 | COAL | Vitreous, hard. Powder to flakey. | | | | | | | | | | | | | |
| | | 119.20 | 120.69 | 1.49 | SST | Light gray, medium grain salt and pepper, faintly laminated to massive. Core is stick to rubble. Trace of pyrite, trace of iron staining. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 120.9 | | | | | | | | | | | | | |
| 23-24 | | 120.69 | 123.35 | 2.66 | SST | Same as above. One zone brecciated and held together by gouge (15 cm long). Trace of iron staining. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 123.1 | | | | | | | | | | | | | |
| | | 123.35 | 124.66 | 1.31 | SST | Same as above. Core is broken to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 124.3 | | | | | | | | | | | | | |
| | | 124.66 | 125.59 | .93 | SST | Same as above but carbonaceous material is present throughout. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 125.3 | | | | | | | | | | | | | |
| | | 125.59 | 125.90 | .31 | SST | Same as above. Massive at base. | | | | | | | | | | | | | |
| | | 125.90 | 126.32 | .42 | COAL | Compacted to powder, vitreous soft. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† = R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
= RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300A

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No BA-217A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. CONTINUED 300A



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 126.32 | 126.42 | .1 | COAL | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 126.5 | | | | | | | | | | | | | |
| | | 126.42 | 126.80 | .38 | SLST | Dark gray, carbonaceous infillings throughout core. 7 cm of sandy rich core. | | | | | | | | | | | | | |
| | | 126.80 | 127.0 | .2 | | LOST CORE | | | | | | | | | | | | | |
| | | 127.0 | 129.61 | 2.61 | SST | Medium gray massive to faintly laminated. Wisps of light gray sandstone. Core is stick with 1 pocket of rubble. Numerous closed fractures. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 130.2 | | | | | | | | | | | | | |
| 25-26 | | 129.61 | 131.58 | 1.97 | SST | Same as above. Distorted laminations. | | | | | | | | | | | | | |
| | | 131.58 | 132.58 | 1.0 | SST | Light gray, medium grain, salt and pepper. Several small gouge zones. Trace of iron staining. Core is rubble at base. | | | | | | | | | | | | | |
| | | 132.58 | 132.78 | .2 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 132.9 | | | | | | | | | | | | | |
| | | 132.78 | 134.18 | 1.4 | SST | Same as above. Semi-stick to rubble | | 59 | | | | | | | | | | | |
| | | 134.18 | 134.38 | .2 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 134.4 | | | | | | | | | | | | | |
| | | 134.38 | 135.70 | 1.32 | SST | Same as above. Very faint laminations, cross-bedding, semi-stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 135.6 | | | | | | | | | | | | | |
| 26-27 | | 135.70 | 137.08 | 1.38 | SST | Same as above. Some carbonaceous material near base in rubble zone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 137.5 | | | | | | | | | | | | | |
| | | 137.08 | 138.36 | 1.28 | SST | Same as above. Broken core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 138.3 | | | | | | | | | | | | | |
| | | 138.36 | 139.64 | 1.28 | SST | Faintly laminated at top but massive at base. Numerous carbonaceous infillings, where sandstone becomes massive, some brecciation is present. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 139.9 | | | | | | | | | | | | | |
| 28 | | 139.64 | 141.08 | 1.44 | SST | Top is faintly laminated, middle is massive, the base is highly carbonaceous and rubbly. | | | | | | | | | | | | | |
| | | 141.08 | 141.20 | .12 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 141.4 | | | | | | | | | | | | | |
| | | 141.20 | 142.98 | .178 | SST | Medium gray, light gray. Massive at top, faintly laminated at middle and massive again at base. A zone of brecciated material with carbonaceous content. Numerous fractures throughout. Semi-stick to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 143.1 | | | | | | | | | | | | | |
| 28-29 | | 142.98 | 145.54 | 2.56 | SST | Same as above. Faintly laminated throughout. At base, core is massive and rubbly. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 145.7 | | | | | | | | | | | | | |
| | | 145.54 | 146.85 | 1.31 | SST | Massive, semi-stick to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 147.1 | | | | | | | | | | | | | |
| 29-30 | | 146.85 | 148.39 | 1.54 | SST | Broken core over first half and semi-stick for lower half. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 148.4 | | | | | | | | | | | | | |
| | | 148.39 | 149.51 | 1.12 | SST | Massive semi-stick to rubble at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 149.4 | | | | | | | | | | | | | |
| | | 149.51 | 150.91 | 1.4 | SST | Same as above, massive, semi-stick to rubble. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
* RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 150.9 | | | | | | | | | | | | | |
| 30-31 | | 150.91 | 151.95 | 1.04 | SST | Same as above | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 151.9 | | | | | | | | | | | | | |
| | | 151.95 | 152.40 | 0.45 | SST | Same as above | | | | | | | | | | | | | |
| | | 152.40 | 152.52 | .12 | SLST | Slightly silty. Carbonaceous traces. Dark gray, massive. | | | | | | | | | | | | | |
| | | 152.52 | 153.90 | 1.38 | SST / SLST | Light gray, very fine grain. Distorted laminations everywhere except middle where core is silty and dark gray. Core is stick to broken in lower half. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 153.7 | | | | | | | | | | | | | |
| | | 153.90 | 153.91 | .01 | SST / SLST | Same as above | | | | | | | | | | | | | |
| | | 153.91 | 154.36 | 0.45 | SST / SLST | Dark gray. Several sandstone wisps in center. Semi-stick core with several closed fractures. | | | | | | | | | | | | | |
| | | 154.36 | 154.64 | .28 | SST / SLST | Light gray, very fine grain. Distorted laminations. Some iron staining. Semi-stick core. | | | | | | | | | | | | | |
| | | 154.64 | 155.06 | .42 | SST / SLST | Brecciated and consolidated with gouge. Several wisps of light gray sandstone at base. Stick core. Medium grain sandstone | | | | | | | | | | | | | |
| 31-32 | | 155.06 | 156.99 | 1.93 | SST | Some brecciation and consolidation with gouge. Numerous small siltstone bands at top and at base. Distorted laminations. Stick core. | | | | | | | | | | | | | |
| | | 156.99 | 157.12 | .13 | | LOST CORE | | | | | | | | | | | | | |
| | | 157.12 | 159.17 | 2.05 | SLST | .41 m is badly brecciated and consolidated with a large amount of gouge. Middle section is brecciated and contains sandstone wisps. Base is highly carbonaceous throughout. Medium gray, stick to semi-stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | | 159.17 | 159.52 | .35 | SLST | Carbonaceous. Traces of pyrite. COALY stringers and wisps, COAL is polished. Broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 159.6 | | | | | | | | | | | | | |
| 32-33 | | 159.52 | 160.47 | .95 | SLST | Gray - dark gray. Light gray, sandstone lenses and bands. COAL stringers and wisps. Semi-stick core. Plant fragments. Sandy at base. | | | | | | | | | | | | | |
| 33 | | 160.47 | 160.93 | .46 | SS/SLST | Light gray - medium gray, medium grain - fine grain. 2-3 mm sandstone interbands in medium gray siltstone. Carbonaceous plant fragments. Stick core. | | 70 | | | | | | | | | | | |
| 33 | | 160.93 | 161.44 | .51 | SLST | Medium gray, with COALY stringers and wisps. Carbonaceous, plant fragments. 1-2 mm light gray sandstone bands and wisps. | | | | | | | | | | | | | |
| | | 161.44 | 162.07 | .63 | SHALE | COALY. Pyrite on fracture surfaces. Dark gray - black, soft, bright COAL bands and stringers. 2-3 mm wide. | | | | | | | | | | | | | |
| | | 162.07 | 162.49 | .42 | SLST | Medium gray. Light gray sandstone bands. COALY stringers. Trace of pyrite. Faintly laminated. Semi-stick. Plant fragments. Calcite micro veinlets. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 162.6 | | | | | | | | | | | | | |
| | | 162.49 | 163.18 | .69 | SLST | Stick core, medium gray, massive. Calcite micro veinlets. 2-3 mm fault gouge plane in center. Carbonaceous plant fragments. | | | | | | | | | | | | | |
| | | 163.18 | 163.31 | .13 | SHALE | COALY and silty. Dark gray, polished surfaces. | | | | | | | | | | | | | |
| | | 163.31 | 163.62 | .31 | SLST | Carbonaceous. Faintly laminated. Medium - dark gray. Calcite micro veinlets. COALY stringers. | | | | | | | | | | | | | |
| | | 163.62 | 163.70 | .08 | COAL | Shaley, black, soft, dull with some bright. Powdery. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† :- R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 163.70 | 164.07 | .37 | SLST | Carbonaceous, same as above. | | | | | | | | | | | | | |
| | | 164.07 | 164.13 | .06 | COAL | Bright and dull, granular, soft. | | | | | | | | | | | | | |
| | | 164.13 | 164.50 | .37 | SLST | COALY. Numerous thin stringers and wisps of COAL. Traces of pyrite, broken core. | | | | | | | | | | | | | |
| | | 164.50 | 164.60 | .10 | | LOST CORE | | | | | | LBD-300A-01 | | | | | | | |
| | | 164.60 | 164.65 | .05 | COAL | Compact, dull, polished surfaces | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 164.9 | | | | | | | | | | | | | |
| | | 164.65 | 165.0 | .35 | | LOST CORE | | | | | | | | | | | | | |
| 34 | | 165.00 | 165.11 | .11 | SHALE | COALY. polished surfaces | | | | | | | | | | | | | |
| | | 165.11 | 165.23 | .12 | | LOST CORE | | | | | | | | | | | | | |
| | | 165.23 | 165.30 | .07 | SHALE | As above | | | | | | | | | | | | | |
| | | 165.30 | 165.61 | .31 | COAL | Polished surfaces, dull with bright Stick core, Soft. | | | | | | | | | | | | | |
| | | 165.61 | 165.71 | .1 | COAL | Shaley, polished surfaces. | | | | | | | | | | | | | |
| | | 165.71 | 165.81 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | 165.81 | 166.11 | .3 | COAL | Soft, dull with bright polished surfaces, Stick core. | | | | | | | | | | | | | |
| | | 166.11 | 166.19 | .08 | COAL | Shaley, as before | | | | | | | | | | | | | |
| | | 166.19 | 166.29 | .1 | | LOST CORE | | | | | | | | | | | | | |
| | | 166.29 | 166.46 | .17 | COAL | Soft, dull with polished surfaces. | | | | | | | | | | | | | |
| | | 166.46 | 167.16 | .07 | | LOST CORE | | | | | | | | | | | | | |
| | | 167.16 | 167.33 | .11 | SHALE | COALY. Traces of pyrite. Polished surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 167.9 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb.1981

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 167.33 | 168.03 | .7 | | LOST CORE | | | | | | LBD-300A-01 | | | | | | | |
| | | 168.03 | 168.10 | .07 | COAL | Soft, powdery. Rubbley core | | | | | | | | | | | | | |
| | | 168.10 | 168.28 | .18 | COAL | Dull with bright. Semi-stick core. | | | | | | | | | | | | | |
| | | 168.28 | 168.36 | .08 | COAL | Dull with polished stick. Core is hard, S 2 | | | | | | | | | | | | | |
| | | 168.36 | 168.63 | .27 | COAL | Semi-stick core, polished with dull, S 3 | | | | | | | | | | | | | |
| | | 168.63 | 168.83 | .2 | COAL | Bright with dull, some cleat S 4 | | | | | | | | | | | | | |
| | | 168.83 | 168.99 | .16 | COAL | Shaley, Dull with polished surfaces, hard, S 2 . Stick core. | | | | | | | | | | | | | |
| | | 168.99 | 169.22 | .23 | COAL | Bright with dull. S 3 | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 169.3 | | | | | | | | | | | | | |
| | | 169.22 | 169.55 | .33 | COAL | Dull with polished. Broken core S 3 to S 4. | | | | | | | | | | | | | |
| | | 169.55 | 169.65 | .1 | COAL | Polished with dull. Powdery when crushed. | | | | | | | | | | | | | |
| | | 169.65 | 169.83 | .18 | COAL | Shaley, dull, hard. S 2 . Polished surfaces. | | | | | | | | | | | | | |
| | | 169.83 | 170.15 | .32 | COAL | Soft, polished surfaces, very powdery when crushed. S 3 to S 4. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 170.2 | | | | | | | | | | | | | |
| | | 170.15 | 170.20 | .05 | COAL | Shaley, dull, hard. S 1. | | | | | | | | | | | | | |
| | | 170.20 | 170.92 | .72 | CLST. | Highly carbonaceous, medium gray. Shaley zone .07 m thick at base. Stick core. | | | | | | | | | | | | | |
| 35 | | 170.92 | 171.04 | .12 | COAL | Soft, vitreous and flakey. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 171.04 | 172.16 | 1.12 | SLST | Highly carbonaceous, medium to dark gray. Coaly veins and pockets as well as coal-lined fractures, semi-stick coal. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 172.2 | | | | | | | | | | | | | |
| | | 172.16 | 173.39 | 1.23 | SLST | Brecciated throughout and held together by gouge. Numerous carbonaceous wisps and veins. | | | | | | | | | | | | | |
| | | 173.39 | 174.09 | .70 | | LOST CORE | | | | | | | | | | | | | |
| | | 174.09 | 175.27 | 1.18 | SST | Badly brecciated and held together by gouge. Light to medium gray, laminated. Trace of carbonaceous material throughout. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 175.3 | | | | | | | | | | | | | |
| 35-36 | | 175.27 | 178.30 | 3.03 | SST | Same as above. Pockets of intact core which have wisps in them. These range up to .2 m in size. Very little carbonaceous material present. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 178.3 | | | | | | | | | | | | | |
| | | 178.30 | 178.76 | .46 | SST | As above. Visible pyrite and iron staining. | | | | | | | | | | | | | |
| | | 178.76 | 179.72 | .96 | SST | Dark gray, medium grained. Poorly indurated with numerous fractures. Carbonaceous material present. Core is soft, semi-stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 180.1 | | | | | | | | | | | | | |
| 36-37 | | 179.72 | 181.32 | 1.6 | SST | Medium gray with light gray pockets. Medium grain. Core is slightly brecciated with numerous fractures. Some contain carbonaceous infillings. Poorly indurated, semi-stick. | | | | | | | | | | | | | |
| | | 181.32 | 181.61 | .29 | SST | As above. Several small closed fractures infilled with calcite. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 182.3 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† *R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

*RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37-38 | | 181.61 | 185.54 | 3.93 | SST | Light gray, medium grain, massive to thickly laminated. Trace iron staining. Several small calcite veins, carbonaceous stringers up to .005m thick as well as a COALY pocket .06 m thick. Core is semi-stick to rubble. Carbonaceous material is soft. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 186.9 | | | | | | | | | | | | | |
| | | 185.54 | 188.22 | 2.68 | SST | Light to medium gray, medium grain, massive to thickly laminated. Iron staining as well as carbonaceous material. Core ranges from stick to rubble. Core is soft at base. Poorly indurated. | | | | | | | | | | | | | |
| | | 188.22 | 188.51 | .29 | SLST | Dark gray to black. There is a .09 m pocket of black mud that is carbonaceous with shaley partings. Core is soft and has carbonaceous material throughout. Core is semi-stick to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 189.6 | | | | | | | | | | | | | |
| 38-39 | | 188.51 | 189.78 | 1.27 | SLST | Brecciated and consolidated with gouge. Dark gray. Some carbonaceous material present near centre. A .25 m zone of mud. Numerous closed fractures. Core is semi-stick. | | | | | | | | | | | | | |
| | | 189.78 | 190.50 | .72 | SHALE | Highly carbonaceous, very muddy and has shaley partings. A COALY band at top (.03 m thick) and a .03 m COALY band in the middle. Semi-stick core is black. | | | | | | | | | | | | | |
| | | 190.50 | 190.75 | .25 | COAL | Dull, compacted powder with vitreous flakes. | | | | | | | | | | | | | |
| | | 190.75 | 191.49 | .74 | SLST | Brecciated and consolidated with gouge. Dark gray At top there is a .14 m thick transitional zone that is soft and friable. Core is semi-stick. Traces of carbonaceous material present. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 192.6 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 191.49 | 192.10 | .61 | SLST | Medium gray, sandy wisps throughout. Numerous small fractures and small gouge zone. Core is semi-stick. No carbonaceous material present. | | | | | | | | | | | | | |
| | | 192.10 | 192.53 | .43 | SHALE | Dark gray to black. Highly carbonaceous, very muddy and friable. Core is semi-stick to rubble. Some small claystone clasts near base. | | | | | | | | | | | | | |
| | | 192.53 | 192.94 | .41 | COAL | Soft, dull, compacted powder and vitreous flakey COAL. Some polished surfaces. | | | | | | | | | | | | | |
| | | 192.94 | 193.10 | .16 | SHALE | Highly carbonaceous, muddy, dark gray to black and soft. Disseminated and pockets of carbonaceous material. | | | | | | | | | | | | | |
| 40 | | 193.10 | 193.88 | .78 | SLST | Brecciated and consolidated by gouge. Medium to dark gray. A .03 m COAL lens and a .02m COAL lens were observed. At .62 m to base, it is gouge with siltstone clasts. | | | | | | | | | | | | | |
| | | 193.88 | 194.29 | .41 | SST | Same as above, but clasts are sandstone. | | | | | | | | | | | | | |
| | | 194.29 | 194.74 | .45 | SLST | Breccciated and consolidated by gouge. The lower half of the unit is carbonaceous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 195.2 | | | | | | | | | | | | | |
| | | 194.74 | 195.38 | .64 | SST | Brecciated. Contains numerous COALY stringers. Core is stick to semi-stick. Lesser amount of gouge than previous units. Medium gray. | | | | | | | | | | | | | |
| | | 195.38 | 195.5 | .12 | SHALE | Highly carbonaceous, dark gray to black. Polished surfaces present. | | | | | | | | | | | | | |
| | | 195.5 | 196.5 | 1.0 | COAL | Vitreous hard chunks to dull soft powder. Some of the powder is compacted, core is rubble. | | | | | | LBD-300A-02 | | | | | | | |
| | | 196.5 | 198.5 | 2.0 | COAL | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 199.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
* R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
* RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | T.H. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % air d. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40-41 | | 198.5 | 199.88 | 1.38 | COAL | Ranges from stick core to powder. The stick core is flakey to compacted powder with vitreous polished surfaces. Rest is chunky and easily broken down into vitreous powder. | | | | | | LBD-300A-03 | | | | | | | |
| | | | | | | MARKER BLOCK @ 220.1 | | | | | | | | | | | | | |
| | | 199.88 | 200.53 | .65 | COAL | Hard, chunky and vitreous with soft dull powder. | | | | | | | | | | | | | |
| | | 200.53 | 200.73 | .2 | COAL | LOST CORE | | | | | | | | | | | | | |
| | | 200.73 | 202.05 | 1.32 | COAL | Compacted powder with polished surfaces. Some hard flakey COAL towards the base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 202.1 | | | | | | | | | | | | | |
| | | 202.05 | 203.6 | 1.55 | COAL | Compacted powder. Dull to semi vitreous with some polished surfaces. | | | | | | | | | | | | | |
| | | 203.6 | 203.9 | .3 | COAL | LOST CORE. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 203.9 | | | | | | | | | | | | | |
| 41-42 | | 203.9 | 205.76 | 1.86 | COAL | Dull soft compacted powder. | | | | | | | | | | | | | |
| | | 205.76 | 205.96 | .2 | | LOST CORE | | | | | | | | | | | | | |
| | | 205.96 | 206.77 | .81 | COAL | Hard flakey COAL with numerous polished surfaces. | | | | | | | | | | | | | |
| | | 206.77 | 206.97 | .2 | | LOST CORE | | | | | | | | | | | | | |
| | | 206.97 | 207.27 | .30 | COAL | Compacted powder, dull to semi vitreous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 207.3 - 207.7 | | | | | | | | | | | | | |
| | | 207.27 | 207.67 | .40 | | NO CORE | | | | | | | | | | | | | |
| | | 207.67 | 207.75 | .08 | COAL | Soft dull compacted powder | | | | | | | | | | | | | |
| | | 207.75 | 207.85 | .1 | | LOST CORE - COAL AND SHALE | | | | | | | | | | | | | |
| | | 207.85 | 208.00 | .15 | SHALE | Highly carbonaceous. Fissile, dark gray to black. Stick to semi-stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 208.00 | 208.67 | .67 | COAL | Hard, dull to semi bright, compacted, powder. Some polished surfaces. | | | | | | LBD-300A-03 | | | | | | | |
| 43 | | 208.67 | 209.23 | .56 | COAL | Dull, powder and vitreous flakey COAL | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 209.2 | | | | | | | | | | | | | |
| | | 209.23 | 210.04 | .81 | CLST | Highly carbonaceous, medium to dark gray. Numerous polished surfaces. Possible brecciation of the entire unit. | | | | | | | | | | | | | |
| | | 210.04 | 210.13 | .09 | SHALE | Highly carbonaceous, argillaceous, dark black. | | | | | | | | | | | | | |
| | | 210.13 | 211.44 | 1.31 | SLST | Brecciated, held together by gouge. Siltstone is medium gray, gouge is light gray. Numerous carbonaceous filled fractures. Base is more carbonaceous than top. | | | | | | | | | | | | | |
| | | 211.44 | 211.62 | .18 | SHALE | Black, highly carbonaceous, soft and muddy. | | | | | | | | | | | | | |
| 43-44 | | 211.62 | 212.93 | 1.31 | SLST | Brecciated throughout, more gouge at top than at base. Carbonaceous, Core is stick to semi-stick. Siltstone is medium gray. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 211.9 | | | | | | | | | | | | | |
| | | 212.93 | 214.22 | 1.29 | SLST | Brecciated and consolidated with gouge. Siltstone is medium gray. Sandstone wisps present as well as carbonaceous wisps and veins throughout. Core is stick. | | | | | | | | | | | | | |
| | | 214.22 | 214.53 | .31 | SLST | Medium to dark gray. Massive numerous carbonaceous veins and wisps. Semi-stick. | | | | | | | | | | | | | |
| | | 214.53 | 214.93 | .4 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 214.9 | | | | | | | | | | | | | |
| | | 214.93 | 215.05 | .12 | COAL | Semi-vitreous chunky COAL | | | | | | | | | | | | | |
| | | 215.05 | 215.59 | .54 | SLST | Highly carbonaceous. Dark gray. Numerous polished surfaces. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

▲ ANGLE MEASURED FROM CORE AXIS

• R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 215.59 | 216.01 | .42 | SLST | Brecciated and consolidated with gouge. Medium gray. Carbonaceous veins present. Stick core. | | | | | | | | | | | | | |
| | | 216.01 | 216.19 | .18 | SHALE | Black, highly carbonaceous and muddy. Soft. | | | | | | | | | | | | | |
| | | 216.19 | 216.43 | .24 | SLST | Brown - gray and very dense. Carbonaceous material present as well as plant fragments. Stick core. | | | | | | | | | | | | | |
| | | 216.43 | 216.75 | .32 | SHALE | Soft and black. High carbonaceous, muddy texture. Stick to rubble. | | | | | | | | | | | | | |
| | | 216.75 | 217.18 | .43 | SLST | Rich with clay. Brecciated COAL wisps and stringers present. Medium to dark gray. Semi-stick core. | | | | | | | | | | | | | |
| | | 217.18 | 217.26 | .08 | COAL | Soft dull compacted powder. Contains small vitreous flakes. | | | | | | | | | | | | | |
| | | 217.26 | 217.56 | .30 | SST | Very fine grain. light gray. stick core. Contains carbonaceous wisps. Numerous closed fractures present. | | | | | | | | | | | | | |
| 45 | | 217.56 | 217.93 | .37 | SLST | Brecciated. There are three carbonaceous lenses. There is light gray sandstone in the siltstone shards. Stick core at top to semi-stick at base where unit is more carbonaceous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 217.9 | | | | | | | | | | | | | |
| | | 217.93 | 218.37 | .44 | SLST | Medium to dark gray. Brecciated throughout. An abundance of gouge at top. Stick core. Some carbonaceous material present. | | | | | | | | | | | | | |
| | | 218.37 | 219.04 | .67 | SHALE | Highly carbonaceous. Dark gray to black. Fairly hard. Semi-stick core. | | | | | | | | | | | | | |
| | | 219.04 | 219.61 | .57 | SLST | Slightly silty. medium to dark gray. Brecciated and a lot of gouge is present. Stick core. Carbonaceous material present and as fracture fillings. A .04 m sandy zone at top. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

* R B/OR S — GOLDER ASSOCIATES HARDNESS CODE

* RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. CONTINUED 300 A



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % o.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 219.61 | 220.04 | .43 | SST | Light gray, fine grain, brecciated massive and hard. | | | | | | | | | | | | | |
| | | 220.04 | 220.55 | .51 | CLST | Brecciated, large amounts of gouge, some carbonaceous material. Medium gray, Core is stick to semi-stick. | | | | | | | | | | | | | |
| | | 220.55 | 221.14 | .59 | SST | Light gray, fine grain. Some laminations present. Stick core. Traces of carbonaceous material. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 221.0 | | | | | | | | | | | | | |
| 45-46 | | 221.14 | 223.90 | 2.76 | SST | Medium gray, fine grain and massive. Unit is brecciated. Gouge becomes darker at .8 m. The amount of sand decreases as one goes down into the unit and the amount of gouge increases. Stick core. | | | | | | | | | | | | | |
| | | 223.90 | 224.3 | .40 | SHALE | Black. Soft at top, hard at the base. Some carbonaceous material present. It has a muddy texture. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 224.0 | | | | | | | | | | | | | |
| | | 224.3 | 224.98 | .68 | COAL | Dull, powdered, COAL | | | | | | | | | | | | | |
| | | 224.98 | 226.20 | 1.22 | CLST | Black, ranges from soft and muddy to hard. Well developed fissility. Some carbonaceous material. Some polished surfaces. Traces of calcite. Semi-stick to broken. | | | | | | | | | | | | | |
| 47 | | 226.20 | 226.51 | .31 | GOUGE | Brecciated and held together by black mud. Calcite filled closed fractures. | | | | | | | | | | | | | |
| | | 226.51 | 227.27 | .76 | GOUGE | Dark gray to black. Muddy and soft. | | | | | | | | | | | | | |
| | | 227.27 | 227.57 | .30 | GOUGE | Dark gray, massive. Contains numerous small and large calcite veins. Base is very soft. Core is semi-stick to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 227.1 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• ROD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 330 A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 227.57 | 227.71 | .14 | GOUGE | Soft and dark gray. Some calcite present as well as polished surfaces. Trace amounts of carbonaceous material observed. | | | | | | | | | | | | | |
| | | 227.71 | 229.03 | 1.32 | GOUGE | Brecciated throughout. Held together by black mud. Siltstone is medium gray. Contains numerous calcite veins. Massive core is semi-stick to rubble. Varying amounts of gouge throughout. | | | | | | | | | | | | | |
| | | 229.03 | 229.39 | .36 | GOUGE | Dark gray to black. Top is muddy and soft and carbonaceous. Bottom half is harder with numerous polished surfaces, semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 230.1 | | | | | | | | | | | | | |
| | | 229.39 | 230.49 | 1.10 | GOUGE | Brecciated throughout with large amounts of gouge. Numerous polished surfaces. Calcite stringers in the siltstone shards. Semi-stick. Dark gray. | | | | | | | | | | | | | |
| 48 | | 230.49 | 233.36 | 2.87 | GOUGE | Medium gray,but dark gray in places. Massive Contains a few dispersed siltstone shards. Stick core. Calcite is present throughout. Very soft and friable in places. Calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 233.2 | | | | | | | | | | | | | |
| 48-49 | | 233.36 | 236.53 | 3.17 | GOUGE | Same as above. Lost diameter of core | | | | | | | | | | | | | |
| | | 236.53 | 237.03 | .5 | | LOST CORE | | | | | | | | | | | | | |
| 49-50 | | 237.03 | 239.75 | 2.72 | GOUGE | Same as above | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 239.8 | | | | | | | | | | | | | |
| 50-51 | | 239.75 | 245.73 | 5.98 | GOUGE | Same as above. Top of run is much thinner than HQ diameter core and gets thicker as progress downwards in run. Gouge contains numerous siltstone shards throughout. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 245.4 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 245.73 | 246.21 | 0.48 | GOUGE | As above. At top of run is zone of claystone shards in argillaceous matrix. At base, core has conformed to shape of box. | | | | | | | | | | | | | |
| | | 246.21 | 246.35 | 0.14 | GOUGE | Light gray, abundant polished surfaces. Numerous calcite filled fractures. Core is semi-stick, calcareous. | | | | | | | | | | | | | |
| | | 246.35 | 248.74 | 2.39 | GOUGE | Dark gray, very plastic. Contains a few siltstone shards. Core has conformed to shape of box at base. Calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 248.9 | | | | | | | | | | | | | |
| | | 248.74 | 251.72 | 2.98 | GOUGE | As above. Zone of concentrated siltstone pebbles in argillaceous matrix at top and middle. At 2.53 m a 0.10 m zone of light gray siltstone with abundant calcite veins. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 251.5 | | | | | | | | | | | | | |
| 52-53 | | 251.72 | 254.62 | 2.90 | GOUGE | Same as above. Up to 0.90 m, core is smaller than HQ diameter. Then gradually increases to full width. Siltstone is slightly carbonaceous at top, becoming less so at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 254.5 | | | | | | | | | | | | | |
| 53-54 | | 254.62 | 257.67 | 3.05 | GOUGE | Same as above. Carbonaceous at top, less carbonaceous towards base. Small zones of broken light gray siltstone throughout run. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 257.6 | | | | | | | | | | | | | |
| | | 257.67 | 258.67 | 1.00 | GOUGE | Same as above but light gray. Semi-stick core. | | | | | | | | | | | | | |
| | | 258.67 | 259.2 | 0.53 | GOUGE | Light gray. Many closed calcite filled fractures. Contains some pyrite. Highly fractured at top. Polished surfaces present. Calcareous. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

! • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54-55 | | 259.2 | 260.8 | 1.60 | GOUGE | Dark gray, containing calcite infillings and veinlets. Soft and plastic in places while brittle in others. Contains small zones of siltstone shards in argillaceous matrix. Core is stick, calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 260.7 | | | | | | | | | | | | | |
| | | 260.8 | 263.53 | 2.73 | GOUGE | Medium to dark gray. Zones of harder light gray siltstone in gouge. Some areas have fissility. Top is very friable and brittle becoming plastic at base. Greater proportion of shards here than in previous runs. Calcite infillings. Becoming increasingly carbonaceous towards base. Stick core. Calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 263.7 | | | | | | | | | | | | | |
| 55-56 | | 263.53 | 266.6 | 3.07 | GOUGE | Same as above. Contains abundant dispersed small siltstone shards. Top 0.23 m is smaller in diameter and from this point down core is full diameter. Calcite present but less abundant than previous runs. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 266.7 | | | | | | | | | | | | | |
| | | 266.6 | 268.9 | 2.3 | GOUGE | As above. | | | | | | | | | | | | | |
| | | 268.9 | 269.07 | 0.17 | GOUGE | Large amount clay present. Light gray, highly consolidated gouge. Calcareous. | | | | | | | | | | | | | |
| | | 269.07 | 269.27 | .20 | | LOST CORE | | | | | | | | | | | | | |
| | | 269.27 | 269.43 | 0.16 | GOUGE | Dark gray, stick core, calcareous. | | | | | | | | | | | | | |
| 57 | | 269.43 | 269.77 | 0.34 | GOUGE | Medium gray, massive. Contains angular siltstone clasts. Some shaley partings along which it fractures. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 269.8 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

! • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 300 A CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % ar.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 269.77 | 270.5 | .73 | GOUGE | Medium gray, calcareous. Contains dispersed siltstone pebbles. Very friable and flakey, compact. | | | | | | | | | | | | | |
| | | 270.5 | 271.30 | .8 | LST | Dark gray, carbonaceous, semi-stick. | | | | | | | | | | | | | |
| | | 271.30 | 272.88 | 1.58 | LST | Dark gray. Angular carbonate clasts and disseminated calcite throughout. Also calcite wisps, veins and infilled fractures. Visible pyrite core stick to semi-stick. Carbonaceous material infills on some fractures. Numerous closed fractures infilled with calcite. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 272.9 | | | | | | | | | | | | | |
| | | 272.88 | 275.79 | 2.91 | LST | As above, a few zones containing siltstone, gouge, semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 275.9 | | | | | | | | | | | | | |
| | | 275.79 | 277.69 | 1.90 | LST | As above, core is semi-stick to rubble. Calcite fractures set. Highly calcareous. Carbonaceous-coated fracture surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 277.4. | | | | | | | | | | | | | |
| | | | | | | THE END. | | | | | | | | | | | | | |
| | | | | | | NOTE: Hole ended in Banff formation and successfully cored flathead fault zone. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 300 A

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| | |
|---|---|
| PROJECT | LILLYBURT |
| AREA | S.E. B.C. |

| DATE | | |
|---|---|---|
| BEGIN | JULY 7,1981 |
| END | JULY 13, 1981 |

HOLE No. LBD 301 D



**HOLE PARTICULARS**

| | | | |
|---|---|---|---|
| LOCATION | LILLYBURT | | |
| | S.E. B.C. | | |
| ELEVATION | | HOLE BEARING (AZ°) | 216 |
| TOTAL DEPTH | 344.5M | HOLE ANGLE (°)* | 060 |

**LOGGING**

| | |
|---|---|
| LOGS RUN | NEUT/FBL/GAM/DENS/CAL |
| LOGGED BY | ROKE |
| OTHER TESTS | DIRECTIONAL |

**COAL CORING PERFORMANCE**

| | | |
|---|---|---|
| CORE DIAMETER | | HQ |
| TOTAL | CORE RECOVERED | 317.8 |
| | LENGTH CORED | 338.2 |
| | CORE RECOVERY | 94.0 % |

**EXAMINATION**

| | |
|---|---|
| LOG USED | GAM/DENS/FBL |
| No. OF SEAMS SAMPLED | 8 |
| EXAMINER (S) | BM/PA |
| DATE | July 14,1981 |

| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC. FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 6.1 | | | | | | | | | | | | | |
| 1 | | 6.33 | 7.96 | 1.63 | SST | - Salt & Pepper, medium grain, weakly laminated. Faint cross-bedding. Ground core at top. Stick to semi-stick. Limonite stains on fracture surfaces. | | 79 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 8.8 | | | | | | | | | | | | | |
| | | 7.96 | 8.98 | 1.02 | SST | - Silty at top. Dark grey, finely laminated or disrupted bedding (slumping) fine grain, very fine grain. Semi-stick. Dark grey bands are siltstone. | | | | | | | | | | | | | |
| | | 8.98 | 9.24 | .26 | SST | - Rubble, as above in appearance. | | | | | | | | | | | | | |
| | | 9.24 | 9.74 | .5 | | LOST CORE | | | | | | | | | | | | | |
| 1/2 | | 9.74 | 9.92 | .18 | SST | - Finely laminated. Dark grey with limonite staining or fractures. Broken core. | | | | | | | | | | | | | |
| | | 9.92 | 10.42 | .5 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 10.7 | | | | | | | | | | | | | |
| 2 | | 10.42 | 10.64 | .22 | SST | - As above. | | | | | | | | | | | | | |
| | | 10.64 | 12.34 | 1.70 | SST | - Cross-laminations at top grading into parallel laminations at base. Medium grain - fine grain semi-stick. Thin bright COAL band at top. | | 87 | | | | | | | | | | | |
| | | 12.34 | 13.32 | .98 | CONGL | - Cherty. Polymictic. Matrix supported. Well roun-ded, moderately sorted. Low sphericity. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 14.0 | | | | | | | | | | | | | |
| | | 13.32 | 14.79 | 1.47 | CONGL | - As above but rubbly & strongly leached. | | | | | | | | | | | | | |
| | | 14.79 | 15.29 | .5 | | LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No. BA-267
REVISED Feb.1981

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD-301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | | 15.29 | 16.41 | 1.12 | CONGL | - As above. Stick core. | | | | | | | | | | | | | |
| | | 16.41 | 18.3 | 1.89 | CONGL | - As above, bright COAL stringer at base. | | | | | | | | | | | | | |
| | | 18.3 | 18.55 | .25 | CONGL | - Sandy, less pebbles and more sandstone. Sandstone is salt & pepper. Medium grain. COAL stringer in middle. | | | | | | | | | | | | | |
| | | 18.55 | 18.8 | .25 | SST | - Salt & pepper, medium grain, well laminated. Occasional dark grey streaks of siltstone. Stick core. | | 84 | | | | | | | | | | | |
| | | 18.8 | 19.22 | .42 | SLST | - Dark grey, finely laminated, fine grain. Semi-stick. | | | | | | | | | | | | | |
| | | 19.22 | 19.26 | .04 | CONGL | - As above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 20.1 | | | | | | | | | | | | | |
| 3/4 | | 19.26 | 21.8 | 2.54 | SLST | - Alternate very thin light grey sandstone & dark grey siltstone bands giving a very finely laminated appearance. Broken to semi-stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 22.6 | | | | | | | | | | | | | |
| 4 | | 21.8 | 23.8 | 2.0 | SLST | - As above. | | | | | | | | | | | | | |
| 5 | | 23.8 | 24.38 | .58 | SLST | - As above, but more sandy at top and less laminated. Rubbly. | | | | | | | | | | | | | |
| | | 24.38 | 24.64 | .26 | MUD | - Sandy | | | | | | | | | | | | | |
| | | 24.64 | 24.76 | .12 | SST | - Laminated with thin dark grey siltstone bands. Rubbly. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 25.6 | | | | | | | | | | | | | |
| | | 24.76 | 25.72 | .96 | SST | - Medium grain - coarse grain. Salt & pepper, equi-granular, massive. Very rubbly at top to stick at base. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 26.7 | | | | | | | | | | | | | |
| 5 | | 25.72 | 26.84 | 1.12 | SST | - As above. Broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 27.4 | | | | | | | | | | | | | |
| 5/6 | | 26.84 | 28.06 | 1.22 | SST | - As above. Broken to rubbly core. COALY stringers at top 1-2mm thick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 29.3 | | | | | | | | | | | | | |
| | | 28.06 | 29.41 | 1.35 | SST | - As above. Semi-stick to broken | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 30.0 | | | | | | | | | | | | | |
| | | 29.41 | 30.5 | 1.09 | SST | - Weakly laminated, medium grain, salt & pepper. Stick to semi-stick. Bright COAL stringers on fracture surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 31.9 | | | | | | | | | | | | | |
| | | 30.5 | 30.95 | .45 | SST | - As above. | | | | | | | | | | | | | |
| | | 30.95 | 31.25 | .30 | SST/SLST | - Finely laminated alternate light grey and dark grey interbedded sandstone and siltstone. Fine grain. Semi-stick. | | 70 | | | | | | | | | | | |
| 6/7 | | 31.25 | 32.08 | .83 | SST | - Salt & pepper, medium grain massive. Occasional .03-.05m wide bands of dark grey siltstone. Carbonate veinlets in siltstone bands. Semi-stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 33.4 | | | | | | | | | | | | | |
| 7 | | 32.08 | 33.15 | 1.07 | SST | - Salt & pepper, medium grain, equigranular massive. Weathered in middle. Ground core at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 34.3 | | | | | | | | | | | | | |
| | | 33.15 | 34.12 | .97 | SST | - Medium grain- coarse grain as above but rubbly core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 35.4 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD-301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 34.12 | 34.97 | .85 | SST | - As above. COALY lenses. Rubble to broken. | | | | | | | | | | | | | |
| 7 | | 34.97 | 35.46 | .49 | SST | - Conglomeratic COAL blebs and lenses. Rubbley at top. COAL is thin, bright and granular. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 36.9 | | | | | | | | | | | | | |
| | | 35.46 | 35.62 | .16 | SST | - As above, but less conglomeratic. Very rubbley | | | | | | | | | | | | | |
| | | 35.62 | 36.3 | .68 | | LOST CORE. | | | | | | | | | | | | | |
| 7/8 | | 36.3 | 37.75 | 1.45 | SST | - Fine grain - medium grain, weakly laminated, light grey. Semi-stick to stick. | | 83 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 38.4 | | | | | | | | | | | | | |
| 8 | | 37.75 | 37.92 | .17 | SLST | - Finely laminated with alternating light and dark grey sandstone & siltstone bands. Fine grain. Semi-stick. | | | | | | | | | | | | | |
| | | 37.92 | 38.09 | .17 | SLST | - Dark grey, fine grain, very finely laminated. Stick core. | | | | | | | | | | | | | |
| | | 38.09 | 38.79 | .70 | SST | - Fine grain, weakly laminated. Stick core. | | | | | | | | | | | | | |
| | | 38.79 | 39.01 | .22 | SLST | - Alternating dark grey siltstone and fine grain, light grey sandstone. Semi-stick core. | | 85 | | | | | | | | | | | |
| 8 | | 39.01 | 40.79 | 1.78 | SST | - Medium grain, equigranular, massive with occasional dark grey siltstone clasts. Stick to Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 41.5 | | | | | | | | | | | | | |
| 9 | | 40.79 | 42.69 | 1.90 | SST | - Medium grain, massive, equigranular. Stick - semi-stick. Light grey. | | | | | | | | | | | | | |
| | | 42.69 | 43.35 | .66 | SST | - Medium grain as above, but with prominent dark grey, .03-.05m rip up siltstone clasts. Also some COALY fractures. Semi-stick. Light grey. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD-301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 43.9 | | | | | | | | | | | | | |
| | | 43.35 | 43.52 | .17 | SST | - As above. Some bright COAL at bottom. | | | | | | | | | | | | | |
| 9 | | 43.52 | 44.82 | 1.30 | SST | - Weakly laminated, medium grain, light grey. Broken to semi-stick. | | | | | | | | | | | | | |
| 9/10 | | 44.82 | 45.24 | .42 | SST | - Medium grained, light grey, equigranular. Prominent thin bright veinlets and blebs of COAL. Broken to semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 45.9 | | | | | | | | | | | | | |
| 10 | | 45.24 | 45.55 | .31 | SST | - As above. Rubbly core. | | | | | | | | | | | | | |
| 10 | | 45.55 | 46.29 | .74 | SLST | - Sandy, dark grey, massive. Semi-stick. COALY contact between rocks above and below. | | | | | | | | | | | | | |
| | | 46.29 | 46.5 | .21 | SST | - COALY as before. | | | | | | | | | | | | | |
| | | 46.5 | 46.82 | .32 | SST | - Medium grained, laminated, light grey, equigranular. Broken core. | | 90 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 47.5 | | | | | | | | | | | | | |
| 10 | | 46.82 | 47.15 | .33 | SST | - As above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 47.9 | | | | | | | | | | | | | |
| | | 47.15 | 47.75 | .60 | SST | - Medium grained, light grey, equigranular, weakly laminated. Numerous COALY wisps, blebs and veinlets. Broken core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE
! : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD-301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 47.75 | 47.85 | .10 | SLST | - Sandy, fine grain, medium grain, grey. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 48.5 | | | | | | | | | | | | | |
| | | 47.85 | 48.35 | .50 | SLST | - Dark grey, finely laminated, sandy, fine grain. | | | | | | | | | | | | | |
| 10 | | 48.35 | 49.09 | .73 | SLST | - Gouge. Siltstone fragments in rock flour. | | | | | | | | | | | | | |
| | | 49.09 | 49.19 | .11 | | LOST CORE. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 49.8 | | | | | | | | | | | | | |
| 11 | | 49.19 | 49.46 | .27 | SLST | - Gouge, as above. | | | | | | | | | | | | | |
| | | 49.46 | 49.77 | .31 | SHALE | - Carbonaceous, COALY, black to dark grey. COAL bands interbedded with shale. Broken core. | | | | | | | | | | | | | |
| | | 49.77 | 50.06 | .29 | SLST | - Shaley dark grey - black, some thin light grey, fine grain sandstone bands as well. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 50.7 | | | | | | | | | | | | | |
| 11 | | 50.06 | 52.83 | 2.77 | SLST | - Shaley, dark grey-black. Carbonaceous plant fragments. Semi-stick - stick. | | 90 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 53.6 | | | | | | | | | | | | | |
| 11& | 12 | 52.83 | 55.79 | 2.96 | SLST | - As above, but laminations more prominent and somewhat more sandy. Stick to semi-stick. | | 85 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 56.7 | | | | | | | | | | | | | |
| 12 | & | 55.79 | 58.78 | 299 | SLST | - As above. Abundant sandy laminations at bottom | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 59.7 | | | | | | | | | | | | | |
| 13 | | 58.78 | 60.0 | 1.22 | SST | - Light grey, fine grain. Salt & pepper. COAL stringers less than 1 cm at top. Carbonaceous partings. Cross-laminated near top. Semi-stick to broken. Siltstone near bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 61.4 | | | | | | | | | | | | | |
| | | 60.0 | 61.84 | 1.84 | SLST | - Medium grey, massive, slightly sandy. Semi-stick, becoming very fine grain sandstone toward bottom. | | | | | | | | | | | | | |
| 14 | | 61.84 | 62.14 | .30 | CLST | - Dark grey, very carbonaceous. Massive, broken, 3 cm flake COAL at top. | | | | | | | | | | | | | |
| | | 62.14 | 62.72 | .58 | SLST | - Dark grey, shaly at top, sandy at bottom. 4 cm gouge zone near bottom. Broken. | | | | | | | | | | | | | |
| | | 62.72 | 63.22 | .50 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 64.0 | | | | | | | | | | | | | |
| | | 63.22 | 63.83 | .61 | CLST | - Medium grey, massive, silty at top and at bottom. Semi-stick. | | | | | | | | | | | | | |
| | | 63.83 | 64.34 | .51 | SLST | - Gouge zone. Medium grey. Semi-stick | | | | | | | | | | | | | |
| | | 64.34 | 64.7 | .36 | SLST | - Sandy, dark grey. Discontinuous thin laminations. Broken core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

R : MEASURED FROM THE HORIZONTAL PLANE
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• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD-301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 64.7 | 65.11 | .41 | | LOST CORE. | | | | | | | | | | | | | |
| | | 65.11 | 66.22 | 1.11 | SST | - Fine grain, silty, salt & pepper at top, broken core. Dark grey at bottom. | | | | | | | | | | | | | |
| | | 66.22 | 66.41 | .19 | SLST | - Dark grey. Salt & pepper, fine grain sandstone at top. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 66.4 | | | | | | | | | | | | | |
| | | 66.41 | 66.54 | .13 | GOUGE | - Sandstone fragments in claystone matrix. White, thin carbonate veinlets in sandstone. | | | | | | | | | | | | | |
| | | 66.54 | 66.7 | .16 | SLST | - Dark grey, fine laminated fractures annealed with white calcite. | | | | | | | | | | | | | |
| 14 & 15 | | 66.7 | 68.71 | 2.01 | SST | - fine grain, light grey to grey, weakly laminated to massive. Very thin calcite filled fractures. Broken to semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 68.9 | | | | | | | | | | | | | |
| | | 68.71 | 69.59 | .88 | SST | - As above. Massive. | | | | | | | | | | | | | |
| | | 69.59 | 69.8 | .21 | SST | - Fine Grain, light grey to dark grey, cross-laminated. | | | | | | | | | | | | | |
| | | 69.8 | 70.41 | .61 | SST | - Fine grain, dark grey. Fault zone 30° to core axis, .01m wide. | | | | | | | | | | | | | |
| | | 70.41 | 71.33 | .92 | SST | - Fine grain, light grey laminations of thin, dark siltstone. Semi-stick to broken. Isolated dark grey siltstone rip up clasts. | | 81 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 71.6 | | | | | | | | | | | | | |
| 15 & 16 | | 71.33 | 72.34 | 1.01 | SST | - Dark grey, laminated to cross-laminated. | | | | | | | | | | | | | |
| | | | | | | - Broken to semi-stick. COALY lenses at bottom. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | | 72.34 | 73.26 | .92 | SST | - Light grey to grey, fine to medium grain. Dark laminations of siltstone, thin bright COAL stringers, carbonaceous plant fragments. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 73.8 | | | | | | | | | | | | | |
| | | 73.26 | 73.65 | .39 | SST | - Very silty, dark grey, fine grain Abundant pods & stringers of bright cleated COAL less than .01m wide. | | | | | | | | | | | | | |
| | | 73.65 | 74.1 | .45 | SST | - Light grey, medium grain, laminations & cross-laminations. Numerous thin discontinuous COAL stringers. | | | | | | | | | | | | | |
| 16 & 17 | | 74.1 | 76.3 | 2.2 | SST | - laminated to massive, medium grain, light grey. Stick to semi-stick | | 82 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 76.8 | | | | | | | | | | | | | |
| | | 76.3 | 77.95 | 1.65 | SST | - As above, rubble at bottom. Semi-stick at top. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 78.6 | | | | | | | | | | | | | |
| 17&18 | | 77.95 | 79.96 | 2.01 | SST | - As above, ground core at top. Semi-stick to broken elsewhere. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 80.5 | | | | | | | | | | | | | |
| | | 79.96 | 83.04 | 3.08 | SST | - Medium grain, salt & pepper. Stick to semi-stick at top. Rubble to ground core at bottom. Occasional .01m, bright cleated COAL bands. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 83.5 | | | | | | | | | | | | | |
| | | 83.04 | 83.47 | .43 | SST | - Medium grain, dark grey very COALY, with numerous interfingering thin COAL stringers & lenses. COAL is bright & cleated to bright & flakey. Core is broken to rubbly. | | | | | | | | | | | | | |
| | | 83.47 | 83.56 | .09 | COAL | - Flakey, polished to bright. | | | | | | | | | | | | | |
| | | 83.56 | 83.67 | .11 | SLST | - Dark brown, sandy, very fine grain, massive. | | | | | | | | | | | | | |
| | | 83.67 | 84.13 | .46 | SST | - Dark grey, massive, very silty. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 84.1 | | | | | | | | | | | | | |
| 19 | | 84.13 | 86.03 | 1.90 | CLST | - Medium grey, massive gouge. Claystone infill in the gouge. The gouge is at top of unit | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 86.4 | | | | | | | | | | | | | |
| | | 86.03 | 87.22 | 1.19 | CLST | - Dark grey and massive. Semi-stick. Vague laminations becoming more silty at the base. | | 90 | | | | | | | | | | | |
| | | 87.22 | 87.40 | .18 | CLST | - Black, very carbonaceous. Abundant COALY partings. Semi-stick core .4cm COAL band at the top. | | | | | | | | | | | | | |
| | | 87.4 | 87.7 | .30 | COAL | - Semi-stick to broken. Abundant bright cleats. Vitreous. Occasional pyrite on fracture surfaces. | | | | | | LBD 301 -01 | | | | | | | |
| | | 87.7 | 87.75 | .05 | | LOST CORE (COAL) | | | | | | | .30 | .82 | 52.79 | | | 2.0 | |
| | | 87.75 | 87.81 | .06 | SHALE | - Black, very carbonaceous. | | | | | | | | .71 | 18.31 | 25.6 | 55.4 | 8.0 | |
| | | 87.81 | 87.91 | .1 | | LOST CORE (SHALE). | | | | | | | | | | | | | |
| | | 87.91 | 88.03 | .12 | COAL | - Very hard at top. Bright, powdered at the bottom. A 3cm claystone band in the middle. | | | | | | | | | | | | | |
| 20 | | 88.03 | 88.15 | .12 | COAL | Powdered, partly bright. | | | | | | | | | | | | | |
| | | 88.15 | 88.25 | .1 | | LOST CORE (COAL). | | | | | | | | | | | | | |

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ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M % | F.C. % | F.S.I. | C.V. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 89.2 | | | | | | | | | | | | | | |
| | | 88.25 | 89.36 | 1.11 | SLST | - Dark grey. Broken at top, occasional slicken-slides. Occasional COAL bands up to .01m thick. Laminated .10m band of fine sandstone near the middle, very carbonaceous. | | 90 | | | | LBD 301 -02 | 1.31 | .96 | 82.1 | | | 0.0 | | Raw |
| | | | | | | | | | | | | | | .97 | 11.28 | 25.8 | 62.0 | 8.5 | | 1.6 Floa |
| | | 89.36 | 90.01 | .65 | | LOST CORE ( COAL & SHALE ) | | | | | | LBD 301 | | | | | | | | |
| | | 90.01 | 90.39 | .38 | COAL | - Semi-stick. Poorly consolidated. Bright slick surfaces. | | | | | | -03 | .75 | .75 | 22.0 | | | 7.5 | | Raw |
| | | | | | | | | | | | | | | .71 | 10.2 | 27.3 | 61.8 | 8.5 | | 1.6 Floa |
| | | 90.39 | 90.45 | .06 | | LOST CORE ( COAL ) | | | | | | LBD 301 | | | | | | | | |
| | | 90.45 | 90.67 | .22 | SLST | - Very carbonaceous. Dark grey massive. Semi-stick . | | | | | | -04 | | | | | | | | |
| | | 90.67 | 90.73 | .06 | | LOST CORE ( SILTSTONE ) | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 91.1 | | | | | | | .85 | .80 | 87.4 | | | 0.0 | | Raw |
| | | 90.73 | 91.30 | .57 | SLST | - Dark grey, very clayey. Massive. Stick core. Broken at top. Grading to claystone downwards. | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 91.9 | | | | | | | | | | | | | | |
| | | 91.30 | 91.35 | .05 | CLST | - Dark grey massive. | | | | | LBD | 301 | 1.78 | .56 | 34.6 | | | 6.5 | | Raw |
| | | 91.35 | 91.96 | .61 | COAL | - Semi-stick. Poorly consolidated and plastic towards top. Bright slick surfaces. | | | | | | -05 | | 1.21 | 14.3 | 24.8 | 59.7 | 8.5 | | 1.6 Floa |
| | | 91.96 | 92.14 | .18 | | LOST CORE ( CLAYSTONE ) | | | | | | | | | | | | | | |
| | | 92.14 | 92.54 | .40 | CLST | - Very carbonaceous, black to dark grey. Abundant COAL stringers and lenses. Silt laminations towards bottom. | | 90 | | | | | | | | | | | | |
| | | 92.54 | 92.76 | .22 | SLST | - Dark grey, laminated. Sandy at top. | | 90 | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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• RQD — ROCK QUALITY DESIGNATION (%)

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 93.3 | | | | | | | | | | | | | |
| | | 92.76 | 93.11 | .35 | SLST | - As above. Becoming more sandy towards base. | | | | | | | | | | | | | |
| 21 | | 93.11 | 95.9 | 2.79 | SST/SLS | - Very fine grained. Light grey. Abundant dark grey siltstone laminations. Stick core. Occasional bands of medium grained sandstone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 96.3 | | | | | | | | | | | | | |
| | | 95.9 | 97.47 | 1.57 | SST/SLS | - As above. | | 90 | | | | | | | | | | | |
| 22 | | 97.47 | 97.95 | .48 | SST | - As above, calcareous. | | | | | | | | | | | | | |
| | | 97.95 | 98.95 | 1.0 | SST | - Medium grained, light grey. Salt & pepper. Laminated. Abundant COALY stringers at the top. Carbonaceous partings. | | 79 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 99.4 | | | | | | | | | | | | | |
| | | 98.95 | 101.69 | 2.74 | SST | - Medium to coarse grain . Light grey. Occasional COAL stringers. Vague cross-laminaions. Semi-stick core. Broken at bottom. One carbonaceous siltstone band .04m thick in the middle. Calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 102.4 | | | | | | | | | | | | | |
| 23 | | 101.69 | 102.04 | .35 | SST | - As above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 105.5 | | | | | | | | | | | | | |
| | | 102.04 | 105.14 | 3.1 | SST | - As above. Occasional iron specks and calcite filled fractures. COAL stringers at 2.0 and 2.5m. Occasional siltstone rip - up clasts near bottom. Calcareous. | | | | | | | | | | | | | |
| | | 105.14 | 105.68 | .54 | SLST | - Medium grey. Clayey in the middle. Abrupt erosional contact with sandstone above. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | Lillyburt |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 105.68 | 105.91 | .23 | SST | - Medium grained. Light grey. Salt & pepper. Contains COAL stringers. Calcareous. | | | | | | | | | | | | | |
| 24 | | 105.91 | 107.73 | 1.82 | SST | - Light grey. Salt & pepper. Abundant COAL stringers up to .02 thick. Cross-lamination present. Abundant siltstone rip up clasts. Semi-stick. Small deformation on annealed fractures, displacement .005m. | | 86 | | | | | | | | | | | |
| | | 107.73 | 108.08 | .35 | SST | - Medium grained. Light grey. Clayey. Broken carbonaceous claystone at top. Calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 108.5 | | | | | | | | | | | | | |
| | | 108.08 | 109.77 | 1.69 | SST | - Medium grained. Light grey. Salt & pepper. Abundant siltstone rip-up clasts and lenses. Massive at bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 110.0 | | | | | | | | | | | | | |
| | | 109.77 | 110.1 | .33 | SST | - As above. Massive and broken. Calcareous. | | | | | | | | | | | | | |
| 25 | | 110.1 | 111.57 | 1.47 | SST | - medium grain, light grey. Salt & pepper. Massive. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 113.1 | | | | | | | | | | | | | |
| | | 111.57 | 114.07 | 2.5 | SST | - As above. Abundant laminations & COAL stringers less than .01. Semi-stick. Slightly calcareous. | | 76 | | | | | | | | | | | |
| | | 114.07 | 114.15 | .08 | COAL | - Dull. Hard and unbroken. Slightly calcareous. | | | | | | | | | | | | | |
| | | 114.15 | 114.40 | .25 | SLST | - Medium grey with abundant COAL & sandstone stringers and lenses. | | | | | | | | | | | | | |
| 26 | | 114.4 | 114.75 | .35 | SST | - As above. Broken at bottom. Slightly calcareous. | | | | | | | | | | | | | |
| | | 114.75 | 115.73 | .98 | SST | - Medium grained light grey Salt & pepper, massive Occasional COAL stringers and claystone rip-up clasts. Semi-stick. Calcareous. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 116.0 | | | | | | | | | | | | | |
| | | 115.73 | 118.72 | 2.99 | SST | - Medium grain. Light grey. Salt & pepper. Laminated. Semi-stick | | 90 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 119.2 | | | | | | | | | | | | | |
| 27 | | 118.72 | 121.65 | 2.93 | SST | - As above. Semi-stick. Massive towards bottom. Becoming coarse grained towards bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 122.2 | | | | | | | | | | | | | |
| | | 121.65 | 123.00 | 1.35 | SST | - Coarse grain, light grey. Salt & pepper. Hard. Semi-stick. Occasional calcite filled annealed fractures at low angle to core axis. Slightly calcareous. | | | | | | | | | | | | | |
| 28 | | 123.00 | 123.19 | .19 | SST | - As above. Very broken. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 124.5 | | | | | | | | | | | | | |
| | | 123.19 | 125.36 | 2.17 | SST | - As above. Abundant COAL and claystone stringers broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 126.8 | | | | | | | | | | | | | |
| | | 125.36 | 126.4 | 1.04 | SST | - As above. Abundant claystone rip-up clasts. | | | | | | | | | | | | | |
| | | 126.4 | 126.9 | .50 | SST | - Light grey. Medium grain. Salt & pepper. Cross-laminated. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
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• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29 | | 126.9 | 127.72 | .82 | SST | - Medium to coarse. Stick core. | | | | | | | | | | | | | |
| | | 127.72 | 128.26 | .54 | SST | - Fine grain. Light grey. Abundant COAL stringers. Broken core. | | | | | | | | | | | | | |
| | | 128.26 | 128.46 | .20 | | LOST CORE. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 130.0 | | | | | | | | | | | | | |
| | | 128.46 | 128.77 | .31 | SST | - As above. Very broken. | | | | | | | | | | | | | |
| | | 128.77 | 130.1 | 1.33 | SLST | - Medium grey. Massive. Broken. Occasional sandy bands. Occasional plant fragments. Broken and clayey at bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 131.4 | | | | | | | | | | | | | |
| | | 130.1 | 131.26 | 1.16 | SST | - Very fine grain. Vague laminations. Becoming fine grain towards bottom. Cross-laminations. Semi-stick. Medium grey. | | | | | | | | | | | | | |
| 30 | | 131.26 | 133.03 | 1.77 | SST | - Fine grain. Light - medium grey. Abundant laminations. Occasional cross-laminations. Occasional calcite filled fractures. Semi-stick. Abundant fractures along bedding at top of unit | | 85 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 134.4 | | | | | | | | | | | | | |
| | | 133.03 | 134.41 | 1.38 | SST | - As above. Becoming medium grey towards bottom. | | | | | | | | | | | | | |
| | | 134.41 | 135.46 | 1.05 | SST | - Medium grained light grey. Abundant COAL stringers. Clayey. Poorly consolidated. crumbly at the top. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 136.9 | | | | | | | | | | | | | |
| | | 135.46 | 135.63 | .17 | SST | - Fine - medium grain. Abundant COAL stringers. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % arb. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | medium grey-brown-crumbly. | | | | | | | | | | | | | |
| | | 135.63 | 136.08 | .45 | | LOST CORE. | | | | | | | | | | | | | |
| 31 | | 136.08 | 136.25 | .17 | SST | - Medium grain, Light grey. Salt & pepper. Abundant silty claystone rip up clasts. | | | | | | | | | | | | | |
| | | 136.25 | 136.62 | .37 | SLST | - Medium grain, hard. Sandy with sandstone inclusions and COAL stringers. | | | | | | | | | | | | | |
| | | 136.62 | 136.96 | .34 | SST | - Medium grain, Light grey. Salt & pepper. Laminated, Semi-stick. | | 75 | | | | | | | | | | | |
| | | 136.96 | 137.3 | .34 | SLST | - As before. | | | | | | | | | | | | | |
| | | 137.3 | 138.74 | 1.44 | SST | - AS before. Abundant cross-laminations. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 139.9 | | | | | | | | | | | | | |
| | | 138.74 | 140.27 | 1.53 | SST | - As above. COAL stringers towards bottom. Broken in middle. Occasional calcite filled fractures. | | | | | | | | | | | | | |
| 32 | | 140.27 | 141.08 | .81 | SST | - Medium grain, Light grey with abundant lenses and clasts of medium grey siltstone. COAL stringers up to .01m. Poorly consolidated and slightly plastic in the middle. Broken core. | | | | | | | | | | | | | |
| | | 141.08 | 141.48 | .40 | | LOST CORE. | | | | | | | | | | | | | |
| | | 141.48 | 141.64 | .16 | SST | - Fine grain. Medium grey gouge. Clayey matrix. | | | | | | | | | | | | | |
| | | 141.64 | 142.39 | .75 | SST | - Medium grain. Light grey. Abundant siltstone laminations. Broken | | 76 | | | | | | | | | | | |
| | | 142.39 | 143.36 | .97 | SST | - Medium grain. Light grey. Salt & Pepper. Hard, massive - occasional calcite on annealed fractures. Semi-stick. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No.

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F S I | C V. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 143.8 | | | | | | | | | | | | | | |
| | | 143.36 | 144.7 | 1.34 | SST | - As above. Laminated towards bottom. | | | | | | | | | | | | | | |
| 33 | | 144.7 | 146.17 | 1.47 | SST | - As above. Slightly laminated. Semi-stick | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 146.9 | | | | | | | | | | | | | | |
| | | 146.17 | 146.80 | .63 | SST | - As above. COAL stringers and laminae. | | | | | | | | | | | | | | |
| | | 146.8 | 147.35 | .45 | COAL | - Black. Stick core. Poorly consolidated. Slickensides clayey, with occasional bright surfaces. | | | | | | LBD 301 | .97 | .72 | 46.0 | | | 1.0 | | Raw |
| | | | | | | | | | | | | -06 | | 1.04 | 16.2 | 21.5 | 61.2 | 2.0 | | 1.6 Flod |
| | | 147.35 | 147.82 | .57 | | LOST CORE (CLAYSTONE) | | | | | | | | | | | | | | |
| | | 147.82 | 147.95 | .13 | CLST | - Black carbonaceous. Hard. Semi-stick. Becoming silty towards bottom. | | | | | | | | | | | | | | |
| | | 147.95 | 148.76 | .81 | SLST | - Medium grey, massive. Stick core. Sandy in the middle. Occasional COAL stringers. | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 149.0 | | | | | | | | | | | | | | |
| | | 148.76 | 149.33 | .67 | SLST | - As above. | | | | | | | | | | | | | | |
| 34 | | 149.33 | 150.89 | 1.56 | SLST | - Medium grey. Sandy. Laminated. Stick core. Occ-asional COAL stringers. Becoming sandy towards bottom. | | 90 | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 151.2 | | | | | | | | | | | | | | |
| | | 150.89 | 153.74 | 2.85 | SST | - Fine grain, medium grey. Vague laminations. Stick core. Hard, consolidated. Becoming silty towards bottom. | | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

▲ ANGLE MEASURED FROM CORE AXIS

• R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

HOLE No.

FILE No 8A-267
REVISED Feb.1981
FORMERLY FILE No. 8A-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. m | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 35 | | 153.74 | 153.87 | .15 | SST | - AS above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 154.2 | | | | | | | | | | | | | |
| | | 153.87 | 155.15 | 1.28 | SST | - AS above. Medium grain in the middle. | | | | | | | | | | | | | |
| | | 155.15 | 157.02 | 1.87 | SST | - Medium grain. Light grey. Salt & pepper. Stick core. Cross-laminated, becoming coarse towards base. | | 82 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 157.9 | | | | | | | | | | | | | |
| | | 157.02 | 158.18 | 1.16 | SST | - Coarse grain. Light grey. Salt & pepper. Stick core. COAL stringers at top. | | | | | | | | | | | | | |
| 36 | | 158.18 | 159.53 | 1.35 | SST | - As above. | | | | | | | | | | | | | |
| | | 159.53 | 160.01 | .48 | SST | - Medium grain. Light grey. Salt & pepper. Silty with COAL stringers at top. Massive Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 160.3 | | | | | | | | | | | | | |
| | | 160.01 | 160.63 | .62 | SST | - Coarse grain. Light grey. Salt & pepper. Massive. Stick core. Carbonaceous laminations at top. | | | | | | | | | | | | | |
| | | 160.63 | 162.55 | 1.92 | SST | - Medium grain. Light grey. Salt & pepper. Massive. Vague laminations. A .14m band of coarse sandstone in the middle. | | | | | | | | | | | | | |
| 37 | | 162.55 | 163.11 | .56 | SST | - AS above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 163.7 | | | | | | | | | | | | | |
| | | 163.11 | 165.26 | 2.15 | SST | - AS above. crosslamination. Semi-stick. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 165.26 | 165.46 | .20 | SST | - Coarse grain. Light grey. Salt & pepper Abundant COAL stringers. Broken | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 165.8 | | | | | | | | | | | | | |
| | | 165.46 | 166.78 | 1.32 | SST | - Medium grain. Light grey. Salt&pepper. Abundant silty laminations and crosslaminations. | | | | | | | | | | | | | |
| 38 | | 166.78 | 168.55 | 1.77 | SST | - Coarse grain. Light grey. Abundant cross-laminations. Medium grain in the middle. Crumbly. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 168.9 | | | | | | | | | | | | | |
| | | 168.55 | 169.63 | 1.08 | SST | - As above. Abundant siltstone lenses and COAL stringers at the bottom. | | | | | | | | | | | | | |
| | | 169.63 | 170.08 | .45 | SST | - Coarse grain. Light grey. Salt & pepper. Crumbly core. Abundant COAL stringers. Clayey surface. | | | | | | | | | | | | | |
| | | 170.08 | 171.02 | .94 | SST | - Coarse grain. Light grey. Salt & pepper. Semi-stick. Vague crosslamination | | | | | | | | | | | | | |
| 39 | | 171.02 | 171.61 | .59 | SST | - As above. Massive. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 171.9 | | | | | | | | | | | | | |
| | | 171.61 | 172.93 | 1.32 | SST | - As above. Semi-stick. | | | | | | | | | | | | | |
| | | 172.93 | 173.52 | .59 | SST | - Fine grain. Light grey Semi-stick. Siltstone layers. | | | | | | | | | | | | | |
| | | 173.52 | 174.0 | .48 | SLST | - Medium grey, hard, semi-stick, massive. Clayey towards bottom | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 175.0 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 174.0 | 174.5 | .50 | CLST | - Medium grey. COAL stringers at bottom. Very clayey. Semi-stick core. | | | | | | | | | | | | | |
| | | 174.5 | 175.18 | .68 | SST | - Light grey. Coarse grain. Salt & pepper. Broken core. COAL stringers. | | | | | | | | | | | | | |
| 40 | | 175.18 | 177.37 | 2.19 | SST | - As above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 177.4 | | | | | | | | | | | | | |
| | | 177.37 | 179.36 | 1.99 | SST | - As above. Stick core. Laminations and possible cross-laminations. | | 71 | | | | | | | | | | | |
| 41 | | 179.36 | 180.52 | 1.16 | SST | - Light grey, coarse grain, Salt & pepper. Semi-stick. Broken at bottom. Massive. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 180.4 | | | | | | | | | | | | | |
| | | 180.52 | 182.4 | 1.88 | SST | - Same as above. | | | | | | | | | | | | | |
| | | 182.4 | 183.06 | .66 | SLST | - Medium grey. Clayey. Massive occasional sandstone inclusions. Semi-stick. | | | | | | | | | | | | | |
| | | 183.06 | 183.17 | .11 | SST | - Coarse grain. Light grey. Salt & pepper. Broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 183.5 | | | | | | | | | | | | | |
| | | 183.17 | 183.73 | .56 | SST | - As above. | | | | | | | | | | | | | |
| 42 | | 183.73 | 185.83 | 2.10 | SST | - Coarse grain. Light grey. Salt & pepper. Semi-stick. Occasional COAL stringers. Massive. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 186.2 | | | | | | | | | | | | | |
| | | 185.83 | 188.08 | 2.25 | SST | - As above. Semi-stick. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No.

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b | residual | ASH % | V.M. % | F.C. % | F.S.I | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43 | | 188.08 | 188.71 | .63 | SST | - As above. Medium grain towards bottom. Cross-laminated. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 189.3 | | | | | | | | | | | | | |
| | | 188.71 | 188.93 | .22 | SST | - Very fine grain. Light grey. Cross-laminated. Abundant silty laminations and cross-laminations. | | | | | | | | | | | | | |
| | | 188.93 | 191.68 | 2.75 | SST | - Coarse grain. Light grey. Salt & pepper. Cross-laminated. Semi-stick. Medium grain in the middle. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 192.3 | | | | | | | | | | | | | |
| | | 191.68 | 192.42 | .74 | SST | - As above. Stick core. | | | | | | | | | | | | | |
| 44 | | 192.42 | 193.42 | 1.00 | SST | - Medium grain. Light grey. Salt & pepper. Broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @194.8 | | | | | | | | | | | | | |
| | | 193.42 | 195.58 | 2.16 | SST | - As above. Becoming coarse grain towards bottom. Abundant claystone rip-up clasts and COAL stringers up to 1cm at bottom. Semi-stick. | | | | | | | | | | | | | |
| | | 195.58 | 195.89 | .31 | CLST | - Dark grey. Semi-stick .02m COAL band in the middle. | | | | | | | | | | | | | |
| | | 195.89 | 196.31 | .42 | SST | - Fine grain. Light grey. Laminated. Stick core. | | 90 | | | | | | | | | | | |
| | | 196.31 | 196.52 | .21 | SST | - Medium grain. Light grey. Salt & pepper. Siltstone laminations. Fine grained at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 197.5 | | | | | | | | | | | | | |
| 45 | | 196.52 | 197.2 | .68 | SLST | - Massive. Stick core. Medium grey. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 197.2 | 197.89 | .69 | COAL | - Abundant bright cleat surfaces. Semi-stick. Powdered in the top .08m and the bottom .06m. | | | | | | | | | | | | | |
| | | 197.89 | 198.39 | 0.5 | | LOST CORE. (COAL) | | | | | | | | | | | | | |
| | | 198.39 | 198.6 | .21 | COAL | - Dull hard. Semi-stick. Probably S-3 (approximately 25% Ash). Occasional pyrite surface coatings. | | | | | | | | | | | | | |
| | | 198.6 | 198.69 | .09 | COAL | - Bright. Stick core. Calcite on cleat surfaces breaks easily. Powdered at bottom. | | | | | | | | | | | | | |
| | | 198.69 | 198.8 | .11 | COAL | - Dull, easily broken. | | | | | | | | | | | | | |
| | | 198.8 | 198.86 | .06 | CLST | - Medium grey. Massive. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 199.6 | | | | | | | | | | | | | |
| | | 198.86 | 199.14 | .28 | CLST | - As above. Semi-stick. Medium grey. | | | | | | | | | | | | | |
| | | 199.14 | 199.19 | .05 | COAL | - Dull. Occasional bright cleats. | | | | | | | | | | | | | |
| | | 199.19 | 199.31 | .12 | CLST | - Dark grey. Semi-stick. Poorly consolidated. Occasional COAL stringers. | | | | | | | | | | | | | |
| | | 199.31 | 199.61 | 0.3 | | LOST CORE (COAL) | | | | | | | | | | | | | |
| | | 199.61 | 200.03 | .42 | SLST | - Very clayey. Possible gouge zone. | | | | | | | | | | | | | |
| | | 200.03 | 200.32 | .29 | SLST | - Medium grey. Massive. Semi-stick. Clayey. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 201.2 | | | | | | | | | | | | | |
| | | 200.32 | 201.68 | 1.36 | SLST | - As above. Sandstone Bands towards bottom. Cross-laminations. | | 90 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 202.7 | | | | | | | | | | | | | |
| 46 | | 201.68 | 204.39 | 2.71 | SLST | - As above. Occasional sandstone lenses. Cross-laminated. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 205.1 | | | | | | | | | | | | | |
| | | 204.39 | 205.91 | 1.52 | SLST | - As above. Becoming clayey-rich towards bottom. | | | | | | | | | | | | | |
| 47 | | 205.91 | 206.60 | .69 | SLST | - Medium grey. Semi-stick core. Very clayey. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 207.6 | | | | | | | | | | | | | |
| | | 206.60 | 208.79 | 2.19 | SLST | - Medium grey. Very clayey at the top. Sandy towards base. Powdered at bottom 15m. Calcite veinlets and pods up to .01m thick. Semi-stick. | | | | | | | | | | | | | |
| | | 208.79 | 209.19 | 0.4 | | LOST CORE. | | | | | | | | | | | | | |
| | | 209.19 | 209.96 | .77 | CLST | - Silty at top. Massive. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 210.6 | | | | | | | | | | | | | |
| | | 209.96 | 210.66 | .70 | CLST | - As above. | | | | | | | | | | | | | |
| 48 | | 210.66 | 213.05 | 2.39 | CLST | - Dark grey. Silty Occasional distorted laminations of sandstone. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 213.7 | | | | | | | | | | | | | |
| | | 213.05 | 214.84 | 1.79 | SLST | - Very fine grain. Light grey. Clayey siltstone in top .05m. Cross-laminated. Small scale faulting at the bottom. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % ar.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | | 214.84 | 216.16 | 1.32 | SLST | - As above. Possible gouge zone. Annealed curved fractures. Claystone in fractures. Occasional laminated sandstone inclusions .12m Claystone band .12m from base. | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 216.7 | | | | | | | | | | | | | | |
| | | 216.16 | 216.47 | .31 | SLST | - Fine grain. Light distorted laminations. Gouge zone. Semi-stick. | | | | | | | | | | | | | | |
| | | 216.47 | 217.22 | .75 | SLST | -Clayey. Massive. Gouge Abundant claystone laminations, and becoming claystone at base. Semi-stick. | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 217.9 | | | | | | | | | | | | | | |
| | | 217.22 | 217.50 | .28 | SST/SLST | - Fine grain. Light grey cross-laminations. Siltstone at the top. Semi-stick. | | | | | | | | | | | | | | |
| | | 217.50 | 218.13 | .63 | SLST | - Very fine grain. Light grey. Vague laminations Semi-stick. | | 40 | | | | | | | | | | | | |
| | | 218.13 | 218.31 | .18 | CLST | - Dark grey. Semi-stick. | | | | | | | | | | | | | | |
| | | 218.31 | 218.34 | .03 | COAL | - Bright, easily broken | | | | | | | | | | | | | | |
| | | 218.34 | 218.64 | 0.3 | | LOST CORE. | | | | | | | | | | | | | | |
| | | 218.64 | 219.26 | .62 | CLST | - Dark grey. Abundant bright COAL lenses and bands. Semi-stick. | | | | | | | | | | | | | | |
| 50 | | 219.26 | 219.80 | .54 | CLST | - Medium grey, massive. Possible gouge zone. One large (.01m thick) calcite filled fracture. Semi-stick. | | | | | | | | | | | | | | |
| | | 219.8 | 219.89 | .09 | COAL | - Powdered, occasional bright surfaces | | | | | | 65 | .86 | .72 | 34.5 | | | 1.0 | | Raw |
| | | | | | | MARKER BLOCK @ 221.0 | | | | | | | | .84 | 8.2 | 23.1 | 67.8 | 3.5 | | 1.6 Floa |

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F S I | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 219.89 | 220.49 | .60 | COAL | - Sub vitreous. Broken. A dull clayey band .05m thick at .21m. | | | | | | | | | | | | | |
| | | 220.49 | 220.85 | .36 | | LOST CORE. (COAL). | | | | | | | | | | | | | |
| | | 220.85 | 221.15 | .3 | | LOST CORE (SHALE). | | | | | | | | | | | | | |
| | | 221.15 | 222.13 | .98 | | LOST CORE (COAL) | | | | | | 65 | | | | | | | |
| | | | | | | MARKER BLOCK @ 222.5 | | | | | | | | | | | | | |
| | | 222.13 | 223.51 | 1.38 | COAL | - Well consolidated, but breaks easily. Sub vitreous surfaces. No claystone bands. Rare calcite surfaces. Dry and broken. | | | | | | 66 | 1.83 | .67 | 18.7 | | | 1.0 | Raw |
| | | | | | | MARKER BLOCK @ 224.0 | | | | | | | | | | | | | |
| | | 223.51 | 224.78 | 1.27 | COAL | - As above, at .22m to .36m. There is a band of vesicular COAL ( Abundant interconnecting spherical cavities.) | | | | | | | | 1.33 | 9.2 | 20.9 | 68.6 | 1.0 | 1.6 Flo |
| | | | | | | MARKER BLOCK @ 225.2 | | | | | | | | | | | | | |
| 51 | | 224.78 | 224.8 | .02 | COAL | - Hard, bright not cleated. | | | | | | | | | | | | | |
| | | 224.8 | 225.12 | 0.32 | SHALE | - Carbonaceous, black, hard, semi-stick. COAL partings. | | | | | | 68 | .97 | .86 | 82.7 | | | 0.0 | Raw |
| | | 225.12 | 225.35 | .23 | | LOST CORE (SHALE) | | | | | | | | | | | | | |
| | | 225.35 | 225.94 | 0.59 | COAL | - Bright, not cleated. Crumbles easily like wet powdered. | | | | | | | 7.62 | .74 | 34.2 | | | 1.0 | Raw |
| | | | | | | | | | | | | | | 1.63 | 12.3 | 21.3 | 64.7 | 1.5 | 1.6 Flo |
| | | 225.94 | 226.24 | .3 | | LOST CORE (SHALE) | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 226.2 | | | | | | 69 | | | | | | | |

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % ar.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 226.24 | 227.3 | 1.06 | COAL | - As above, powder. | | | | | | | | | | | | | |
| | | 227.3 | 228.93 | 1.63 | | LOST CORE (COAL) | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 228.3 | | | | | | | | | | | | | |
| | | 228.93 | 229.4 | 0.47 | COAL | - As above, broken core at the bottom, powder otherwise. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 230.1 | | | | | | | | | | | | | |
| | | 229.4 | 230.0 | 0.60 | COAL | - As above, clay towards the bottom. | | | | | | | | | | | | | |
| | | 230.0 | 230.04 | 0.04 | SLST | - Dark brown, powder. | | | | | | | | | | | | | |
| | | 230.04 | 230.14 | .1 | | LOST CORE. | | | | | | | | | | | | | |
| | | 230.14 | 230.57 | 0.43 | SLST | - Medium grain, very hard, semi-stick, Massive. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 231.3 | | | | | | | | | | | | | |
| | | 230.57 | 231.03 | 0.46 | CLST | - As above, occasional bands of siltstone. 1cm COAL band at the bottom. | | | | | | | | | | | | | |
| 52 | | 231.03 | 232.60 | 1.57 | SLST | - As above, broken core. Abundant COAL stringers and bands up to 5cm thick. | | 76 | | | | | | | | | | | |
| | | 232.60 | 233.1 | 0.5 | | LOST CORE. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 233.8 | | | | | | | | | | | | | |
| | | 233.1 | 233.7 | 0.60 | SLST | - As above, Very silty on top half. Broken core. Vaguely laminated with occasional COAL stringers. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % ar.b | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C V. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 233.7 | 234.24 | 0.54 | COAL | Hard, bright, not cleated. Very broken on the top 30cm, hard and unbroken between 12 and 21 cm | | | | | | 60 | 3.1 | .46 | 38.7 | | | 1.0 | | Raw |
| | | | | | | | | | | | | | | .57 | 16.9 | 20.2 | 62.3 | 2.0 | | 1.6 Flo |
| | | 234.24 | 234.5 | 0.26 | | LOST CORE. | | | | | | | | | | | | | | |
| | | 234.5 | 234.7 | 0.20 | SLST | - Very silty. Abundant COAL, broken. | | | | | | | | | | | | | | |
| | | 234.7 | 235.04 | 0.34 | | LOST CORE. | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 235.3 | | | | | | | | | | | | | | |
| | | 235.04 | 236.22 | 1.18 | SLST | - Medium to dark grey, silty, hard, semi-stick. Occasional COAL partings. | | | | | | | | | | | | | | |
| 53 | | 236.22 | 236.52 | 0.30 | SLST | - Very silty as above | | | | | | | | | | | | | | |
| | | 236.52 | 237.15 | 0.63 | SLST | - Dark grey, brown, siltstone towards the bottom. Abundant COAL bands up to 3cm thick. | | 82 | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 237.7 | | | | | | | | | | | | | | |
| | | 237.15 | 237.93 | 0.78 | SLST | - Clayey, laminated, light grey COAL wisps and stringers up to 2mm thick. | | | | | | | | | | | | | | |
| | | 237.93 | 238.12 | 0.19 | SST | - Very fine grain, light grey, hard semi-stick | | | | | | | | | | | | | | |
| | | 238.12 | 238.20 | 0.08 | SHALE | - dark grey carbonaceous. | | | | | | | | | | | | | | |
| | | 238.2 | 238.35 | .15 | | LOST CORE (SHALE) | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 238.75 | | | | | | | | | | | | | | |
| | | 238.35 | 238.73 | 0.38 | COAL | - Broken to powdered, bright | | | | | | 07 | 1.74 | .51 | 39.5 | | | 1.0 | | Raw |
| | | | | | | | | | | | | | | .38 | 18.8 | 20.6 | 60.2 | 2.5 | | 1.6 Flo |
| | | 238.73 | 238.8 | .07 | | LOST CORE (COAL) | | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 238.8 | 239.10 | 0.30 | SLST | - Light grey, hard, claystone at the bottom. | | | | | | | | | | | | | |
| | | 239.10 | 239.16 | 0.06 | COAL | - crumbled, bright | | | | | | | | | | | | | |
| | | 239.16 | 239.68 | 0.52 | SLST | - Sandy on the top 7cm, two 1cm thick COAL bands. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 240.2 | | | | | | | | | | | | | |
| | | 239.68 | 240.64 | 0.96 | SLST | - Dark grey, Semi-stick. Occasional sandy bands. Siltstone at the bottom, Massive, semi-stick to broken core. | | | | | | | | | | | | | |
| | | 240.64 | 240.85 | 0.21 | | LOST CORE. | | | | | | | | | | | | | |
| 54 | | 240.85 | 241.25 | 0.40 | SLST | - Gouge. Abundant angular clasts in clayey matrix, abrupt angular contact with undisturbed siltstone below. Calcite veins parallel to contact. Contact 15° to the core axis. | | | | | | | | | | | | | |
| | | 241.25 | 241.42 | 0.17 | SLST | - Light grey. Vague laminations 90° to core axis. COAL lenses and very broken at the bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 242.0 | | | | | | | | | | | | | |
| | | 241.42 | 242.60 | 1.18 | SST | - Fine grained, light grey. Abundant cross-lamin-ations. Semi-stick core, broken at the bottom. | | 62 | | | | | | | | | | | |
| | | 242.60 | 243.28 | 0.68 | SLST | - Very clayey to massive, semi-stick. Abundant calcite filled annealed fractures, up to 4mm wide. | | | | | | | | | | | | | |
| | | 243.28 | 244.43 | 1.15 | SST | - Fine grained, light grey. Abundant siltstone laminations becoming siltstone towards the bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 245.1 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 244.43 | 245.04 | 0.61 | SLST | - Very fine grained, light grey, hard, semi-stick. | | | | | | | | | | | | | |
| 55 | | 245.04 | 245.29 | 0.25 | SLST | - Fine grained, light grey, broken at the bottom. | | | | | | | | | | | | | |
| | | 245.29 | 245.70 | 0.41 | SLST | - Medium grey. Semi-stick, massive. | | | | | | | | | | | | | |
| | | 245.70 | 246.77 | 1.07 | SST | - Fine grain, light grey. Siltstone laminations, becoming siltstone towards the bottom. | | 76 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 247.5 | | | | | | | | | | | | | |
| | | 246.77 | 247.7 | 0.93 | SLST | - Silty on top, medium to dark grey. Massive, semi-stick carbonaceous at the bottom. | | | | | | | | | | | | | |
| | | 247.7 | 248.0 | .3 | | LOST CORE (SILTSTONE) | | | | | | | | | | | | | |
| | | 248.0 | 248.53 | 0.53 | COAL | - Crumbled at top, bright, hard slightly broken. | | | | | | 61 | 1.56 | .51 | 24.0 | | | 1.5 | |
| | | | | | | | | | | | | | | .40 | 14.8 | 20.9 | 63.9 | 2.5 | |
| | | 248.53 | 248.95 | 0.42 | SHALE | -Black carbonaceous, COAL bands. Semi-stick. | | | | | | 62 | 1.06 | .67 | 82.7 | | | 0.0 | |
| | | 248.95 | 249.2 | 0.20 | COAL | - COAL broken. 2cm siltstone near top. | | | | | | 63 | 2.07 | .44 | 51.0 | | | 1.0 | |
| | | | | | | | | | | | | | | .59 | 15.0 | 20.9 | 63.5 | 3.0 | |
| | | 249.2 | 249.4 | .2 | | LOST CORE (SILTSTONE) | | | | | | | | | | | | | |
| | | 249.4 | 249.63 | 0.23 | SLST | - Sandy at the bottom. Dark-brown. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 249.9 | | | | | | | | | | | | | |
| | | 249.63 | 249.77 | 0.14 | SLST | - As above. | | | | | | | | | | | | | |
| | | 249.77 | 250.69 | 0.92 | SLST | - Fine grain, laminated. | | 80 | | | | | | | | | | | |
| | | 250.69 | 251.79 | 1.10 | SLST | - Sandy at the top, clayey towards the bottom. Semi-stick. Dark to medium grey. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 252.1 | | | | | | | | | | | | | |

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ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 251.79 | 253.66 | 1.87 | SLST | - Clayey at the top with fine sandstone bands. | | | | | | | | | | | | | |
| | | | | | ? | Distorted gouge like appearance at top, laminated. | | | | | | | | | | | | | |
| | | | | 0.02 | GOUGE | - 2cm wide gouge band with abundant angular clasts at 15° to the core axis. Abrupt contact with siltstone above and sandstone below. | | | | | | | | | | | | | |
| | | 253.68 | 253.90 | 0.22 | SST | - Medium grain, light grey. Fine grain towards the bottom. 1 COAL band .5mm wide. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 254.5 | | | | | | | | | | | | | |
| 57 | | 253.90 | 254.32 | 0.42 | SST | - Fine grain, light grey, salt & pepper grading into siltstone below laminated & cross-laminated. | | 78 | | | | | | | | | | | |
| | | 254.32 | 254.82 | 0.50 | SLST | - Medium to light grey, massive, semi-stick. Grades to fine grain, light grey sandstone with abundant calcite filled hair line fractures up to 2mm thick, sub-parallel to core axis. Rare slickensided surfaces. | | | | | | | | | | | | | |
| | | 254.82 | 255.27 | 0.45 | SLST | - Dark grey, silty, semi-stick becoming sandstone towards the bottom. Well developed slicks 64° to the core axis. | | | | | | | | | | | | | |
| | | 255.27 | 256.41 | 1.14 | SLST | - Sandy at the top, very clayey towards the bottom. | | | | | | | | | | | | | |
| | | 256.41 | 256.68 | 0.27 | SLST | - Fine grain, light grey, salt & pepper, stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 257.6 | | | | | | | | | | | | | |
| | | 256.68 | 258.03 | 1.35 | CLST | - Slightly silty. Abundant COAL stringers & lenses. | | 80 | | | | | | | | | | | |
| 58 | | 258.03 | 259.75 | 1.72 | CLST | - As above with 11cm COAL band at 55 to 66cm. Very carbonaceous towards the bottom. Abundant | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | coal stringers and lenses | | | | | | | | | | | | | |
| | | 259.75 | 260.1 | .35 | | LOST CORE | | | | | | | | | | | | | |
| | | 260.1 | 260.15 | 0.05 | COAL | - Bright, hard occasional cleats. | | | | | | 64 | | | | | | | |
| | | | | | | MARKER BLOCK @ 260.0 | | | | | | | | | | | | | |
| | | 260.15 | 260.25 | 0.10 | CLST | - Carbonaceous to very carbonaceous, Broken. | | | | | | | 0.0 | .48 | 34.1 | | | 1.0 | |
| | | 260.25 | 260.49 | .24 | | LOST CORE. | | | | | | | | .63 | 13.1 | 19.9 | 66.4 | 1.0 | |
| | | | | | | MARKER BLOCK @ 260.1 | | | | | | | | | | | | | |
| | | 260.49 | 261.03 | 0.54 | COAL | - Hard, semi-stick, brittle, bright, occasional cleats. | | | | | | | | | | | | | |
| | | 261.03 | 261.2 | 0.17 | COAL | - Broken 3cm, claystone band near the bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 261.7 | | | | | | | | | | | | | |
| | | 261.2 | 261.93 | 0.73 | CLST | - Dark grey, hard, semi-stick, Abundant COAL stringers & lenses. 4cm COAL bands at 48-52cm. | | | | | | | | | | | | | |
| | | 261.93 | 262.14 | 0.21 | SST | - Very fine grain, light grey, cross-laminated. | | | | | | | | | | | | | |
| | | 262.14 | 262.59 | 0.45 | CLST | - Medium grey, Abundant COAL stringers, Semi-stick core. | | | | | | | | | | | | | |
| 59 | | 262.59 | 262.76 | 0.17 | CLST | - As above. | | | | | | | | | | | | | |
| | | 262.76 | 263.19 | 0.43 | SLST | - Light grey to sandy, broken, carbonaceous at the bottom. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 263.7 | | | | | | | | | | | | | |

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ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 263.19 | 263.85 | 0.66 | SLST | - Clayey, with COAL lenses and stringers. | | | | | | | | | | | | | |
| | | 263.85 | 265.91 | 2.06 | SST | - Fine grain, light grey, hard, cross-laminated. Some claystone bands up to 15cm thick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 266.7 | | | | | | | | | | | | | |
| | | 265.91 | 266.56 | 0.65 | CLST | - Silty at top Very carbonaceous Abundant COAL stringers. | | | | | | | | | | | | | |
| 60 | | 267.10 | 267.26 | 0.16 | COAL | - Broken to powder, Occasional cleats | | | | | | | | | | | | | |
| | | 267.26 | 267.52 | 0.26 | COAL | - As above, Powder, Claystone band 12 - 17 cm | | | | | | | | | | | | | |
| | | 267.23 | 267.72 | 0.49 | SLST | - Medium grey, becoming claystone towards the bottom, broken | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 268.5 | | | | | | | | | | | | | |
| | | 267.72 | 269.99 | 2.27 | SLST | - Medium to dark grey, massive, Occasional fine grained sandstone band and COAL bands. Broken near the bottom, semi-stick otherwise. | | | | | | | | | | | | | |
| | | 269.99 | 270.06 | 0.07 | COAL | - Powder, black, bright | | | | | | | | | | | | | |
| | | 270.06 | 270.12 | 0.06 | CLST | - Powder, medium grey | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 271.0 | | | | | | | | | | | | | |
| | | 270.12 | 270.42 | 0.31 | CLST | - Medium grey, lamination, COAL stringers | | | | | | | | | | | | | |
| | | 270.42 | 270.59 | 0.17 | COAL | - 2 cm claystone band in the middle, Bright, hard to powder | | | | | | | | | | | | | |
| | | 270.59 | 270.95 | 0.36 | | - LOST CORE | | | | | | | | | | | | | |
| | | 270.95 | 271.0 | 0.05 | SHALE | - Carbonaceous black, broken, COAL at the bottom | | | | | | | | | | | | | |
| | | 271.0 | 271.17 | 0.17 | COAL | - Hard, stick core, subvitreous surfaces | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % or.b. | MOIST % residual | ASH % | V.M.% | F.C.% | F.S.I. | C.V. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 271.17 | 271.20 | 0.03 | CLST | - Dark, grey, broken | | | | | | | | | | | | | | |
| | | 271.20 | 271.29 | 0.09 | COAL | - Broken to powder | | | | | | | | | | | | | | |
| | | 271.29 | 271.47 | 0.18 | SST | - Fine grained, light grey, massive, semi stick | | | | | | | | | | | | | | |
| 61 | | 271.47 | 272.01 | 0.54 | SLST | - Light grey massive, Contains calcite chips. Polished surfaces also present. Becomes finely laminated at base. Semi stick core | | | | | | | | | | | | | | |
| | | 272.01 | 272.11 | 0.10 | CLST | - Dark grey, highly carbonaceous to COALY in parts. Contains some polished surfaces. Semi stick to rubble | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 272.8 | | | | | | | | | | | | | | |
| | | 272.11 | 272.31 | 0.20 | CLST | - Same as above | | | | | | | | | | | | | | |
| | | 272.31 | 272.61 | 0.30 | COAL | - From 0 - .3m COAL is dull, black with vitreous cleat surfaces. It is hard and is semi stick to rubble | | | | | | 72 | 3.37 | .92 | 18.7 | | | 1.0 | | Raw |
| | | 272.61 | 273.07 | 0.46 | LC | -(COAL) | | | | | | | | .65 | 9.3 | 19.3 | 70.7 | 1.0 | | 1.6 Float |
| | | 273.07 | 273.24 | 0.17 | COAL | - Vitreous, powdery COAL | | | | | | | | | | | | | | |
| | | 273.24 | 273.4 | 0.16 | COAL | - Vitreous, chunky COAL | | | | | | | | | | | | | | |
| | | 273.4 | 275.45 | 2.05 | CLST | - Silty interlaminations. Light grey, Dark grey carbonaceous band at top with COALY lenses. Stick to semi stick with rubble zone at base. COALY wisps and small gouge zones along fractures. COALY stringers also | | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 275.8 | | | | | | | | | | | | | | |
| | | 275.45 | 276.10 | 0.65 | CLST | - Same as above. Some polished surfaces. One COALY lense from 0.43 m to 0.45 m. | | | | | | | | | | | | | | |
| 62 | | 276.10 | 277.10 | 1.00 | CLST | - Dark grey. Stick core. Slickensided surface. Gouge zone 0.08 m long at 0.65 m down run. Highly carbonaceous to COALY zone at base. COAL is in stringers and lenses. COAL is fairly bright and hard | | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

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• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % ar.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 277.10 | 278.05 | 0.95 | SLST | - Medium grey massive. Carbonaceous wisps. Closed calcite fractures. Semi-stick | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 278.3 | | | | | | | | | | | | | |
| | | 278.05 | 278.23 | 0.18 | SLST | - Same as above | | | | | | | | | | | | | |
| | | 278.23 | 278.43 | 0.20 | CLST | - Highly carbonaceous. Dark grey COAL lenses, crumbly. Plastic at base | | | | | | | | | | | | | |
| | | 278.43 | 278.75 | 0.32 | SLST | - Light grey, massive. A few carbonaceous wisps and surfaces. Semi-stick | | | | | | | | | | | | | |
| | | 278.75 | 278.93 | 0.18 | SST | - Medium grained light grey, salt and pepper. Rubble. Carbonaceous material present | | | | | | | | | | | | | |
| 62-63 | | 278.93 | 280.57 | 1.64 | CLST | - Medium grey massive. Stick to semi-stick. Highly fractured at top. Carbonaceous band from 0.07 - 0.15 m. Dispersed carbonaceous material throughout | | | | | | | | | | | | | |
| | | 280.57 | 280.80 | 0.23 | SLST | - Light grey, massive. Very hard. Carbonaceous material dispersed in core. Semi-stick | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 281.1 | | | | | | | | | | | | | |
| | | 280.80 | 282.16 | 1.36 | SLST | - Same as above. Stick to semi-stick. Several gouge zones present. Closed fractures also present | | | | | | | | | | | | | |
| | | 282.16 | 282.44 | 0.28 | SST | - Fine grained, light grey, salt and pepper. Laminated with carbonaceous material. Calcite infillings present. Rubble | | | | | | | | | | | | | |
| | | 282.44 | 282.49 | 0.05 | CLST | - Medium grey, soft and smooth fracture surfaces | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 282.9 | | | | | | | | | | | | | |
| | | 282.49 | 282.98 | 0.49 | CLST | - Same as above. Gouge zone at top. Semi stick, massive | | | | | | | | | | | | | |
| | | 282.98 | 283.50 | 0.52 | CLST | - Highly carbonaceous. COALY lenses. Highly polished surfaces. Massive. Stick to semi | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : * R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

* RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | stick. Black. | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | | | | | |
| 64 | | 283.50 | 284.56 | 1.06 | CLST | - Light grey. Silty interlaminations. Visible pyrite. Dispersed sandstone clasts. Polished surfaces with calcite. COALY lenses and stringers at top and bottom. Stick core | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 285 | | | | | | | | | | | | | |
| | | 284.56 | 285.59 | 1.03 | CLST | - Contains siltstone and sandstone interlaminations. Medium grey stick core. Carbonaceous infillings. Some polished surfaces. Laminations are distorted. At base a highly mixed zone of clay and sand | | | | | | | | | | | | | |
| | | 285.59 | 286.02 | 0.43 | SST | - Fine grained light grey, salt and pepper. Calcite infillings in fractures. Carbonaceous wisps. Contorted laminations at top. Finely laminated throughout. | | | | | | | | | | | | | |
| | | 286.02 | 287.42 | 1.40 | SLST | - Light grained, medium grey claystone zone 0.05 m long. At 0.81 m COALY band. Closed fractures throughout. Gouge zone at 0.8 m. Massive. Calcite in slickensides and polished surfaces. Stick core | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 288.0 | | | | | | | | | | | | | |
| | | 287.42 | 288.59 | 1.17 | SST | - Fine grained, light grey with a calcareous matrix. Calcite in fractures. Visible pyrite and iron staining. Contorted laminations at top and base. Soft sediment deformation present near base. Carbonaceous wisps at base | | 81 | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | | | | | |
| 65 | | 288.59 | 290.15 | 1.56 | SLST | - Medium grey massive. Sandy interlaminations at base. Closed fractures. Stick core. Polished surfaces present | | 76 | | | | | | | | | | | |
| | | 290.15 | 290.35 | 0.2 | GOUGE | - Sandy and clay material. Clay matrix. Very soft | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 291.1 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 290.35 | 290.46 | 0.11 | SHALE | - Very carbonaceous. Dark grey to black. Hard at top grading to very soft at base. Contains polished surfaces | | | | | | | | | | | | | |
| | | 290.46 | 290.7 | .24 | | - LOST CORE | | | | | | | | | | | | | |
| | | 290.7 | 290.9 | 0.2 | COAL | - Black, compacted powder to flaky. Plastic. Very soft. Powder is dull, flakes are vitreous | | | | | | | | | | | | | |
| | | 290.9 | 291.0 | .1 | | - LOST CORE - COAL | | | | | | | | | | | | | |
| 65 | - | | | | | | | | | | | | | | | | | | |
| 66 | | 291.0 | 293.53 | 2.53 | CLST | - Dark grey. Contains several zones of carbonaceous material. Also contains 2 small interbeds of light grey siltstone. Core is stick to semi stick. Massive | | 90 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 294.1 | | | | | | | | | | | | | |
| | | 293.53 | 296.47 | 2.94 | CLST | - Same as above. Two zones (~.20m) of soft gouge. Large infrequent calcite stringers. Polished surfaces and slickensides present. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 297.2 | | | | | | | | | | | | | |
| 66-67 | | 296.47 | 298.0 | 1.53 | CLST | - Same as above. Carbonaceous zone at .6 m which was rubble. Core has numerous small closed fractures. Several large calcite filled fractures in one zone. Rubble zone at 2.0 m from top. | | | | | | | | | | | | | |
| | | 298.0 | 299.67 | 1.67 | SLST | - Sandstone interlayers. Sandy appearance | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 300.2 | | | | | | | | | | | | | |
| | | 299.67 | 301.3 | 1.63 | SLST | - As above. Sandstone interlaminations up to .06 m thick. Numerous small closed fractures. Carbonaceous infillings towards base. | | | | | | | | | | | | | |
| | | 301.3 | 301.48 | .18 | COAL | - Compacted powder and flaky. Semi dull | | | | | | 73 | | | | | | | |
| | | 301.48 | 302.1 | 1.62 | | - LOST CORE -(COAL) | | | | | | | .92 | .84 | 50.8 | | | 1.0 | |
| 68 | | 302.1 | 302.26 | .16 | CLST | - Slightly carbonaceous. Medium to dark grey. Semi stick core. Carbonaceous wisps and | | | | | | | | .62 | 17.6 | 20.0 | 61.8 | 1.5 | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† = R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. CONTINUED LBD 301 D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | laminations throughout core. Polished surfaces present. | | | | | | | | | | | | | |
| | | 302.26 | 302.4 | .14 | | - LOST CORE - (claystone) | | | | | | | | | | | | | |
| | | 302.4 | 302.5 | .10 | COAL | - Fairly hard. Small chunks to flakes. Semi bright | | | | | | | | | | | | | |
| | | 302.5 | 302.72 | .22 | | - LOST CORE - (COAL) | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 303.3 | | | | | | | | | | | | | |
| | | 302.72 | 303.89 | 1.17 | SHALE/ COAL | - Dark grey. Semi stick core at top. At .55 m is a carbonaceous crumbly zone. COALY stringers up to .05 m are present in this carbonaceous region. Remainder of core contains interbedded vitreous COAL that is hard | | | | | | | | | | | | | |
| | | 303.8 | 304.93 | 1.13 | | - LOST CORE - (COAL/shale) | | | | | | | | | | | | | |
| | | 304.93 | 305.13 | .20 | COAL | - Hard chunky and vitreous. Some powder at base | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 304.8 | | | | | | 70 | | | | | | | |
| | | 305.13 | 305.33 | .20 | COAL | - Top is powdered to flaky. It is soft and semi bright | | | | | | | | | | | | | |
| | | 305.33 | 305.88 | .55 | COAL | - Chunky and hard with a .02m shale split at .2 m | | | | | | | | | | | | | |
| | | 305.88 | 306.18 | .30 | COAL | - Small chunks to powder. Semi bright and soft | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 306.6 | | | | | | 71 | | | | | | | |
| | | 306.18 | 306.2 | .02 | COAL | - Chunky to powdered. Soft and vitreous | | | | | | | | | | | | | |
| 68-69 | | 306.2 | 308.87 | 2.67 | SST | - Light grey, medium to coarse grained, salt and pepper, stick to semi stick core. Faint laminations. Poorly indurated. Numerous fractures at bottom. Small breccia zone near top | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 309.4 | | | | | | | | | | | | | |
| | | 308.87 | 311.35 | 2.48 | SST | - As above | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 312.0 | | | | | | | | | | | | | |
| | | 311.35 | 311.85 | .50 | SST | - As above - slight brecciation throughout | | | | | | | | | | | | | |
| 70 | | | | | | | | | | | | | | | | | | | |
| 71 | | 311.85 | 312.75 | .9 | SST | - Same as above. Contains small harder sandstone pebbles. Clasts are generally rounded in shape | | | | | | | | | | | | | |
| | | 312.75 | 314.35 | 1.6 | SST | - Light grey, medium grained, salt and pepper. Laminated, moderately indurated. Fine carbonaceous laminations which the rock tends to break upon. The core is semi stick and broken | | 62 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 316.6 | | | | | | | | | | | | | |
| | | 314.35 | 316.29 | 1.94 | SST | - Same as above. At 1.7 - 1.74, a carbonaceous clay band exists. The material is plastic and crumbly | | 74 | | | | | | | | | | | |
| | | 316.29 | 317.35 | 1.06 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 317.3 | | | | | | | | | | | | | |
| 71 | | 371.35 | 319.81 | 2.46 | SST | - Light grey, fine grained, salt and pepper. Massive. Stick core | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 319.7 | | | | | | | | | | | | | |
| | | 319.81 | 321.81 | 2.0 | SST | - Same as above | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 321.6 | | | | | | | | | | | | | |
| 72 | | 321.81 | 324.71 | 2.9 | SST | - Light grey, fine grained, salt and pepper. Highly fractured, very close to the core axis. Closed fractures. Some filled with good calcite crystals. Others with just gouge At 2.0 m, a small zone of siltstone clasts | | | | | | | | | | | | | |
| | | 324.71 | 325.71 | 1.0 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 324.6 | | | | | | | | | | | | | |
| | | 325.71 | 326.15 | .44 | SST | - Same as above. The calcite is now smeared out into a white powder and not crystalized | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. LBD 301D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | as before. | | | | | | | | | | | | | |
| 73 | | 326.15 | 327.85 | 1.70 | SST | - Same as above with occasional calcite crystals on fracture surfaces. Calcite cement. Core is stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 327.1 | | | | | | | | | | | | | |
| | | 327.85 | 328.72 | 0.87 | SST | - Same as the above. Closed fractures filled with calcite parallel to core axis on top and a zone of calcite filled fractures perpendicular to the core axis at .73 - .81 m. This zone is also rich in silt and a few silt pebbles are apparent just above this zone. Pebbles are elliptical in shape. Calcareous cement. | | | | | | | | | | | | | |
| | | 328.72 | 330.20 | 1.48 | SST | - Fine grained, light grey, salt and pepper. Massive. Calcareous cement. Unit also contains small elliptical, highly eccentric siltstone pebbles parallel to the bedding. Core is stick. | | 84 | | | | | | | | | | | |
| 74 | | 330.20 | 330.8 | 0.6 | SST | - Light grey, fine grained sandstone. Fractures parallel to core axis. Rock flour on fractured surfaces with a small amount of calcite. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 330.1 | | | | | | | | | | | | | |
| | | 330.8 | 333.35 | 2.55 | SST | - Same as above. Fractures are closed and contain a small amount of calcite on surfaces in the middle and base. Elliptical sandstone clasts are apparent. Appear to concentrate in small zones and are parallel to bedding. Core is stick. Sandstone is highly calcareous. | | 82 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 332.5 | | | | | | | | | | | | | |
| 74-75 | | 333.35 | 334.25 | 0.9 | SST | - Same as above. No siltstone clasts visible. | | | | | | | | | | | | | |
| 75 | | 334.25 | 335.21 | 0.6 | SST | - Medium grey, fine grained, highly fractured with calcite infilling. Rock flour in fractures. Core is semi-stick and rubble at base. | | | | | | | | | | | | | |
| | | 335.21 | 335.96 | 0.75 | | - LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. LBD 301 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % (residual) | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 334.4 | | | | | | | | | | | | | |
| | | 335.96 | 336.39 | .43 | SST | - Same as above. Core is rubble | | | | | | | | | | | | | |
| | | 336.39 | 338.17 | 1.78 | SST | - Fine grained medium grey, stick core, very hard. Massive in parts and well laminated in other parts. Some cross-bedding | | 66 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 336.8 | | | | | | | | | | | | | |
| 75+ 76 | | 338.17 | 341.17 | 3.0 | SST | - Same as above | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 339.9 | | | | | | | | | | | | | |
| 76+ 77 | | 341.17 | 343.44 | 2.27 | SST | - Same as above, with a small zone of elliptical siltstone at the base. Core is stick | | | | | | | | | | | | | |
| 77 | | 343.44 | 343.68 | .24 | SLST | - Interbedded with fine grained, light grey, salt and pepper, cross-bedded sandstone. Core is semi stick | | 84 | | | | | | | | | | | |
| | | 343.68 | 343.78 | .1 | SST | - Light grey, fine grained, cross-bedded salt and pepper and finely laminated. Core is semi stick | | | | | | | | | | | | | |
| | | 343.78 | 343.88 | .1 | SLST | - Medium grey, very hard and brittle. Contains calcite slickensides. Core is rubble | | | | | | | | | | | | | |
| | | 343.88 | 344.32 | 0.44 | | - LOST CORE | | | | | | | | | | | | | |
| | | 344.32 | 344.43 | .11 | SST | - Light grey, fine grained salt and pepper. Cross-bedded. Core is stick | | 80 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 342.9 | | | | | | | | | | | | | |
| | | 344.43 | 344.5 | .07 | SST | - Same as above | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. LBD 301 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

| DATE | BEGIN | 26/6/81 |
|---|---|---|
| | END | 4/7/81 |

| HOLE No. | 302D |
|---|---|



**HOLE PARTICULARS**

| | | | |
|---|---|---|---|
| LOCATION | LILLYBURT SOUTHEAST B.C. | | |
| ELEVATION | 1535.1 | HOLE BEARING (AZ°) | - |
| TOTAL DEPTH | 367.52 | HOLE ANGLE (°)* | 90 |

**LOGGING**

| | |
|---|---|
| LOGS RUN | NEUT, GAMMA, DENS |
| LOGGED BY | ROKE |
| OTHER TESTS | DIRECTIONAL |

**COAL CORING PERFORMANCE**

| | | |
|---|---|---|
| CORE DIAMETER | | H.Q. |
| TOTAL | CORE RECOVERED | 315.25 |
| | LENGTH CORED | 354.6 |
| | CORE RECOVERY | 88.9 % |

**EXAMINATION**

| | |
|---|---|
| LOG USED | GAM/NEUT |
| No. OF SEAMS SAMPLED | 6 |
| EXAMINER (S) | JA&PA&BM |
| DATE | 11/07/81 |

| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 12.93 | 13.07 | 0.14 | SST | - overburden rubble | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 13.2 | | | | | | | | | | | | | |
| | | 13.07 | 14.07 | 1.00 | CLST | - alternate red and green. Very fine grained. Semi-stick to rubble. Red colour due to hematite | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 14.0 | | | | | | | | | | | | | |
| | | 14.07 | 14.83 | 0.76 | CLST | - as above. Stick to semi-stick. | | | | | | | | | | | | | |
| | | 14.83 | 15.66 | 0.83 | CLST | - dark brown to black. Gouged. Semi-stick to stick. Gouge at base. Rubbley at top. Gouge 0.15m thick. | | | | | | | | | | | | | |
| | | 15.66 | 16.16 | 0.5 | CLST | - red with occasional green blotches. | | | | | | | | | | | | | |
| | | 16.16 | 16.62 | 0.46 | CLST | - same as above. | | | | | | | | | | | | | |
| | | 16.62 | 16.72 | 0.1 | CLST | - dark red to purple. Very rubbley. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 16.5 | | | | | | | | | | | | | |
| 2 | | 16.72 | 17.00 | 0.28 | CLST | - mottled green and purple. Slickensides on one surface. | | | | | | | | | | | | | |
| | | 17.00 | 17.40 | 0.4 | CLST | - pale green. Stick to semi-stick core. Gouge at top. | | | | | | | | | | | | | |
| | | 17.40 | 17.66 | 0.26 | CLST | - gouge all the way | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 17.7 | | | | | | | | | | | | | |
| | | 17.66 | 19.25 | 1.59 | SST | - fine grained. Blotchy mudstone bands. Occasional dark grey round to angular sandstone clasts. One joint set. Calcareous cement. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 19.50 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-2114

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 19.25 | 19.77 | 0.52 | SST | - fine grained, light grey. One joint set. Gouge zone at bottom. Calcareous cement. Semi-stick with gouge at bottom. | | | | | | | | | | | | | |
| | | 19.77 | 20.43 | 0.66 | SST | - fine grained. Weathers to shale in blotches. Light grey and reddish brown. Redrilled at 20.0. Stick to semi-stick with rubble at bottom. | | | | | | | | | | | | | |
| | | 20.43 | 20.82 | 0.38 | | - LOST CORE | | | | | | | | | | | | | |
| 3 | | 20.82 | 21.04 | 0.22 | SST | - same as above. Redrilled at top. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 20.7 | | | | | | | | | | | | | |
| | | 21.04 | 21.89 | 0.85 | SLST | - very fine grained at top grading down into fine grained. Sandstone clasts rounded to angular. Stick to semi-stick. Calcareous cement. A gouge zone evenly spaced ~ 0.10 m apart. Gouge zones are extremely calcareous. | | | | | | | | | | | | | |
| | | 21.88 | 22.23 | 0.35 | SLST | - light grey. Semi-stick core. Localized small amounts of hematite weathering. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 22.1 | | | | | | | | | | | | | |
| | | 22.23 | 22.48 | 0.25 | CLST | - medium grey. Slightly silty. Semi-stick core. | | | | | | | | | | | | | |
| | | 22.48 | 23.18 | 0.70 | CLST | - reddish brown. Contains angular to rounded red and green clasts. Clasts are sometimes more weathered. Semi-stick to stick. | | | | | | | | | | | | | |
| | | 23.18 | 24.70 | 1.52 | CLST | - reddish brown with greenish blotches. Several sandstone pebble clasts. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 23.2 | | | | | | | | | | | | | |
| | | 24.7 | 25.88 | 1.18 | CLST | - same as above. Claystone clasts also present. Weathering is less pronounced. Semi-stick to rubble at top grading into stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 24.7 | | | | | | | | | | | | | |
| 4 | | 25.88 | 25.98 | 0.10 | CLST | - same as above. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

| HOLE No. | |
|---|---|
| CONTINUED | 302D |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 26.2 | | | | | | | | | | | | | |
| | | 25.98 | 26.96 | 0.98 | CLST | - medium grey. Semi-stick core. | | | | | | | | | | | | | |
| | | 26.96 | 28.56 | 1.60 | CLST | - reddish brown with trace amounts of green clasts and mottling. Semi-stick. | | | | | | | | | | | | | |
| | | 28.56 | 29.28 | 0.72 | CLST | - reddish brown and green, grading red to base. Small fractures infilled with calcite. Semi-stick to stick. | | | | | | | | | | | | | |
| | | 29.28 | 29.83 | 0.55 | CLST | - greenish with red mottling. Sandstone clasts with calcareous matrix. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 29.3 | | | | | | | | | | | | | |
| 5 | | 29.83 | 30.17 | 0.34 | SLST | - light grey. Calcite infillings in fractures. At top, small gouge zone. Calcareous rich. Semi-stick. | | | | | | | | | | | | | |
| | | 30.17 | 31.72 | 1.55 | SLST | - light grey, mottled with red hematite. Stick to semi-stick at base. | | | | | | | | | | | | | |
| | | 31.72 | 32.62 | 0.90 | SLST | - very fine grained grading to fine grained at base. Core bedding angles - 62°, 63° from well developed laminations. Stick to semi-stick. | | 62<br>63 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 31.7 | | | | | | | | | | | | | |
| | | 32.62 | 33.02 | 0.40 | SLST | - reddish brown hematite stained. Gouge zone in middle with rounded to angular sandstone clasts. Very fine grained. | | | | | | | | | | | | | |
| | | 33.02 | 33.49 | 0.47 | SLST | - light grey, fine grained. Some closed fractures. Semi-stick core. | | | | | | | | | | | | | |
| 6 | | 33.49 | 34.34 | 0.85 | CLST | - reddish brown. Top is silty and semi-stick. When silt grades out, core is rubble and mottled green. | | | | | | | | | | | | | |
| | | 34.34 | 34.84 | 0.50 | | - LOST CORE | | | | | | | | | | | | | |
| | | 34.84 | 35.19 | 0.35 | CLST | - reddish brown mottled with grey. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

▲ MEASURED FROM THE HORIZONTAL PLANE

▲ ANGLE MEASURED FROM CORE AXIS

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

| HOLE No. | 302 D |
|---|---|

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 34.75 | | | | | | | | | | | | | |
| | | 35.19 | 35.40 | 0.21 | SST | - light grey. Stick core. Small red hematite clasts. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 35.4 | | | | | | | | | | | | | |
| | | 35.40 | 37.15 | 1.75 | CLST | - reddish brown. Stick to semi-stick at top. Rubble at bottom. | | | | | | | | | | | | | |
| | | 37.15 | 37.70 | 0.55 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 37.5 | | | | | | | | | | | | | |
| | | 37.70 | 37.98 | 0.28 | SLST | - light grey with red hematite mottling. Slickensides present. Stick core. | | | | | | | | | | | | | |
| | | 37.98 | 38.61 | 0.63 | SLST | - light grey. Some hematite staining at top. Contains a zone of calcite veins up to 0.5 cm thick. | | | | | | | | | | | | | |
| 7 | | 38.61 | 38.81 | 1.20 | SLST | - grey mottled reddish brown. Stick core. Green clasts in various states of weathering. | | | | | | | | | | | | | |
| | | 39.81 | 40.11 | 0.3 | SLST | - very fine grained. Light grey. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 40.5 | | | | | | | | | | | | | |
| | | 40.11 | 40.60 | 0.49 | SLST | - reddish brown mottled. Contains some green clasts in places. Stick core. | | | | | | | | | | | | | |
| | | 40.60 | 41.9 | 1.3 | SST | - light grey, medium grained, salt and pepper texture. Rich in pyrite. At .25 m there is a pocket of mud .1m and at 1.25m for .05m. Semi-stick and rubble in places. Iron staining also evident. | | | | | | | | | | | | | |
| | | 41.9 | 42.34 | .44 | SLST | - medium grey, semi-stick to rubble. | | | | | | | | | | | | | |
| | | 42.34 | 42.66 | 0.32 | | - LOST CORE | | | | | | | | | | | | | |
| 8 | | | | | | MARKER BLOCK @ 42.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

| HOLE No. | 302D |
|---|---|
| CONTINUED | |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 42.66 | 43.14 | .48 | CLST | - mottled dark reddish brown and green. Stick core and redrilled at 42.7 m. | | | | | | | | | | | | | |
| | | 43.14 | 43.75 | .61 | SST | - medium to dark grey, semi-stick core. Has been redrilled in numerous places. | | | | | | | | | | | | | |
| | | 43.75 | 45.07 | 1.32 | SST | - light grey and fine grained. In places it is calcareous. At the base there is .20m consolidated gouge zone. The core grades from stick to semi-stick to gouge. Trace calcite infillings in closed fractures. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 45.0 | | | | | | | | | | | | | |
| | | 45.07 | 45.97 | .9 | SST | - gouge zone from previous unit continues for 43m, then grades into broken core then back into gouge for .1m at the base. Lithology same as above. | | | | | | | | | | | | | |
| | | 45.97 | 46.47 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 46.5 | | | | | | | | | | | | | |
| | | 46.47 | 48.12 | 1.65 | SLST | - medium grey. Pockets of consolidated gouge at .2m for .2m and at .55m for .15 and 1.2m for .25m. (the gouge zone at 1.2m has sandstone clasts in it). Semi-stick to stick core. | | | | | | | | | | | | | |
| 9 | | 48.12 | 49.57 | 1.45 | CLST | - medium grey. Core semi-stick to stick. Trace slickensides in places. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 50.0 | | | | | | | | | | | | | |
| | | 49.57 | 51.37 | 1.8 | CLST | - same as above, but more numerous slickensides. | | | | | | | | | | | | | |
| 10 | | 51.37 | 52.10 | .73 | SST | - light grey and fine grained. Semi-stick. Visible pyrite and trace iron staining. | | | | | | | | | | | | | |
| | | 52.10 | 52.52 | .42 | CLST | - medium grey. Trace calcite in fillings. Semi-stick core. | | | | | | | | | | | | | |
| | | 52.52 | 52.77 | 0.25 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 53.2 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

! • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

| HOLE No. | 302D |
|---|---|

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

| HOLE No. | |
|---|---|
| CONTINUED | 302D |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 52.77 | 55.02 | 2.25 | CLST | - same as above with pockets of silty material at the top. At .75 there is a band of red hematite staining. At 1.0m for .15m there is a slightly sandy pyrite rich pocket. Semi-stick core. | | | | | | | | | | | | | |
| | | 55.02 | 55.14 | .12 | SST* | - medium grey and fine grained. Iron staining visible throughout. | | | | | | | | | | | | | |
| | | 55.14 | 55.74 | .60 | SLST | - medium grey semi-stick core. A gouge zone is at .45 for .10m. Visible pyrite veins. Iron staining also present. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 56.3 | | | | | | | | | | | | | |
| 11 | | 55.74 | 57.13 | 1.39 | CLST | - medium grey. Several small gouge zones. Large sandstone pebble at .12m. | | | | | | | | | | | | | |
| | | 57.13 | 57.75 | .62 | CLST/SST | - interbedded claystone and sandstone. The unit becomes progressively more sandy as you move donw in the unit. Claystone is medium grained. Sandstone is light grey and fine grained with pyrite. | | | | | | | | | | | | | |
| | | 57.75 | 58.70 | .95 | SST | - light grey and medium grained. Visible pyrite and iron staining throughout. Carbonaceous infillings. Core bedding angle of 40°. Core is semi-stick to rubble. | | 40 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 59.3 | | | | | | | | | | | | | |
| | | 58.7 | 59.46 | .76 | SST | - same as above. Semi-stick core to .45m. From .45m and down rubbly core. Core-bedding angle of 58° | | 58 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 60.4 | | | | | | | | | | | | | |
| | | 59.46 | 60.57 | 1.11 | | - LOST CORE | | | | | | | | | | | | | |
| 12 | | 60.57 | 61.24 | .67 | SST | - same as above, also slickensides. Core-bedding angle of 50° | | 50 | | | | | | | | | | | |
| | | 61.24 | 61.69 | .45 | SLST | - medium grey, fines downwards. Semi-stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

| HOLE No. | |
|---|---|
| CONTINUED | 302D |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 61.69 | 62.69 | 1.0 | SST | - light grey and medium grey. There is a gouge zone at the top. Iron staining evident. Core bedding angle of 42°. Stick to semi-stick core. | | 42 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 62.5 | | | | | | | | | | | | | |
| | | 62.69 | 63.19 | 0.5 | SST | - same as above. Core bedding angle of 46°. Consolidated gouge zone at .2m to the end. | | 46 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 63.4 | | | | | | | | | | | | | |
| | | 63.19 | 63.39 | .2 | | - LOST CORE | | | | | | | | | | | | | |
| | | 63.39 | 63.59 | .2 | SLST | - consolidated gouge. Upper part of unit contains sandstone blocks from the previous unit. Medium grey COALY bits found throughout. | | | | | | | | | | | | | |
| 12 & 13 | | 63.59 | 66.0 | 2.41 | SLST | - medium grey with frequent domains of consolidated gouge. Semi-stick to stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 65.9 | | | | | | | | | | | | | |
| | | 66.0 | 66.5 | 0.5 | SLST | - same as above | | | | | | | | | | | | | |
| | | 66.5 | 66.9 | .4 | | - LOST CORE | | | | | | | | | | | | | |
| | | 66.9 | 68.9 | 2.00 | SLST | - light grey. Mottled red with green clasts throughout. Stick to semi-stick. Many closed fractures. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 68.9 | | | | | | | | | | | | | |
| 13 & 14 | | 68.9 | 68.68 | 0.78 | CLST | - medium grey. Many closed fractures. Stick core, trace carbonaceous infillings. Contains small domains of sand especially towards bottom | | | | | | | | | | | | | |
| | | 69.68 | 70.13 | 0.45 | CONG | - medium to coarse grained matrix. Fine grained sandstone and siltstone clasts. Dispersed pyrite throughout matrix and some pebbles. | | | | | | | | | | | | | |
| | | | | | | 70.25 ON THE LOG | | | | | | | | | | | | | |
| | | 70.13 | 70.43 | 0.3 | | - LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

| HOLE No. | 302D |
|---|---|

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 70.43 | 70.85 | 0.42 | SST | - light grey, medium grained. Small pebbles displaced throughout with a concentration of pebbles at 0.21. Stick core. | | | | | | | | | | | | | |
| | | 70.85 | 71.68 | 0.83 | CONG | - fine grained sandstone matrix. Densely packed with sandstone and siltstone clasts. Pyrite is present. Semi-stick core. Clasts are rounded to angular. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 71.7 | | | | | | | | | | | | | |
| | | 71.68 | 72.63 | 0.95 | CONG | - same as above. Rubble at bottom of run. | | | | | | | | | | | | | |
| | | 72.63 | 72.78 | 0.15 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 72.9 | | | | | | | | | | | | | |
| | | 72.78 | 73.13 | 0.35 | CONG | - same as above | | | | | | | | | | | | | |
| | | 73.13 | 73.45 | 0.32 | SST | - medium grey, fine grained. Carbonaceous material present in veins and pockets. Semi-stick core. A few sandstone pebbles present. | | | | | | | | | | | | | |
| | | 73.45 | 73.70 | 0.25 | | - LOST CORE | | | | | | | | | | | | | |
| 14-15 | | 73.70 | 74.58 | 0.88 | CONG | - fine grained sandstone matrix. Clasts are sandstone-siltstone. Semi-stick to rubble. Pyrite is present in a dispersed manner. Chert is present. | | | | | | | | | | | | | |
| | | 74.58 | 74.88 | 0.3 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 74.7 | | | | | | | | | | | | | |
| | | 74.88 | 76.04 | 1.16 | CONG | - same as above. Also contains domains of fine grained sandstone up to 0.2m. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 75.9 | | | | | | | | | | | | | |
| | | 76.04 | 76.59 | 0.55 | CONG | - same as above with sandstone domains | | | | | | | | | | | | | |
| | | 76.59 | 77.49 | 0.9 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 77.1 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

■ : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 77.49 | 78.09 | 0.60 | CONG | - same as above, but no sandstone domains. Bits of calcite. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 77.7 | | | | | | | | | | | | | |
| | | 78.09 | 78.51 | 0.42 | CONG | - same as above but core is rubbly. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 78.7 | | | | | | | | | | | | | |
| | | 78.51 | 79.16 | .65 | | - LOST CORE | | | | | | | | | | | | | |
| 16 | | 79.16 | 79.99 | 0.83 | CONG | - same as above, but core contains carbonaceous bits and hematite staining. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 80.5 | | | | | | | | | | | | | |
| | | 79.99 | 80.64 | 0.65 | | - LOST CORE | | | | | | | | | | | | | |
| | | 80.64 | 81.09 | 0.45 | SST | - same as above but highly concentrated carbonaceous veins. Pyrite present. | | 52 | | | | | | | | | | | |
| | | 81.09 | 81.99 | 0.9 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 81.4 | | | | | | | | | | | | | |
| | | 81.99 | 82.17 | 0.18 | SST | - same as above but highly concentrated carbonaceous veins. Pyrite present. | | 23 | | | | | | | | | | | |
| | | 82.17 | 83.67 | 1.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | 83.67 | 84.73 | 1.06 | SST | - conglomeratic, medium grained. Contains round to angular clasts of sandstone and siltstone. Contains pyrite grains and dispersed pyrite. Carbonaceous bits and veins. Salt and pepper texture. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 84.3 | | | | | | | | | | | | | |
| | | 84.73 | 84.8 | 0.07 | SST | - same as above. Core bedding angle 58°. Hematite staining at base. | | 58 | | | | | | | | | | | |
| | | 84.8 | 85.40 | 0.6 | | - LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† :- R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16& | | | | | | | | | | | | | | | | | | | |
| 17 | | 85.40 | 86.52 | 1.12 | SLST | - light to medium grey in parts. Interbeds of very fine grained sandstone throughout the core. Core bedding angle 73°. Semi-stick core | | 73 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 86.4 | | | | | | | | | | | | | |
| | | 86.52 | 87.17 | 0.65 | SST | - very fine grained. At 0.23m from top there is a consolidated gouge zone containing pyrite. and sandstone pebbles. Also pyrite in the sandstone. | | 77 | | | | | | | | | | | |
| | | 87.17 | 88.67 | 1.5 | SST | - light grey, fine grained. One joint set. Salt and pepper texture. Carbonaceous bands. Semi-stick core. | | 52 | | | | | | | | | | | |
| | | 88.67 | 89.37 | 0.7 | | - LOST CORE | | | | | | | | | | | | | |
| 1 | | 89.37 | 89.97 | 0.60 | SST | - same as above, but containing a few rounded to angular sandstone and siltstone pebbles, i.e. slightly conglomerate. Semi-stick to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 89.1 | | | | | | | | | | | | | |
| | | 89.97 | 90.27 | 0.3 | SST | - same as above but more rubbley and contains a greater percentage of pebbles. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 89.7 | | | | | | | | | | | | | |
| | | 90.27 | 91.47 | 1.2 | | - LOST CORE | | | | | | | | | | | | | |
| 17& 18 | | 91.47 | 91.72 | 0.25 | SST | - same as above, very rubbley. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 91.2 | | | | | | | | | | | | | |
| | | 91.72 | 92.62 | 0.9 | | - LOST CORE | | | | | | | | | | | | | |
| | | 92.62 | 92.83 | 0.21 | SST | - same as above | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 92.4 | | | | | | | | | | | | | |
| | | 92.83 | 93.18 | 0.35 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 93.0 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 93.18 | 93.78 | 0.6 | SST | - same as above, very rubbley. | | | | | | | | | | | | | |
| | | 93.78 | 94.28 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | 94.28 | 94.38 | 0.1 | SST | - same as above | | | | | | | | | | | | | |
| | | 94.38 | 94.85 | 0.47 | CONG | - siltstone matrix. Contains siltstone and sandstone rounded pebbles. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 94.2 | | | | | | | | | | | | | |
| | | 94.85 | 95.2 | 0.35 | SST | - fine grained, light grey, salt and pepper texture, rubbley. Some hematite staining. | | | | | | | | | | | | | |
| | | 95.2 | 95.8 | 0.6 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 95.7 | | | | | | | | | | | | | |
| | | 95.8 | 97.00 | 1.2 | SST | - same as above | | | | | | | | | | | | | |
| | | 97.00 | 97.50 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 97.1 | | | | | | | | | | | | | |
| | | 97.50 | 99.07 | 1.57 | SST | - same as above with carbonaceous infillings. Core bedding angle 58°. Semi-stick to rubble. | | 58 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 98.8 | | | | | | | | | | | | | |
| | | 99.07 | 99.32 | 0.25 | SST | - same as above but rubbley. | | | | | | | | | | | | | |
| | | 99.32 | 99.67 | 0.35 | CLST | - medium to dark grey. Redrilling has occurred. Semi-stick. | | | | | | | | | | | | | |
| | | 99.67 | 99.72 | 0.05 | SST | - medium grained, salt and pepper. Pyrite present along with iron staining. Semi-stick. | | | | | | | | | | | | | |
| | | 99.72 | 99.82 | 0.1 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 99.9 | | | | | | | | | | | | | |
| | | 99.82 | 100.00 | 0.18 | SST | - same as above. Core is broken, but not to the point of rubble. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

| HOLE No. | |
|---|---|
| CONTINUED | 302D |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 100.2 | | | | | | | | | | | | | |
| | | 100.35 | 101.35 | 1.0 | SST | - same as above. Core bedding angle of 62° Slickensides present up to .4m. Semi-stick core. Past .4m and down for .2m exist COALY material in the sandstone. Past .4m exist rubble. Carbonaceous material .4m to the bottom of the unit. | | 62 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 101.3 | | | | | | | | | | | | | |
| | | 101.35 | 101.85 | 0.5 | SST | - same as above but without carbonaceous material. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 101.8 | | | | | | | | | | | | | |
| 20 | | 101.85 | 104.9 | 3.05 | SST | - medium grained, medium to light grey, salt and pepper texture. Carbonaceous infillings with a COALY domain at the top of the unit. Stick core at base. Visible iron staining and pyrite | | 52 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 104.9 | | | | | | | | | | | | | |
| | | 104.9 | 105.95 | 1.05 | SST | - same as above. Rubbley to semi-stick. No COALY domain on top. | | | | | | | | | | | | | |
| | | 105.95 | 106.25 | 0.3 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 106.1 | | | | | | | | | | | | | |
| 21 | | 106.25 | 107.95 | 1.7 | SST | - same as above, semi-stick to rubbley in places. At the base it changes into conglomeratic sandstone, with small rounded to angular sandstone and siltstone pebbles. No COALY domain on top. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 108.0 | | | | | | | | | | | | | |
| | | 107.95 | 109.0 | 1.05 | SST | - same as above. Core is rubbley on top, stick to semi-stick down to the base. Carbonaceous filled fractures. Core bedding angle 64° and 60° | | 64<br>60 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : - R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F.C.% | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 109.00 | 109.70 | 0.7 | - | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 109.5 | | | | | | | | | | | | | |
| 21 | 22 | 109.70 | 111.30 | 1.6 | SST | - same as above. Core bedding angle 55°. Carbonaceous filled fractures. Small carbonaceous bands along the bedding. No COALY domain on top. Semi-stick core. Lesser amounts of carbonaceous material throughout with areas completely void. | | 55 | | | | | | | | | | | |
| | | 111.30 | 111.55 | .25 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 111.3 | | | | | | | | | | | | | |
| | | 111.55 | 112.15 | .6 | SST | - same as the above. At top of unit, sandstone devoid of carbonaceous material. Carbonaceous material in the sandstone at the base. Core is semi-stick at top and rubbley at the base | | 70 | | | | | | | | | | | |
| | | 112.15 | 112.65 | .5 | SST | - medium grained, light grey, salt and pepper texture. Carbonaceous stringers and carbonaceous bands. The core is semi-stick. | | | | | | | | | | | | | |
| | | 112.65 | 112.76 | .11 | CLST | - highly carbonaceous. Dark grey, semi-stick core. | | | | | | | | | | | | | |
| 22 | | 112.76 | 112.90 | .14 | CLST | - slightly carbonaceous. Stick to semi-stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 112.8 | | | | | | | | | | | | | |
| | | 112.90 | 113.93 | 1.03 | SST/CLST | - interbedded light grey, medium fine-grained, salt and pepper sandstone, and dark grey claystone that is slightly carbonaceous in places. Average bed thickness for sandstone is 0.12 and for claystone .08m. In places are fine interlaminations of claystone and sandstone | | 68 | | | | | | | | | | | |
| 22 | 23 | 113.93 | 114.63 | 0.7 | SLST | - very fine grained, light grey containing carbonaceous wisps. Semi-stick on top and rubble at the base | | | | | | | | | | | | | |
| | | 114.63 | 115.28 | 0.65 | | - LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† :•R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

| HOLE No. | 302D |
|---|---|
| CONTINUED | |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F C.% | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 115.3 | | | | | | | | | | | | | |
| | | 115.28 | 115.43 | .15 | CLST/SST | - interbedded dark grey claystone and light grey medium grained salt and pepper sandstone. | | 69 | | | | | | | | | | | |
| | | 115.43 | 117.28 | 1.85 | SST | - medium grained light grey salt and pepper sandstone. Semi-stick core with a rubbley zone at 0.28m to 0.79m. Slightly carbonaceous in places | | 56 | | | | | | | | | | | |
| | | 117.28 | 117.78 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 117.7 | | | | | | | | | | | | | |
| | | 117.78 | 119.18 | 1.4 | SST | - same as above with small carbonaceous interbeds and wisps throughout. | | 51 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 119.2 | | | | | | | | | | | | | |
| | | 119.18 | 120.28 | 1.1 | SST | - interbedded medium grained light grey salt and pepper sandstone with fine grained dark grey carbonaceous-rich sandstone which becomes COALY in places. Also carbonaceous to COALY stringers and wisps throughout the unit. The core is semi-stick to rubbley. | | 60 | | | | | | | | | | | |
| | | 120.28 | 120.58 | 0.30 | | - LOST CORE | | | | | | | | | | | | | |
| | | 120.58 | 121.96 | 1.38 | SST | - medium to fine grained light grey salt and pepper sandstone with small calcareous bits in it. The core is stick to semi-stick with minor carbonaceous traces along the fractures in the rock. | | 54 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 122.0 | | | | | | | | | | | | | |
| | | 121.96 | 123.36 | 1.4 | CLST | - dark grey carbonaceous claystone that becomes COALY along fractures. Semi-stick core 0.1 to 0.7m rich in sand (wispy). | | | | | | | | | | | | | |
| | | 123.36 | 124.05 | 0.69 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 123.8 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS



FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S. E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % ar.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 123.8 | | | | | | | | | | | | | |
| 25 | | 124.05 | 124.70 | 0.65 | CLST | - same as above. No sandstone wisps. | | | | | | | | | | | | | |
| | | 124.70 | 126.35 | 1.65 | SST | - very fine grained, light grey. Top grades from silt-clay to purer sandstone. Core semi-stick. Numerous clean fractures. Cross bedding visible. Siltstone-claystone clasts. Inter-bedded wisps of siltstone-claystone in the sands. Trace of calcite infillings. | | 53 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 126.2 | | | | | | | | | | | | | |
| 25&26 | | 126.35 | 129.25 | 2.9 | CLST | - claystone medium to dark grey. COALY zone at top. Compact gouge almost at top. Semi-stick core. Trace of calcite and carbonaceous material along fractures becoming siltier at base. Breccia zones throughout. | | | | | | | | | | | | | |
| | | 129.25 | 129.70 | 0.45 | CLST | - same as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 129.35 | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 129.6 | | | | | | | | | | | | | |
| | | 129.70 | 129.77 | 0.07 | SLST | - siltstone medium grey. Numerous gouge closed fractures. Wisps of sand. Semi-stick to stick core. | | | | | | | | | | | | | |
| | | 129.77 | 131.62 | 1.85 | SST | - very fine to fine grained, dominantly medium grey with wisps of light grey. Breccia zone in first .5m followed by pockets of breccia. Faint laminations at base of zone. Traces of iron staining. Core semi-stick to broken. | | 54 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 132.6 | | | | | | | | | | | | | |
| 27 | | 131.62 | 132.84 | 1.22 | SST | - same as above. Very brecciated with gouge holding breccia pieces together. | | | | | | | | | | | | | |
| | | 132.84 | 134.09 | 1.25 | SST | - very cross-bedded. Fine grained. Laminated light and dark grey. Brecciated in places. Broken to rubble in other places. Iron staining. | | 72 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• ROD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 134.72 | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 135.1 | | | | | | | | | | | | | |
| 27&28 | | 134.09 | 135.74 | 1.65 | SST | - same as above. Broken core, coarser towards the base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 136.6 | | | | | | | | | | | | | |
| | | 135.74 | 136.45 | 0.71 | SST | - medium grained, medium grey with white speckles Faint laminations. Rubble. COALY stringers along fractures. Traces of iron staining. Traces of calcite in fractures. Visible pyrite. | | | | | | | | | | | | | |
| | | 136.45 | 136.54 | 0.09 | SHALE | - dark grey, good partings, very rubbley, very weathered. | | | | | | | | | | | | | |
| | | 136.54 | 136.64 | 0.10 | SST | - medium to coarse grained, faint laminations, dominantly medium grey, speckled, rubbled. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 137.8 | | | | | | | | | | | | | |
| | | 136.64 | 137.71 | 1.07 | SST | - same as above. Very rubbled. Contains 2 zones 0.08m of carbonaceous shale with COALY partings. Shale zones have ground core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 138.4 | | | | | | | | | | | | | |
| | | 137.71 | 139.21 | 1.50 | SST | - medium grained, ,assive, black and white speckled, broken core to rubble. Traces of iron staining. Traces of calcite on fracture planes. Carbonaceous stringers to wisps throughout core. Also contains clast of dark grey shale averaging 1cm in size. Breccia zone 0.27m long, very carbonaceous-rich. Sandstone held together by gouge. Second breccia zone 0.11m long at bottom of run which is not carbonaceous. | | | | | | | | | | | | | |
| 29 | | 139.21 | 139.30 | 0.09 | SST | - medium grained, black and white speckled, fractured. Carbonaceous infillings along fracture planes. Traces of iron staining. Top 0.07m contains numerous siltstone to sandstone clasts 0.05m to 0.005m. Bottom 0.02 is laminated, fine | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† = R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V M % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | grained sandstone. | | | | | | | | | | | | | |
| | | 139.30 | 139.61 | 0.31 | SST | - fine grained, laminated, medium grey, broken to rubble. Very fractured. Carbonaceous material along fracture planes. Small band (0.02m) at centre of run of carbonaceous material. Some cross-bedding visible. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 139.84 | | | | | | | | | | | | | |
| | | 139.61 | 139.99 | 0.38 | SST | - fine grained, dark grey and light grey speckled broken core. Traces of iron staining. Some carbonaceous material along fracture planes. Rubbley at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 140.0 | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 140.4 | | | | | | | | | | | | | |
| | | 139.99 | 140.41 | 0.42 | SHALE | - dark grey. Good partings. Semi-stick to broken. Visible pyrite. Very soft and carbonaceous at base of run. | | | | | | | | | | | | | |
| | | 140.41 | 140.98 | 0.57 | SST | - fine to medium grained, black and white speckled. Top 0.28m contains COAL stringers ranging from 0.003m to 0.03m. Upper half is very rubbley. COAL in large stringer is flakey and bright. Middle section is brecciated; contains pieces of fine grained laminated sandstone which are twisted in orientation. Breccia held together by gouge. Sandstone contains small siltstone clasts in places. Iron staining present. Lower half is massive, very rubbley and contains no clasts. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 141.8 | | | | | | | | | | | | | |
| | | 140.98 | 142.47 | 1.49 | SST | - fine grained, laminated with medium to light grey laminations. Very cross-bedded. Semi-stick to broken core. Numerous fractures which are clean. Traces of iron staining. Breccia zone at base of run ~ 0.3m long, lots of gouge. Sandstone ground and soft. | | 63 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 143.5 | | | | | | | | | | | | | |
| 296 | 30 | 142.47 | 143.73 | 1.26 | SST | - medium grained, salt and pepper texture, medium grey, faintly laminated. Carbonaceous material along fracture planes. One small band (0.07m) of fine grained finely laminated cross-bedded sandstone. Very rubbley at base with carbonaceous stringers. | | 79<br>54 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 146.1 | | | | | | | | | | | | | |
| | | 143.73 | 146.06 | 2.33 | SST | - fine to medium grained, faintly laminated to well laminated, cross-bedding. Carbonaceous material along fracture planes. Traces of iron staining along fracture planes. A few COALY stringers 0.001m in size. Broken to rubble. Two breccia zones each approximately 0.16m. Pieces held together by gouge. Brecciated sandstone very soft. | | 58 | | | | | | | | | | | |
| 31 | | 146.06 | 146.58 | 0.52 | SHALE | - COALY shale. Black. Brecciated containing fine grained sandstone and COAL. Slickensides present. Broken to rubble. Very soft. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 147.6 | | | | | | | | | | | | | |
| | | 146.58 | 147.20 | 0.62 | SST | - fine grained, medium to light grey sandstone. Broken core to semi-stick and in places pieces are held together by mud. Few siltstone clasts in sandstone at the top of the run. Massive grading to finely laminated at base of run. Carbonaceous infillings. | | 53 | | | | | | | | | | | |
| | | 147.20 | 148.33 | 1.13 | SST | - interbedded sandstone, fine to medium grained and siltstone. Very rubbley and broken. Run appears brecciated with sections compacted back together. Breccia is a mixture of sandstone and siltstone. Small amounts of carbonaceous material present. 0.15m interval of siltstone in sandstone. Massive sandstone at base of run. Salt and pepper. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

! • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % arb. | MOIST % residual | ASH % | V M % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31& | 32 | 148.33 | 149.67 | 1.34 | SST | - fine grained, massive, semi-stick to broken core. Trace of carbonaceous infillings. Trace of iron staining | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 150.1 | | | | | | | | | | | | | |
| | | 149.67 | 151.87 | 2.2 | SST | - very fine grained. Faintly to very well laminated. Carbonaceous infillings. Trace iron staining. Slickensides visible. Dark grey-light grey laminations. Semi-stick to broken core. | | 49<br>52 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 151.3 | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 152.5 | | | | | | | | | | | | | |
| 32& | 33 | 151.87 | 153.2 | 1.33 | SST | - same as above. Occasional clasts of siltstone near base of run. Clasts are oriented parallel to laminations. Traces of cross-bedding at base of run. | | 57<br>54 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 153.4 | | | | | | | | | | | | | |
| | | 153.2 | 154.7 | 1.5 | SST | -massive, fine grained, semi-stick to broken core. Iron staining present. Salt and pepper texture. Trace of calcite infilling on fractures. Sandstone slightly calcareous. Numerous fractures in the middle of run. | | | | | | | | | | | | | |
| | | 154.7 | 155.8 | 1.1 | SST | - grades from faintly laminated to very well laminated. Calcareous zone of compacted breccia held together with mud. Visible iron staining. Carbonaceous infillings. Some closed fractures - mud filled | | 58 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 156.4 | | | | | | | | | | | | | |
| | | 155.8 | 158.3 | 2.5 | | - LOST CORE (marker blocks have no core between them). | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 158.9 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 158.3 | 159.5 | 1.2 | SST | - light grey salt and pepper, fine to very fine grained, broken core. Calcareous sandstone. One clean fracture. | | | | | | | | | | | | | |
| 34 | | 159.5 | 160.99 | 1.49 | SST | - salt and pepper, fine to medium grained in interbands. Iron staining visible. Core semi-stick to rubble. Traces of calcite infillings on fracture planes. Fractures often recemented by drilling muds. Faintly to well laminated. Core has been redrilled. Carbonaceous infillings in fractures and small carbonaceous stringers in lower half of run. Lower half is structurally distorted. | | 67 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 161.6 | | | | | | | | | | | | | |
| | | 160.99 | 162.13 | 1.14 | SLST | - dary grey. Brecciated but recemented with gouge material. Iron staining visible. Top redrilled. Traces of carbonaceous infillings on fracture planes. | | | | | | | | | | | | | |
| 346 | 35 | 162.13 | 163.98 | 1.85 | CLST | - intermixed fine grained sandstone and siltstone in the claystone. Carbonaceous infillings along fracture planes. One very carbonaceous zone 0.07. Zone consists of small carbonaceous stringers interbedded with claystone. Iron staining is visible. Traces of calcite on fracture planes. Entire run has been highly fractured. Sandstone is very distorted and mottled in appearance. Some mottling is environmental, other is structural distortion. Flame structure at top of run. Core is semi-stick to rubble. Small veinlets of white calcareous material near top of run. | | | | | | | | | | | | | |
| | | 163.98 | 164.08 | 0.1 | | - LOST CORE | | | | | | | | | | | | | |
| | | 164.08 | 164.87 | 0.79 | SST | - same as above, except dominant lithology is fine grained sandstone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 164.7 | | | | | | | | | | | | | |
| | | 164.87 | 165.06 | 0.19 | COAL | - flakey to hard. Bright | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 165.06 | 165.16 | 0.1 | | - LOST CORE | | | | | | | | | | | | | |
| | | 165.16 | 165.9 | 0.74 | SHALE | - interbedded carbonaceous shale and COAL. Shale is very dark grey. COAL bands maximum thickness 0.06m. Shale contains a few silty and sandy rich lenses. Bottom half of run is very brecciated, recemented with gouge and drilling mud. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 166.5 | | | | | | | | | | | | | |
| | | 165.9 | 166.15 | 0.25 | SST | - fine grained, faintly laminated. Iron staining visible. Very brecciated. Some carbonaceous infillings. Breccia pieces appear to be held together by gouge. | | | | | | | | | | | | | |
| | | 166.15 | 168.91 | 2.76 | CLST | - dark grey, often carbonaceous. Some shale at base of run. Carbonaceous infillings on fracture planes. Also contains occasional small stringers of COAL ~ 1.0mm. Very brecciated in places and where not brecciated, badly fractured. Two small sandstone clast and breccia zones. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 169.5 | | | | | | | | | | | | | |
| | | 168.91 | 171.14 | 2.23 | CLST | - same as above except 4 COALY stringers averaging 0.05m thick. Near stringers, claystone is very carbonaceous. COAL is compact, powder to flakey, bright. 0.17m band of siltstone at base of run. | | | | | | | | | | | | | |
| | | 171.14 | 171.64 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 172.3 | | | | | | | | | | | | | |
| | | 171.64 | 172.53 | 0.89 | SLST | - redrilled core. Very fine grained, medium to dark grey. Semi-stick core. Carbonaceous fractured infillings. Slickensides throughout run. Highly fractured. | | | | | | | | | | | | | |
| 37 | | 173.42 | 174.59 | 1.17 | CLST | - dark grey. Carbonaceous infillings with trace calcite, some slickensides (mainly at top of run). 0.2m zone of hard COAL bright, intact. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

! : • R &/OR S → GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302@

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

| HOLE No. | |
|---|---|
| CONTINUED | 302D |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Also veins of COAL 0.01m maximum thickness. Traces of iron staining base of run. Very fractured and soft. | | | | | | | | | | | | | |
| | | 174.59 | 175.14 | 0.55 | COAL | - compact powder to hard COAL, bright. In centre of run, 0.02 shale split | | | Top | 10 | %→ | 55 | | | | | | | |
| | | 175.14 | 175.43 | 0.29 | SHALE | - grades from very carbonaceous rich at top of run to only carbonaceous material on fracture planes at bottom. Soft, numerous fractures. Semi-stick core. | | | | | | 56 | | | | | | | |
| | | 175.43 | 175.53 | 0.10 | GOUGE | - Breccia zone contains dispersed clasts of siltstone. Medium grey in colour. Some fine grain sandstone near end of run. Clasts held together by gouge. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 176.0 | | | | | | | | | | | | | |
| 37&38 | | 175.53 | 178.29 | 2.76 | GOUGE | - Breccia zone. Core is stick. Clasts are fine grain sandstone. Some are massive, others are very well laminated. Clasts range from less than 0.10m to 0.15m. In some clasts one can see cross-bedding and clasts are randomly oriented in places. Clasts are very angular. Fractures are irregular. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 178.6 | | | | | | | | | | | | | |
| | | 178.29 | 181.19 | 2.9 | GOUGE | - same as above, except at .55m from top one sees a zone of soft muddy material intermixed with carbonaceous material. The zone gets COALY in places. Zone contains fracture set with common orientation. Zone is .25m in size. Clasts in top of run are massive. Further down are fine to medium grained sandstone clasts with faint lamination. Clasts grade to coarse sandstone at base of run. Core is generally stick with small rubble zone near centre of the run. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 181.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % (residual) | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 181.19 | 181.89 | 0.7 | COAL | - powder to compact. Soft, easy to break. Bright 2 small shale splits averaging 0.035m in size. Semi-stick to rubble. | | | | | | 44 | | | | | | | |
| 38&39 | | 181.89 | 182.57 | 0.68 | CLST | - interbedded carbonaceous claystone and COAL. COAL is powdered. Claystone semi-stick. COAL zones averaging .05m in size. | | | | | | | | | | | | | |
| | | 182.57 | 183.12 | 0.55 | | - LOST CORE | | | | | | | | | | | | | |
| | | 183.12 | 183.27 | 0.15 | COAL | - soft, bright, powdered. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 184.4 | | | | | | | | | | | | | |
| | | 183.27 | 184.74 | 1.47 | CLST | - carbonaceous claystone. Semi-stick to rubble. COALY stringers of maximum thickness .07m. | | | | | | | | | | | | | |
| | | 184.74 | 185.96 | 1.22 | | - LOST CORE | | | | | | | | | | | | | |
| | | 185.96 | 186.34 | 0.38 | SHALE | - | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 187.4 | | | | | | | | | | | | | |
| 39& | 40 | 186.34 | 188.36 | 2.02 | COAL | - broken to rubble. Bright. Flaked to powdered COAL with some slickensides. Small shale split .02m thick at base of run. Base is bright with dull bands. Dull bands are harder. Chunky to flakey with some powder | | | TOP | 10 | % | 45 | | | | | | | |
| | | | | | | | | | | | | 46 | | | | | | | |
| | | 188.36 | 189.36 | 1.0 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 190.2 | | | | | | | | | | | | | |
| | | 189.36 | 190.60 | 1.24 | COAL | - same as above. Dull, hard bands. In places, appear shaly. | | | | | | | | | | | | | |
| | | 190.60 | 190.85 | 0.25 | | - LOST CORE | | | | | | | | | | | | | |
| | | 190.85 | 190.92 | 0.07 | COAL | - hard, bright. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 191.5 | | | | | | | | | | | | | |
| | | 190.92 | 191.10 | 0.18 | COAL | - shaly, dull, very hard | | | | | | 46 | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† - R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 192.9 | | | | | | | | | | | | | |
| | | 191.10 | 192.14 | 1.04 | COAL | - bright COAL with dull hard bands. More powdered than flaked. Some sections slickensided | | | | | | | | | | | | | |
| | | 192.14 | 192.64 | 0.50 | | - LOST CORE | | | | | | | | | | | | | |
| 406 | 41 | 192.64 | 193.54 | 0.90 | COAL | - compact, powdered to flaked, semi-bright | | | | | | 47 | | | | | | | |
| | | | | | | MARKER BLOCK @ 193.8 | | | | | | | | | | | | | |
| | | 193.54 | 195.00 | 1.46 | COAL | - dull hard. Slickensided. Occurs in chunks. | | | | | | 48 | | | | | | | |
| | | 195.00 | 195.58 | 0.58 | COAL | - dull, powder to flaked. Small shale split (0.3m) at base of run. | | | | | | 49 | | | | | | | |
| | | | | | | MARKER BLOCK @ 195.4 | | | | | | | | | | | | | |
| | | 195.58 | 196.49 | 0.91 | COAL | - semi-bright to dull. Some slickensiding at top. Powder to flake. Small shale split half way through run 0.2m long. | | | | | | | | | | | | | |
| | | 196.49 | 196.79 | 0.3 | | - LOST CORE | | | | | | 50 | | | | | | | |
| | | | | | | MARKER BLOCK @ 196.6 | | | | | | | | | | | | | |
| | | 196.79 | 198.23 | 1.44 | COAL | - semi-bright to bright. Compact, powder to flake. Very soft. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 198.4 | | | | | | | | | | | | | |
| 416 | 42 | 198.23 | 198.6 | 0.37 | COAL | - slickensided, hard, semi-bright, semi-stick to broken. | | | | | | | | | | | | | |
| | | 198.6 | 198.82 | 0.22 | SHALE | - COALY, very carbonaceous, fairly soft. Semi-stick at top, rubble at base. | | | | | | 51 | | | | | | | |
| | | | | | | MARKER BLOCK @ 199 | | | | | | | | | | | | | |
| | | 198.82 | 199.54 | 0.72 | COAL | - COALY shale at top of run grading to compact COAL at base. COAL is flaked to powder, dull. Semi-stick core. Visible calcite infillings at top of core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† = R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 199.9 | | | | | | | | | | | | | |
| | | 199.54 | 202.19 | 2.65 | | - LOST CORE | | | | | | | | | | | | | |
| | | 202.19 | 204.97 | 2.78 | SHALE | - redrilled at top of run. Brecciated COALY shale. Dark grey at top grading to medium to light grey at base. Decreasing amount of carbonaceous material and amount of brecciation at depth increases to base of run. COALY material at top is powdered. Core is stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 205.7 | | | | | | | | | | | | | |
| 43 | | 204.97 | 207.50 | 2.53 | SHALE | - brecciated. Gouge holding core together in places. At 1.45m, partings well defined and very carbonaceous. Traces of calcite infillings. Core semi-stick to stick. Most fractures from drilling at top of run. Shaly partings not as well defined. Base more carbonaceous. | | | | | | | | | | | | | |
| | | 207.50 | 207.90 | 0.40 | COAL | - powder, semi bright to dull, pockets of hard bright shaly COAL with slickensides. | | | | | | | | | | | | | |
| | | 207.90 | 208.40 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 209.1 | | | | | | | | | | | | | |
| | | 208.40 | 209.10 | 0.70 | COAL | - ranges from powder at top of run to harder brighter COAL near middle of run, and then back to powder at base. Hard COAL is flakey when broken. | | | | | | 52 | | | | | | | |
| | | 209.10 | 209.50 | 0.4 | | - LOST CORE | | | | | | | | | | | | | |
| | | 209.50 | 209.83 | 0.33 | COAL | - soft, dull, powdered. Core is compact. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 210.3 | | | | | | | | | | | | | |
| | | 209.83 | 210.11 | 0.28 | COAL | - hard, shaly. Bright to semi-bright. Slickensides and rock flour. Core is in chunks. | | | | | | 53 | | | | | | | |
| 44 | | 210.11 | 210.51 | 0.4 | COAL | - powdered, dull | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

# MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 210.51 | 210.91 | 0.4 | | - LOST CORE | | | | | | | | | | | | | |
| | | 210.91 | 211.30 | .39 | COAL | - shaly hard and chunky to powdered. Hard COAL is bright while powdered is dull. | | | | | | 54 | | | | | | | |
| | | | | | | MARKER BLOCK @ 212.1 | | | | | | | | | | | | | |
| | | 211.30 | 211.90 | 0.60 | COAL | - chunky, flakey. Semi-bright. .05m shaly zone. Powdered at base. | | | | | | | | | | | | | |
| | | 211.90 | 212.25 | 0.35 | COAL | - chunky to powdered, semi-bright to dull. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 213.7 | | | | | | | | | | | | | |
| | | 212.25 | 213.15 | 0.9 | COAL | - compacted, powdered COAL with 0.10m shaly zone and .5m zone of hard bright COAL near top of run. | | | | | | | | | | | | | |
| | | 213.15 | 214.05 | 0.9 | COAL | - powdered to chunky, soft semi-bright, traces of hard COAL. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 214.6 | | | | | | | | | | | | | |
| 446 | 45 | 214.05 | 215.55 | 1.5 | COAL | - top is compacted, powder to hard flakey COAL. Remainder of run is broken to chunky COAL which is flakey, powdered at base. Bright and dull bands. | | | | | | 54 | | | | | | | |
| | | | | | | MARKER BLOCK @ 216.4 | | | | | | | | | | | | | |
| | | 215.55 | 216.75 | 1.2 | COAL | - compacted, powder at top of run, followed by small shale split (.05m thick). Powder to flakey to another split of shale .03m thick. Remainder of COAL is powdery to flakey to base of run which becomes shaly COAL. | | | | | | | | | | | | | |
| | | 216.75 | 216.95 | 0.2 | SHALE | - COALY, polished surfaces. Calcite present in core. Core is broken to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 217.9 | | | | | | | | | | | | | |
| 45 | | 216.95 | 217.10 | .15 | SHALE | - same as above but carbonaceous material is grading out.. Soft. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

| HOLE No. | 302D |
|---|---|
| CONTINUED | |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 217.10 | 218.05 | .95 | GOUGE | - breccia. Lots of gouge holding siltstone and sandstone pieces together. Sandstone becomes more dominant with increase in depth. Sandstone medium to fine grain, massive, slightly salt and peppery. Core is stick. Numerous closed fractures. | | | | | | | | | | | | | |
| | | 218.05 | 218.45 | 0.4 | SST | - light grey, fine to medium grained sandstone. Poorly indurated. Semi-stick to rubble at base. Trace of carbonaceous infilling. | | | | | | | | | | | | | |
| 46 | | 218.45 | 218.62 | .17 | SST | - fine grained, massive to faintly laminated. Carbonaceous infillings of major fractures. Large numbers of small closed fractures. Medium to light grey. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 219.3 | | | | | | | | | | | | | |
| | | 218.62 | 219.15 | .53 | SST | - medium grained, salt and pepper, carbonaceous infillings of major fractures. Semi-stick with rubble at top. Traces of calcite on fracture planes. Massive. | | | | | | | | | | | | | |
| | | 219.15 | 219.52 | 0.37 | SST | - same as above. Very brecciated. Held together with gouge and mud. No carbonaceous material present. Stick at top to rubble at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 221.3 | | | | | | | | | | | | | |
| | | 219.52 | 222.07 | 2.55 | SLST | - brecciated throughout. Infilling gouge. Dominantly breccia clasts are silty at top and sandy at base. Some clasts are faintly laminated to massive. 0.15m pocket in middle of run that contains highly brecciated material. Traces of calcite along fracture planes. Traces of carbonaceous material on major fractures. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 224.3 | | | | | | | | | | | | | |
| 466 | 47 | 222.07 | 224.03 | 1.96 | SLST | - same as above. Only one carbonaceous zone at top of run along a major fracture. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 224.03 | 225.23 | 1.20 | SST | - fine grained, laminated and cross-bedded. Top contains numerous closed fractures. Core is semi-stick to stick. Open fractures are clean. Medium grey. | | | | | | | | | | | | | |
| | | 225.23 | 226.83 | 1.6 | SST | - same as above, but not brecciated at top. | | 81 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 227.4 | | | | | | | | | | | | | |
| 47&48 | | 226.83 | 227.32 | 0.49 | SLST | - dark grey, massive. Wisps of fine grained sandstone. Some fractures closed with calcite. Slickensides. Stick core. | | | | | | | | | | | | | |
| | | 227.32 | 227.48 | 0.16 | SST | - fine grained, massive with wisps of siltstone (dark grey). Small siltstone clasts at top. Brecciated at top. | | | | | | | | | | | | | |
| | | 227.48 | 227.56 | 0.08 | SLST | - laminated, fine grained sandstone. Closed fractures. Dark grey. | | | | | | | | | | | | | |
| | | 227.56 | 228.26 | 0.70 | SST | - fine at top to medium at base. Laminated. Fractures are clean. Semi-stick to stick. Salt and pepper. | | 77 | | | | | | | | | | | |
| | | 228.26 | 228.63 | 0.37 | SST | - same as above. | | 69 | | | | | | | | | | | |
| | | 228.63 | 228.90 | 0.27 | SST | - dark grey. Very fine grained. Parallel laminations at top. Small gouge zone at top with large calcite filled fracture. Two small sandstone pods in mid-run. Base of run contains soft sediment deformation and rip-up clasts. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 230.4 | | | | | | | | | | | | | |
| | | 228.90 | 231.2 | 2.30 | SST | - fine grained interbedded with siltstone. Massive to faintly laminated at top of run, very well laminated throughout rest of run. Cross laminations present. Evidence of soft sediment deformation at base of siltstone intervals. Siltstone very dark grey. Sandstone medium to light grey. Siltstone bands ~0.12m thick. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

| HOLE No. | 302D |
|---|---|
| CONTINUED | |



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49 | | 231.2 | 231.72 | 0.52 | SST | - same as above, siltstone clasts in sandstone. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 233.5 | | | | | | | | | | | | | |
| | | 231.72 | 234.16 | 2.44 | SST | - colour varies from light grey to dark. Grey core ranges from well laminated to massive. Cross lamination present. Fine to medium grain sandstone. Core is stick to semi-stick. Fractures clean. Traces of calcite infilling, some soft sediment deformation at top of run. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 236.5 | | | | | | | | | | | | | |
| 49 | 50 | 234.16 | 237.16 | 3.0 | SST | - same as above. Very fine to fine grained, with two pockets (one in middle, other at base) of medium grained sandstone. Traces of carbonaceous infilling along fractures. | | 70 | | | | | | | | | | | |
| | | 237.16 | 237.26 | 0.10 | SST | - medium grained, light grey, COALY, rubbley. | | | | | | | | | | | | | |
| | | 237.26 | 238.56 | 1.3 | SST | - light grey, medium grained to fine grained in places. Semi-stick to rubble at base. Faint laminations to massive carbonaceous zones to COALY infillings to pods throughout. Visible pyrite in COAL. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 239.5 | | | | | | | | | | | | | |
| 50 | 51 | 238.56 | 239.96 | 1.4 | SST | - medium grey, fine to very fine grained sandstone. Faintly laminated at top. Massive from middle to base of run. Stick to semi-stick. Fractures at top containing carbonaceous material and polished surfaces. Fractures lower in run are clean. | | | | | | | | | | | | | |
| | | 239.96 | 240.39 | 0.43 | SST | - same as above, completely massive. | | | | | | | | | | | | | |
| | | 240.39 | 240.69 | 0.30 | CLST | - medium to dark grey. Semi-stick to rubble. Numerous polished surfaces with rock flour. Carbonaceous infilling at base of run. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 242.6 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS



FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 240.69 | 242.04 | 1.35 | SST | - fine grained, light to medium grey, massive at top of run, grades down into faintly laminated. Wispy, faint, cross laminations. Fractures are clean. Stick core. Several closed fractures. | | | | | | | | | | | | | |
| | | 242.04 | 242.24 | 0.2 | SLST | - medium to dark grey semi-stick core with clean fractures. Fractures are numerous. | | | | | | | | | | | | | |
| | | 242.24 | 242.81 | 0.57 | SST | - medium grey, very faintly laminated at top of run. Massive elsewhere. Stick core. Soft sediment deformation throughout. | | | | | | | | | | | | | |
| 51 | | 242.81 | 243.11 | 0.30 | SST | - same as above. Light to medium grained at base of run. | | | | | | | | | | | | | |
| | | 243.11 | 243.44 | 0.33 | CLST | - slightly silty. Good slickensides. Calcite infilling on fractures. Carbonaceous bands along fractures. Polished surfaces in some places. Several mud closed fractures. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 245.6 | | | | | | | | | | | | | |
| 52 | | 243.44 | 245.12 | 1.68 | SST | - fine grained, massive to faintly laminated, but laminations have been disturbed by soft sediment deformation. Medium grey. Pockets of salt and pepper. Fractures are clean except one has carbonaceous infillings. Stick core. | | | | | | | | | | | | | |
| | | 245.12 | 245.44 | 0.32 | SLST | - medium grey. Carbonaceous infillings in fractures. Some calcite infillings. Soft sediment deformation at top. Stick core. | | | | | | | | | | | | | |
| | | 245.44 | 246.86 | 1.42 | SLST | -same as above. Two small COALY zones 0.02m long. Core in these zones is rubbley, elsewhere stick to semi-stick at base. | | | | | | | | | | | | | |
| 52&53 | | 246.86 | 247.92 | 1.06 | SLST | - same as above. Contains fine grained sandstone. Wisps near middle of run. Slickensides at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 248.7 | | | | | | | | | | | | | |
| | | 247.92 | 248.15 | 0.23 | SST | - fine grained, laminated, stick core. Breccia zone near middle of run. Stick core. | | 42 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % (residual) | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 248.15 | 248.65 | 0.50 | SST | - dark grey. Calcite filled fractures. Carbonaceous traces on fracture planes. Plant fossils present. Stick core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 249.9 | | | | | | | | | | | | | |
| | | 248.65 | 249.03 | 0.38 | SST | - fine grained. Light grey with medium grey laminations. Laminations have been disturbed by soft sediment deformation. Flame structure at top of run. Semi-stick core | | | | | | | | | | | | | |
| | | 249.03 | 249.95 | 0.92 | SLST | - dark grey same as above. Pocket of fine grain sandstone with disturbed laminations. Two small (0.01m) COALY stringers. Core is stick to semi-stick. | | | | | | | | | | | | | |
| | | 249.95 | 251.75 | 1.80 | CLST | - medium grey. Silty at top. Pockets of fine grained sandstone with disturbed laminations at top. Carbonaceous infillings of fractures. Polished surfaces. Semi-stick. Brecciated and gouged at base. | | | | | | | | | | | | | |
| | | 251.75 | 252.4 | 0.65 | | - LOST CORE (COAL) | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 252.9 | | | | | | | | | | | | | |
| 54 | | 252.4 | 253.0 | 0.60 | COAL | - hard, chunky. Dull with bright bands. Very shaly at top of run. | | | | | | 57-58 | | | | | | | |
| | | 253.0 | 254.35 | 1.35 | SLST | - medium grey. Numerous fractures at top. Very COALY throughout. Carbonaceous infillings of fractures with some polished. Stick to rubble. Zone where carbonaceous material is abundant. 3 COALY stringers maximum size ~0.025m | | | | | | | | | | | | | |
| | | 254.35 | 254.55 | 0.2 | SLST | - same as above. | | | | | | | | | | | | | |
| | | 254.55 | 255.98 | 1.75 | | - LOST CORE - 255.3 - 255.98 COAL | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 256.0 | | | | | | | | | | | | | |
| | | 255.98 | 256.5 | 0.52 | COAL | - very hard, very shaly, dull with bright banding. Slickensides present. Large chunks of core. Powdered at base. | | | | | | 59 | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No.

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 256.5 | 257.25 | 0.75 | SLST | - medium grey. Fractured with breccia zone in middle of run. Carbonaceous infillings of many fractures. Trace calcite. Small COALY zone at base 0.02m. Semi-stick core. | | | | | | | | | | | | | |
| 55 | | 257.25 | 257.53 | 0.28 | SLST | - same as above. Slickensides at base of run. Carbonaceous traces. Shaly at base. | | | | | | | | | | | | | |
| | | 257.53 | 257.58 | 0.05 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 258.5 | | | | | | | | | | | | | |
| | | 257.58 | 258.68 | 1.1 | CLST | - medium to dark grey, slickensides present throughout. Carbonaceous breccia zone (.15m) in middle of run. .002m calcite infilling. Trace calcite throughout core. Core semi-stick Breccia zone .1m at top. | | | | | | | | | | | | | |
| | | 258.68 | 259.28 | 0.6 | SST | - medium to dark grey, massive to faintly laminated. Good slickensides. Trace of carbonaceous material. Small calcite veins throughout. Semi-stick to stick. Fine to very fine grained. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 260.9 | | | | | | | | | | | | | |
| | | 259.28 | 260.74 | 1.46 | SST | - fine grained, laminated, light-medium grey. Ranges from well laminated to massive. Very good slicks. Carbonaceous infilling and veinlets up to .07m. Crossbeds in places. Semi-stick to stick core. | | | | | | | | | | | | | |
| 55& | 56 | 260.74 | 262.77 | 2.03 | SST | - fine to medium grain, light grey, moderately laminated with crossbedding. Numerous mud closed fractures. Also carbonaceous infillings in trace amounts. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 263.8 | | | | | | | | | | | | | |
| | | 262.77 | 264.17 | 1.4 | SST | - same as above. Faint laminations are distorted by sedimentary deformation. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 264.17 | 265.27 | 1.11 | CLST | - dark grey to black, very carbonaceous, also shaly in places. Many polished fracture surfaces and slicks. Core semi-stick to broken. COAL infillings range in size up to 0.01m. | | | | | | | | | | | | | |
| | | 265.27 | 265.9 | 0.63 | SLST | - medium grey. Carbonaceous infillings. COALY wisps throughout core. Core is stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 266.0 | | | | | | | | | | | | | |
| 57 | | 265.9 | 268.85 | 2.95 | SST | - medium grey. Calcite infillings. Faintly laminated to massive. Irregular pockets of silty material which is dark grey. Carbonaceous pods. Numerous closed fractures, some small breccia zones filled with gouge. Core is stick to semi-stick | | 47 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 269.1 | | | | | | | | | | | | | |
| | | 268.85 | 269.45 | 0.6 | SST | - same as above. | | | | | | | | | | | | | |
| | | 269.45 | 269.85 | 0.4 | GOUGE | - sandstone clasts at top to siltstone clasts at base. Calcite veins. Carbonaceous material throughout. | | | | | | | | | | | | | |
| | | 269.85 | 270.15 | 0.3 | SLST | - sandy wisps at top, carbonaceous infillings. Clayey at base. Medium grey. Stick to semi-stick. | | | | | | | | | | | | | |
| 58 | | 270.15 | 271.81 | 1.66 | SLST | - very fine siltstone. Sandy bands of light grey fine grained sandstone. Sandstone also occurs in wisps. Sandstone is faintly laminated with laminations disturbed by soft sediment deformation. Traces of carbonaceous infillings near top of run. Siltstone is medium grey. Core stick to semi-stick. Almost no sand at base of run. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 272.1 | | | | | | | | | | | | | |
| 58&59 | | 270.81 | 274.83 | 3.02 | SLST | - medium to dark grey. Small COALY stringers near top of run averaging 0.001m i size. Two sandstone bands, fine grained light grey. One is 0.16m in size, other is 0.07m in size. The | | 54 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• ROD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | larger sandstone is well laminated. Core is semi-stick to stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 275.2 | | | | | | | | | | | | | |
| | | 274.83 | 275.64 | .81 | SLST | - dark grey, faint slickensides on top. Plant fragments. COALY near bottom. Rubble to brecciated at base. Carbonaceous fractured zones are COALY. | | | | | | | | | | | | | |
| | | 275.64 | 276.24 | 0.60 | SLST | - medium grey. Calcite in small fractures. Major fractures clean with only traces of calcite. Semi-stick to broken or very fractured. Mud filled at base of run. | | | | | | | | | | | | | |
| | | 276.24 | 276.73 | 0.49 | | - LOST CORE | | | | | | | | | | | | | |
| | | 276.73 | 277.61 | 0.88 | SLST | - interbedded siltstone and fine sandstone. Siltstone is medium grey. Some fractures of carbonaceous infillings, other calcite. Sandstone is cross laminated. Some laminations have been distorted. | | 58 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 278.2 | | | | | | | | | | | | | |
| | | 277.61 | 278.11 | 0.50 | SST | - light to medium grey, core is semi-stick. | | | | | | | | | | | | | |
| | | 278.11 | 278.26 | 0.15 | SST | - very fine grain on top grading to fine grain at base. Numerous close calcite filled fractures. Sandstone faintly laminated to massive at places. Some laminations have been distorted. | | | | | | | | | | | | | |
| | | 278.26 | 278.64 | 0.38 | SST | - same as above, begins to develop silty bands near base. | | | | | | | | | | | | | |
| | | | | | .4 | - LOST CORE | | | | | | | | | | | | | |
| | | 278.64 | 281.01 | 2.37 | SLST | - medium grey. Carbonaceous clay at very top of run, followed by a breccia zone with gouge 1.9m in size. Most fractures are clean with only traces of carbonaceous material. One sandy part near base of run, salt and pepper, massive sandstone. This sandstone part contains one closed calcite filled fracture. Core is | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† :• R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % (residual) | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | broken at top, semi-stick at base, stick elsewhere. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 281.3 | | | | | | | | | | | | | |
| | | 281.01 | 282.73 | 1.72 | SLST | - medium grey, broken core. Carbonaceous infilling along some fractures. Two sandy bands, fine grained sandstone, laminated. Laminations are very distorted in one band and mildly distorted in the other. Sandstone band contains large calcite filled fractures. Sandy wisps throughout remainder of core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 284.3 | | | | | | | | | | | | | |
| 61 | | 282.73 | 284.62 | 1.89 | SHALE | - very carbonaceous in spots, becomes silty in places. Carbonaceous infillings in fractures. Large breccia in middle of run .12m in size. Gouge present in the zone. Core is rubble to semi-stick, dark in colour. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 286.3 | | | | | | | | | | | | | |
| | | 284.62 | 286.91 | 2.29 | SST | - very fine to fine. Light grey carbonaceous wisps and carbonaceous traces along fractured planes. Also close calcite filled fractures are numerous. Sandstone is faintly laminated to thinly bedded. Shows small degree of sediment deformation. Core is broken to semi-stick. | | 50 | | | | | | | | | | | |
| 62 | | 286.91 | 287.7 | 0.79 | SHALE | - very carbonaceous, dark grey. Very fractured near top. Traces of calcite infillings with some fractured surfaces very polished. Becomes silty and less carbonaceous near base. Core is broken. | | | | | | | | | | | | | |
| | | 287.7 | 288.2 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | 288.2 | 288.77 | 0.57 | CLST | - light grey, broken to rubble. Numerous calcite filled fractures. Slickensides. Polished fractured surfaces. COALY zone at base | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 288.77 | 289.39 | 0.62 | SLST | - with fine grained sandstone. Very thinly bedded. Two small breccia zones, one at top, one in the middle. Trace of calcite and carbonaceous infilling. Light to medium grey. Core is broken to semi-stick. | | | | | | | | | | | | | |
| | | 289.39 | 289.95 | 0.56 | SHALE | - carbonaceous traces along fractures with COALY wisps. Traces of calcite along fracture planes. Also near top, a couple of calcite filled fractures. Core is broken to semi-stick. Medium grey colour. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 291.3 | | | | | | | | | | | | | |
| | | 289.95 | 291.12 | 1.17 | SHALE | - medium grey, same as above, at top of run. Breccia (large) COAL stringer within run. COAL is bright, chunked to flaked. Thinly interbanded COAL and shale at top of COAL zone. COAL zone is .14m thick. Core is broken. | | | | | | | | | | | | | |
| | | 291.12 | 291.42 | 0.3 | - | - LOST CORE (shale) | | | | | | | | | | | | | |
| | | 291.42 | 291.64 | 0.22 | GOUGE | - breccia zone. Glassy shale. Carbonaceous along major fractured zones. Semi-stick. | | | | | | | | | | | | | |
| | | 291.64 | 291.94 | 0.3 | | - LOST CORE (COAL) | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 292.6 | | | | | | | | | | | | | |
| 63 | | 291.94 | 292.5 | 0.56 | COAL | - COAL is flaked to chunked, dull with semi-bright bands, powder near base. Shaly near base. | | | | | | 67 | | | | | | | |
| | | 292.5 | 292.65 | 0.15 | CARB. SHALE | - dark grey, good partings, rubble. | | | | | | | | | | | | | |
| | | 292.65 | 294.88 | 2.23 | SHALE | - dark grey, very carbonaceous, in spots. Good shaly cleavage visible. Numerous fractures. Carbonaceous filled. Several small breccia zones. Gouge and mud filled. Core is rubbled at top and base, semi-stick to stick elsewhere. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 295.6 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % (residual) | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 294.88 | 295.98 | 1.1 | SHALE | - shale partings not well developed. Borders on claystone. Numerous clay fractures near top of run. Many of the fractures are mud filled and few calcite filled. Carbonaceous material on major fractured planes. Small COALY stringers on top, .03m in size. Core is semi-stick. | | | | | | | | | | | | | |
| 64 | | 259.98 | 297.38 | 1.4 | SHALE | - good partings. Numerous fractures. Fractures filled with mud or carbonaceous material. Some fractured surfaces are polished. Dark grey. Core semi-stick to broken. | | | | | | | | | | | | | |
| | | 297.38 | 297.96 | .58 | SHALE | - carbonaceous shale, brecciated with slickensides. COALY at base of run. Semi-stick core. | | | | | | | | | | | | | |
| | | 297.96 | 298.16 | 0.2 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 298.2 | | | | | | | | | | | | | |
| | | 298.16 | 298.36 | 0.20 | SHALE | - COALY shale, dark grey, brecciated, very soft. Stick core. | | | | | | | | | | | | | |
| | | 298.36 | 300.71 | 2.35 | SHALE | - silty on top, dark grey, numerous fractures. Traces of carbonaceous infillings. Larger fractures mud filled. Semi-stick core. At 0.09m, sheared and COALY zone which 0.07m thick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 300.5 | | | | | | | | | | | | | |
| 65 | | 300.71 | 302.15 | 1.44 | SLST | - medium grey. Carbonaceous infilling of fractures. Numerous fractures. Few small fractures calcite filled. Slickensides. One large fracture gouge filled. Core is semi-stick to broken. | | | | | | | | | | | | | |
| | | 302.15 | 302.59 | 0.44 | SLST | - brecciated. Some calcite breccia. Clasts held together by gouge. Traces of carbonaceous infilling. Semi-stick core. | | | | | | | | | | | | | |
| | | 302.59 | 302.74 | 0.15 | COAL | - powder to flaked, dull with few very small bright bands. Some flakes are shaly. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 303.5 | | | | | | 70 | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 302.74 | 303.55 | 0.81 | COAL | - same as above, powder sections are generally compact. | | | | | | | | | | | | | |
| | | 303.55 | 304.19 | 0.64 | COAL | - generally flaked, some powdered sections. Couple of small shaly bands, one near top and one near base. COAL is generally dull. | | | | | | | | | | | | | |
| | | 304.19 | 304.22 | 0.03 | | - LOST CORE | | | | | | | | | | | | | |
| | | 304.22 | 304.29 | 0.07 | COAL | - powdered with some flakes, powder is compact and dull. | | | | | | | | | | | | | |
| | | 304.29 | 304.79 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 305.7 | | | | | | | | | | | | | |
| | | 304.79 | 305.39 | 0.60 | COAL | - chunky, dull at top of run, bright at base. | | | | | | 71 | | | | | | | |
| 66 | | 305.39 | 305.96 | 0.57 | SST | - light grey, massive, salt and pepper. Carbonaceous infillings in fractures on top of run. Trace of carbonaceous material at base of run. Calcite filled fractures at base of run. Very fractured at middle of run. Fine-medium grained. Core is semi-stick to broken. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 306.6 | | | | | | | | | | | | | |
| | | 305.96 | 306.70 | 0.74 | SST | - same as above. No carbonaceous material infillings. Traces of calcite infillings. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 307.2 | | | | | | | | | | | | | |
| | | 306.7 | 307.87 | 1.17 | SST | - same as above. Very fractured to almost brecciated in places. Thin laminations in sandstone near base of run. Core is broken to rubble. | | | | | | | | | | | | | |
| | | 307.87 | 308.37 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 308.7 | | | | | | | | | | | | | |
| | | 308.37 | 309.96 | 1.59 | SST | - same as above. No laminations visible. Medium grained. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % (residual) | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 67 | | 309.96 | 310.37 | 0.41 | SST | - medium grained, salt and pepper, medium grey. Stick to semi-stick core. A couple of calcite filled fractures, faintly laminated. | | 63 | | | | | | | | | | | |
| | | 310.37 | 310.85 | 0.48 | SST | - medium grained, medium grey, brecciated at top with many calcite filled fractures. Numerous fractures near base. Core is semi-stick to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 311.3 | | | | | | | | | | | | | |
| | | 310.85 | 312.69 | 1.84 | SST | - same as above, less fracturing, than in above run. | | | | | | | | | | | | | |
| | | 312.69 | 313.19 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 313.9 | | | | | | | | | | | | | |
| 67&68 | | 313.19 | 315.32 | 2.13 | SST | - faintly laminated, coarse grained, salt and pepper. Medium grey. Grades to medium grain. Few calcite filled fractures. Core stick to semi stick | | 50<br>63<br>68 | | | | | | | | | | | |
| | | 315.32 | 316.76 | 1.44 | SST | - medium to coarse grained, massive, brecciated in places, medium grey. Traces of calcite infilling. Breccia zones gouge filled. Other fractures clean. | | | | | | | | | | | | | |
| | | 316.76 | 318.04 | 1.28 | SST | - same as above. Very brecciated near top of run. Core is stick. | | | | | | | | | | | | | |
| 69 | | 318.04 | 319.37 | 1.33 | SST | - same as above. Rubble at top of run. | | | | | | | | | | | | | |
| | | 319.37 | 319.87 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 320.0 | | | | | | | | | | | | | |
| | | 319.87 | 320.29 | 0.42 | SST | - massive, medium grained, medium grey sandstone. Traces of calcite, stick core. | | | | | | | | | | | | | |
| | | 320.29 | 322.70 | 2.41 | SST | - same as above. Large fractures running the length of the core near top of the run. Fractured zone in the centre of the run. Core is stick. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

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FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 323.2 | | | | | | | | | | | | | |
| 70 | | 322.70 | 323.42 | 0.72 | SST | - medium grained, salt and pepper, massive, light grey. Few small calcite filled fractures. One fracture set near middle of run. Core is stick to semi-stick. | | | | | | | | | | | | | |
| | | 323.42 | 326.67 | 3.20 | SST | - same as above. Faintly laminated near middle of run. Small siltstone clasts elongated parallel to laminations. .005m in size up to .03m. Siltstone clasts are dark grey in color | | 59 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 326.4 | | | | | | | | | | | | | |
| 71 | | 326.67 | 328.33 | 1.71 | SST | - same as above. Siltstone clasts occur at top of run. No laminations visible. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 329.5 | | | | | | | | | | | | | |
| | | 328.33 | 329.36 | 1.03 | SST | - same as above, numerous calcite fractures, many of which are calcite filled. Small breccia zones .04m in size. Core is semi-stick to broken. | | | | | | | | | | | | | |
| | | 329.36 | 329.66 | 0.3 | | - LOST CORE | | | | | | | | | | | | | |
| 71& | 72 | 329.66 | 331.14 | 1.48 | SST | - same as above. No breccia zones. Calcite infilling is extensive on top of run. Core is very rubbley near base, broken elsewhere. Traces of carbonaceous infillings. | | | | | | | | | | | | | |
| | | 331.14 | 331.34 | 0.2 | | - LOST CORE | | | | | | | | | | | | | |
| 72 | | 331.34 | 332.31 | 0.97 | SST | - redrilled on top. Medium grained, light grey. Some fractures calcite infilled. Siltstone clasts. Dark grey at base of run. Possible rip-up clasts from underlying sediments. Base of run very brecciated. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 332.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† :• R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 332.31 | 333.77 | 1.46 | SST | - medium grey, fine grained, massive, some carbonaceous infillings, some calcite infilling. Core is semi-stick to stick. One fracture with gouge near middle of run. | | | | | | | | | | | | | |
| | | 333.77 | 334.13 | 0.36 | | - same as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 335.1 | | | | | | | | | | | | | |
| 73 | | 334.13 | 335.62 | 1.49 | SST | - medium grey, fine grained, massive at top, grades to faintly laminated at base, middle of run is very fractured. These fractures show traces of calcite infilling, most are mud filled. Core is broken to semi-stick. | | 43<br>55 | | | | | | | | | | | |
| | | 335.62 | 336.53 | 0.91 | SST | - dark grey, fine grained. Faintly laminated at top to massive near middle of run. Core is rubbled at base. Semi-stick elsewhere. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 337.1 | | | | | | | | | | | | | |
| | | 336.53 | 338.13 | 1.6 | SST | - same as above, traces of calcite infilling. Some mud infilled fractures. Becomes lighter grey at base. Also, core is more broken near base. Traces of carbonaceous infillings in fractures near base of run. | | | | | | | | | | | | | |
| 74 | | 338.13 | 339.55 | 1.42 | SST | - light to medium grey, fine grained. Numerous fractures to brecciated in places. Some fractures are calcite filled. Traces of carbonaceous infilling but most of them mud filled. Semi-stick to broken core. | | | | | | | | | | | | | |
| | | 339.55 | 339.85 | 0.3 | | - LOST CORE | | | | | | | | | | | | | |
| | | 339.85 | 342.90 | 3.05 | SST | - medium grey to light grey at base, fine grained sandstone. Numerous fractures; some calcite filled with carbonaceous material. Core is broken to rubble. Some semi-stick near top and middle of run. Massive to faintly laminated. | | | | | | | | | | | | | |
| | | 342.90 | 343.10 | 0.2 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 343.2 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | FRAC FREQ | RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 343.3 | | | | | | | | | | | | | |
| 75 | | 343.10 | 345.84 | 2.74 | SST | - fine grained to medium grained at base. Medium grey to light grey at base. Massive at top. Faint laminations at base. Trace of carbonaceous and calcite infillings. Two breccia zones one at top, one at base. Breccia zone averaging .40m in size. Breccia clasts surrounded by gouge and mud. Core is stick. | | 61 | | | | | | | | | | | |
| | | 345.84 | 346.36 | 0.52 | SST | - numerous fractures. Lots of carbonaceous infilling. Fine grained, dark grey with light grey bands. Core is broken to semi-stick. | | | | | | | | | | | | | |
| | | 346.36 | 346.58 | 0.22 | SST | - fine grained, light grey. Well laminated. Carbonaceous infillings in fractures. Trace of calcite. .01 COALY shale split near middle of run. Fracture set near top of run. | | 59<br>75 | | | | | | | | | | | |
| 76 | | 346.58 | 347.14 | 0.56 | SST | - fine grained, same as above. No carbonaceous material. Core is broken to rubble. Very fractured zone near top of run. | | | | | | | | | | | | | |
| | | 347.14 | 347.54 | 0.4 | | - LOST CORE | | | | | | | | | | | | | |
| | | 347.54 | 348.28 | 0.74 | SST | - very fine sand interbedded with dark grey siltstone. Numerous fractures throughout. Carbonaceous infillings. Trace of calcite infilling. COALY wisps. Sandstone is light grey, well-laminated. Siltstone bands near base contain small siltstone clasts. | | | | | | | | | | | | | |
| | | 348.28 | 348.55 | 0.27 | SST | - light grey, fine grained. Well laminated. Trace of calcite infillings. Core is semi-stick. | | | | | | | | | | | | | |
| | | 348.55 | 348.82 | 0.27 | SST/SLST | - interbedded very fine sand. Siltstone with a couple of COALY shale partings. Trace of calcite infilling. Sandstone laminated. Siltstone dark grey with carbonaceous infillings. | | | | | | | | | | | | | |
| | | 348.82 | 348.88 | 0.06 | SST | - fine grained, light grey, well laminated. Traces of calcite infillings in fractures. Core is broken to rubbley. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG. | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC. FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 348.88 | 349.38 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 349.3 | | | | | | | | | | | | | |
| | | 349.38 | 350.63 | 1.25 | SST | - fine grained. Some calcite infilling fractures. Core is semi-stick to broken. Well laminated on top with laminations becoming fainter at base. | | 55 | | | | | | | | | | | |
| | | 350.63 | 350.96 | 0.33 | SST | - same as above. | | | | | | | | | | | | | |
| | | 350.96 | 351.26 | 0.3 | | - LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 352.2 | | | | | | | | | | | | | |
| 77 | | 351.26 | 352.76 | 1.5 | SST | - interbedded fine to very fine grained sandstone with dark grey siltstone. Carbonaceous infillings in most fractures. Trace of calcite infilling. Sandstone is faint to well laminated. One of the siltstone bands contains rip-up clasts and dish structures. .39m zone at base of run containing breccia zone. Carbonaceous shaly partings near base of breccia zone. Clasts have been deformed by structural processes (compaction). Core is semi-stick to broken. | | | | | | | | | | | | | |
| | | 352.76 | 353.85 | 1.09 | SST | - fine grained, light grey, well laminated. A few calcite filled fractures. One siltstone band at the base of run .06 in size. Core is stick to semi-stick. Carbonaceous in silty band | | 63<br>36 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 356.6 | | | | | | | | | | | | | |
| | | 353.85 | 356.81 | 2.96 | SLST/SST | - interbedded siltstone-sandstone. Sandstone bands range .01m - .52m in size. Siltstone averages .03m in size. Sandstone is light grey, well laminated. Siltstone is dark grey, often contains sandstone clasts. Two small breccia zones in middle of run. A small amount of crossbedding is visible. Traces of calcite. Some fractures have carbonaceous infillings. Core is semi-stick to broken. | | | | | | | | | | | | | |
| | | 356.81 | 357.01 | 0.2 | | - LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. 302D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 78 | | 357.01 | 357.4 | 0.29 | SLST/SST | - same as above. Small breccia zone near top. Core is stick to semi-stick. | | | | | | | | | | | | | |
| | | 357.4 | 358.27 | 0.87 | SST | - fine grained, light grey sandstone, well laminated. Calcite infilling in some fracture planes. Stick to semi-stick. | | 48 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 359.9 | | | | | | | | | | | | | |
| | | 358.27 | 359.63 | 1.36 | SLST/SST | - interbedded siltstone and very fine sandstone. Sandstone faintly laminated. Siltstone dark grey. Load casts visible. Ripple marks between one siltstone and sandstone. Crossbedding visible. Calcite infilling of a few fractures. Numerous fractures at top and base of run. Core is broken. | | | | | | | | | | | | | |
| | | 359.63 | 359.99 | 0.36 | | - LOST CORE | | | | | | | | | | | | | |
| | | 359.99 | 360.22 | 0.23 | SST | - fine grained, light grey, laminated. Trace of calcite. One carbonaceous infilling fracture near top of run. | | | | | | | | | | | | | |
| | | 360.22 | 360.55 | 0.33 | SST | - light grey, fine grained, laminated. Contains siltstone as wisps to fine bands near middle of run. Trace of carbonaceous and calcite infillings. | | 64 | | | | | | | | | | | |
| 79 | | 360.55 | 361.78 | 1.23 | SST | - fine grained, medium grey, well laminated. Carbonaceous infillings of fracture planes. Siltstone band dark grey contains sandstone clasts near top of run. Traces of calcite infillings. Core semi-stick to stick. | | 55 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 363.0 | | | | | | | | | | | | | |
| | | 361.78 | 363.94 | 2.16 | SST/SLST | - rhythmically banded sandstone and siltstone. Siltstone is fine grained, light grey, laminated. Siltstone is dark grey, often containing sandstone clasts. Crossbedding visibile in sandstone. Carbonaceous infillings in some fracture planes. Trace of calcite. Two zones of fracturing. Fracture zones .13m in size. Semi-stick to broken. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | S.E. B.C. |

HOLE No. CONTINUED 302D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 363.94 | 364.24 | 0.30 | BRECCIA | - breccia zone. Sandstone clasts are laminated, light grey, fine grained. Clasts are angular and randomly oriented. Clasts are held by gouge. | | | | | | | | | | | | | |
| | | 364.24 | 364.74 | 0.5 | | - LOST CORE | | | | | | | | | | | | | |
| | | 364.74 | 365.13 | 0.39 | SLST/SST | - interbedded siltstone and sandstone. Carbonaceous material in fracture planes. Some fractures calcite filled. Sandstone is light grey, fine grained, laminated. Some crossbedding visible. Siltstone band contains very small sandstone clasts. Rubble at top and broken elsewhere. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 367.9 | | | | | | | | | | | | | |
| 80 | | 365.13 | 367.52 | 2.39 | SLST/SST | - interbedded siltstone and sandstone. Sandstone is fine grained, light grey, well laminated. Crossbedding is visible. Sandstone bands range in size .53m - .02m. Siltstone is dark grey, often contains sandstone clasts and wisps. Siltstone bands range in size from 0.15m - .01m. Carbonaceous infilling in fractures. Traces of calcite. Two zones .14m in size contain numerous fractures. Core semi-stick with rubble at base. Siltstone borders on claystone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 370.6 | | | | | | | | | | | | | |
| | | | | | | END OF HOLE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 302D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| | |
|---|---|
| PROJECT | LILLYBURT |
| AREA | SOUTH EAST B.C. |

| DATE | |
|---|---|
| BEGIN | September 2/81 |
| END | September 3/81 |

HOLE No. 306 D



**HOLE PARTICULARS**

| | | | |
|---|---|---|---|
| LOCATION | LILLYBURT<br>SOUTH EAST B.C. | | |
| ELEVATION | 1677.3 | HOLE BEARING (AZ°) | 340 |
| TOTAL DEPTH | 210.3 | HOLE ANGLE (°)* | 60° |

**LOGGING**

| | |
|---|---|
| LOGS RUN | GAMMA/NEUT/DENS/CAL |
| LOGGED BY | ROKE |
| OTHER TESTS | FOCUSED BEAM:<br>DIRECTIONAL |

**COAL CORING PERFORMANCE**

| | | |
|---|---|---|
| CORE DIAMETER | | HQ |
| TOTAL | CORE RECOVERED | 167.48 |
| | LENGTH CORED | 195.17 |
| | CORE RECOVERY | 85.8 % |

**EXAMINATION**

| | |
|---|---|
| LOG USED | GAM, NEUT |
| No. OF SEAMS SAMPLED | 4 |
| EXAMINER (S) | BM/AS |
| DATE | Sept. 2/81 |

| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC. FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 15.13 | 16.46 | 1.33 | SST | Fine grain sandstone, light gray. Weakly laminated. Large and small dark gray siltstone ripup clasts suggest sequence is not overturned. Core is broken to semi-stick. | | 52 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 16.5 | | | | | | | | | | | | | |
| | | 16.46 | 16.86 | .4 | SST | Fine grain sandstone. Light and dark gray Semi-stick core. Weakly laminated to massive. | | | | | | | | | | | | | |
| | | 16.86 | 17.61 | .75 | SST | Medium grain sandstone. Light gray, massive. Salt and pepper appearance. Ground core at top, broken otherwise. | | | | | | | | | | | | | |
| | | 17.61 | 18.01 | 0.4 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 18.0 | | | | | | | | | | | | | |
| | | 18.01 | 18.48 | .47 | SST | As above. | | | | | | | | | | | | | |
| | | 18.48 | 18.98 | 0.5 | | LOST CORE | | | | | | | | | | | | | |
| | | 18.98 | 19.87 | .89 | SST | Medium grain, light gray, salt and pepper, massive. Contains large angular siltstone ripup clasts. Rubble to broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 19.8 | | | | | | | | | | | | | |
| 2 | | 19.87 | 20.15 | .28 | SST | Rubble to ground core. | | | | | | | | | | | | | |
| | | 20.15 | 20.96 | .81 | SST | Rubble core. | | | | | | | | | | | | | |
| | | 20.96 | 21.36 | 0.4 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 21.3 | | | | | | | | | | | | | |
| | | 21.36 | 22.38 | 1.02 | SST | Rubble to semi stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No. BA-267
REVISED Feb. 1981

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 22.38 | 22.68 | 0.3 | | LOST CORE | | | | | | | | | | | | | |
| | | 22.68 | 22.97 | .29 | SST | Fine grain sandstone. Weakly laminated, light gray. Contains some small dark gray siltstone ripup clasts. Semi-stick to rubbley. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 22.9 | | | | | | | | | | | | | |
| 2-3 | | 22.97 | 24.65 | 1.68 | SST | Laminated with thin dark gray siltstone. Fine grain sandstone, light gray, equigranular. | | 55 | | | | | | | | | | | |
| 3 | | 24.65 | 25.07 | .42 | SST GOUGE | Light gray, soft, similar to rock above. Semi-stick core. Numerous carbonaceous wisps. | | | | | | | | | | | | | |
| | | 25.07 | 25.47 | 0.4 | | LOST CORE | | | | | | | | | | | | | |
| | | 25.47 | 27.60 | 2.13 | BRECCIA | Sandstone, stick core. Dark gray carbonaceous wisps wrapped around breccia fragment. Rubbley at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 27.7 | | | | | | | | | | | | | |
| | | 27.6 | 27.90 | .3 | SST | Medium grain, salt and pepper. Contains dark gray siltstone ripup clasts. Rubble. | | | | | | | | | | | | | |
| | | 27.9 | 28.50 | 0.6 | | LOST CORE | | | | | | | | | | | | | |
| | | 28.5 | 28.67 | .17 | SST | Laminated, fine grain, medium gray sandstone. Semi-stick. | | | | | | | | | | | | | |
| | | 28.67 | 28.87 | .2 | SST | Medium grain, salt and pepper sandstone, with dark gray ripup clasts. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 28.9 | | | | | | | | | | | | | |
| 3-4 | | 28.87 | 29.57 | .7 | SST | Medium grain, rubble core. Massive, equigranular. | | | | | | | | | | | | | |
| | | 29.57 | 30.77 | 1.2 | | LOST CORE | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 30.5 | | | | | | | | | | | | | |
| | | 30.77 | 31.50 | .73 | SST | Medium grain, leached and highly fractured. Semi-stick, rubbley at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 31.4 | | | | | | | | | | | | | |
| 4 | | 31.5 | 32.50 | 1.0 | SST | Medium grain, grading into fine grain at base, light gray sandstone. Semi-stick to rubble. Equigranular and massive. | | | | | | | | | | | | | |
| | | 32.5 | 33.10 | 0.6 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 33.2 | | | | | | | | | | | | | |
| | | 33.1 | 34.14 | 1.04 | SST | Fine grain, brecciated and fractured, Semi-stick to broken core. Very rubbley at base. | | | | | | | | | | | | | |
| | | 34.14 | 35.04 | 0.9 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 35.0 | | | | | | | | | | | | | |
| | | 35.04 | 35.39 | .35 | SST | Gouge, light gray, compact. Contains dark gray carbonaceous wisps. | | | | | | | | | | | | | |
| 5 | | 35.39 | 36.09 | .7 | SST | Medium grain, light gray with very large dark siltstone ripup clasts. Compact - broken core. | | | | | | | | | | | | | |
| | | 36.09 | 36.61 | .52 | SST | Medium grain, equigranular, massive. Fractured - compact core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 36.6 | | | | | | | | | | | | | |
| | | 36.61 | 37.91 | 1.3 | SST | Gouge, light gray, medium grain, very soft to compact. Strongly leached or weathered. | | | | | | | | | | | | | |
| | | 37.91 | 38.41 | 0.5 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 38.4 | | | | | | | | | | | | | |
| | | 38.41 | 39.88 | 1.47 | SST | As above. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % o.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I | C V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 39.88 | 40.88 | 1.0 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 40.8 | | | | | | | | | | | | | |
| 6 | | 40.88 | 42.85 | 1.97 | SST | Light gray, equigranular, massive. Stick core. Contains numerous COALY wisps and dark gray siltstone wisps. | | | | | | | | | | | | | |
| | | 42.85 | 43.55 | 0.7 | | LOST CORE. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 44.2 | | | | | | | | | | | | | |
| | | 43.55 | 44.39 | .84 | SST | Same as above. | | | | | | | | | | | | | |
| | | 44.39 | 45.38 | .99 | SST | Medium grain, massive, equigranular, light gray, salt and pepper. Fractured - rubbley core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 45.4 | | | | | | | | | | | | | |
| | | 45.38 | 45.65 | .27 | SST | Rubble. Medium grain, as above. | | | | | | | | | | | | | |
| | | 45.65 | 46.65 | 1.0 | | LOST CORE | | | | | | | | | | | | | |
| 7 | | 46.65 | 47.29 | .64 | SST | Fine to medium grain, light gray, rubble. | | | | | | | | | | | | | |
| | | 47.29 | 48.49 | 1.2 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 48.5 | | | | | | | | | | | | | |
| | | 48.49 | 48.95 | .46 | SST | Rubble, as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 48.8 | | | | | | | | | | | | | |
| | | 48.95 | 49.57 | .62 | SST | Medium grain, light gray, massive, salt and pepper. Broken to semi-stick, rubbley at base. | | | | | | | | | | | | | |
| | | 49.57 | 50.57 | 1.0 | | LOST CORE. | | | | | | | | | | | | | |
| | | 50.57 | 51.13 | .56 | SLST | Dark gray, massive. Rubble to semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 51.8 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

* R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

* RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 51.13 | 52.03 | 0.9 | | LOST CORE | | | | | | | | | | | | | |
| | | 52.03 | 52.77 | .74 | SST | Fine grain, light gray, equigranular sandstone. Fractured to compact at base. | | | | | | | | | | | | | |
| | | 52.77 | 53.27 | 0.5 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 53.3 | | | | | | | | | | | | | |
| | | 53.27 | 53.54 | .27 | SST | Fine grain, medium gray, compact to rubbley. | | | | | | | | | | | | | |
| | | 53.54 | 53.82 | .28 | SLST | Dark gray and carbonaceous, very soft, can be molded in hands. Compact core. | | | | | | | | | | | | | |
| | | 53.82 | 56.02 | 2.2 | | LOST CORE. | | | | | | | | | | | | | |
| 8 | | 56.02 | 56.22 | .2 | SLST | As above. | | | | | | | | | | | | | |
| | | 56.22 | 56.53 | .31 | SST | Fine grain, silty, medium gray with some dark red iron staining. Broken to rubbley core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 56.4 | | | | | | | | | | | | | |
| | | 56.53 | 59.06 | 2.53 | SST | Same as above, but with occasional light gray sandstone breccia fragments. Core is stick to compact. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 59.4 | | | | | | | | | | | | | |
| | | 59.06 | 59.66 | 0.5 | | LOST CORE | | | | | | | | | | | | | |
| 8-9 | | 59.66 | 61.06 | 1.40 | SST | Breccia, fine grain, light gray. Stick to semi-stick. Gouge at base. | | | | | | | | | | | | | |
| | | 61.06 | 61.98 | .92 | SST GOUGE | Compact core. Medium gray with some red iron stain. Gouge. Reduced almost to a soft clay. | | | | | | | | | | | | | |
| | | 61.98 | 62.43 | 0.45 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 62.5 | | | | | | | | | | | | | |
| | | 62.43 | 64.11 | 1.68 | SST | Fine grain, light gray breccia. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

▲ MEASURED FROM THE HORIZONTAL PLANE

▲ ANGLE MEASURED FROM CORE AXIS

* R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

* RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V M % | F C % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 64.9 | | | | | | | | | | | | | |
| | | 64.11 | 65.11 | 1.0 | | LOST CORE | | | | | | | | | | | | | |
| | | 65.11 | 65.87 | .76 | SLST | Sandy, medium gray, fractured. Semi-stick to broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 66.1 | | | | | | | | | | | | | |
| | | 65.87 | 66.17 | .3 | | LOST CORE | | | | | | | | | | | | | |
| 10 | | 66.17 | 67.57 | 1.40 | SLST | Dark gray. Contains thin COALY stringers. Semi-stick core. Appears to be strongly sheared. Occasional sandstone breccia fragments. | | | | | | | | | | | | | |
| | | 67.57 | 68.17 | 0.6 | | LOST CORE | | | | | | | | | | | | | |
| | | 68.17 | 68.28 | .11 | SST | Fine grain, equigranular, light gray. | | | | | | | | | | | | | |
| | | 68.28 | 68.35 | .07 | SLST | As above. | | | | | | | | | | | | | |
| | | 68.35 | 68.46 | .11 | SST | As above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 68.3 | | | | | | | | | | | | | |
| | | 68.46 | 68.61 | .15 | SST | Conglomeratic, coarse grain, salt and pepper. Dark grains are cherty. Rubble core. | | | | | | | | | | | | | |
| | | 68.61 | 68.73 | .12 | SST | Medium grain. Weak cross bedding. Salt and pepper. Stick core. | | | | | | | | | | | | | |
| | | 68.73 | 69.0 | .27 | SLST | Dark gray. Carbonaceous, soft and sheared. Semi-stick to rubbley at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 68.9 | | | | | | | | | | | | | |
| | | 69.0 | 69.53 | .53 | SST | Fine grain. Weak cross-bedding, equigranular. Broken core. | | | | | | | | | | | | | |
| | | 69.53 | 69.9 | .37 | SST | Medium grain, salt and pepper, fractured core. Compact. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 70.1 | | | | | | | | | | | | | |
| | | 69.9 | 70.1 | 0.2 | | LOST CORE | | | | | | | | | | | | | |
| | | 70.1 | 70.9 | .80 | SST | Medium grain, weakly laminated to massive. Broken core. | | 54 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 71.6 | | | | | | | | | | | | | |
| | | 70.9 | 71.6 | 0.7 | | LOST CORE | | | | | | | | | | | | | |
| 11 | | 71.6 | 72.26 | .66 | SST | Medium grain, weakly laminated with some COALY wisps. Very soft and gougy at base. Broken core otherwise. | | | | | | | | | | | | | |
| | | 72.26 | 74.76 | 2.5 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 74.7 | | | | | | | | | | | | | |
| | | 74.76 | 75.21 | .45 | SST | Medium grain, broken core very rubbley at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 75.6 | | | | | | | | | | | | | |
| | | 75.21 | 75.71 | 0.5 | | LOST CORE | | | | | | | | | | | | | |
| | | 75.71 | 76.51 | .8 | SST | Fine grain, with dark gray very soft siltstone interbeds. Gouge at base is very soft. Broken and rubbley core otherwise. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 77.1 | | | | | | | | | | | | | |
| | | 76.51 | 77.11 | 0.6 | | LOST CORE | | | | | | | | | | | | | |
| | | 77.11 | 77.71 | .6 | SST | Medium grain, salt and pepper, rubbled core at top and bottom. Broken otherwise. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 78.6 | | | | | | | | | | | | | |
| | | 77.71 | 78.61 | 0.9 | | LOST CORE | | | | | | | | | | | | | |
| 11-12 | | 78.61 | 79.67 | 1.06 | SST | Medium grain, strongly weathered or leached. Very soft, compact core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | T.H. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 80.2 | | | | | | | | | | | | | |
| | | 79.67 | 80.27 | 0.6 | | LOST CORE | | | | | | | | | | | | | |
| | | 80.27 | 80.82 | .55 | SST | Same as above but contains breccia clasts of fine grain, light gray sandstone. | | | | | | | | | | | | | |
| | | 80.82 | 81.48 | .66 | GOUGE | Fine grain sandstone to siltstone. Breccia clasts of fine grain sandstone at top. Compact stick core. Contains band of red iron-stained material. (Possible fault) | | | | | | | | | | | | | |
| | | 81.48 | 81.88 | 0.4 | | LOST CORE | | | | | | | | | | | | | |
| | | 81.88 | 82.36 | .48 | SST | Light, fine grain, broken to rubble, massive. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 82.3 | | | | | | | | | | | | | |
| | | 82.36 | 82.50 | .14 | GOUGE | Medium gray, very soft and clay-like. | | | | | | | | | | | | | |
| | | 82.50 | 83.27 | .77 | SST | Fine grain, light gray, very fractured at top. Re-drilled at base. Stick to semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 83.8 | | | | | | | | | | | | | |
| 12 | | 83.27 | 83.83 | .56 | SST | Medium grain, light gray, massive, salt and pepper. Semi-stick to broken core. Very weathered at base. | | | | | | | | | | | | | |
| | | 83.83 | 83.95 | .12 | SST | As above. | | | | | | | | | | | | | |
| | | 83.95 | 84.26 | .31 | SST | As above, but very brecciated. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 84.4 | | | | | | | | | | | | | |
| 13 | | 84.26 | 84.59 | .33 | SST | Medium grain. Semi-stick to rubble. | | | | | | | | | | | | | |
| | | 84.59 | 84.83 | .24 | BRECCIA | Coarse grain sandstone clasts held together by gouge matrix. Compact core. | | | | | | | | | | | | | |
| | | 84.83 | 85.21 | .38 | SLST | Medium gray, soft, very fractured to breccia at top. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 85.21 | 85.33 | .12 | GOUGE | Dark gray. | | | | | | | | | | | | | |
| | | 85.33 | 85.53 | 0.20 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 85.6 | | | | | | | | | | | | | |
| | | 85.53 | 87.93 | 2.4 | BRECCIA | Medium-dark gray siltstone with fine grain light gray sandstone clasts. Clasts are more numerous at base. Major carbonaceous infilled fractures. Compact to stick. | | | | | | | | | | | | | |
| | | 87.93 | 88.23 | 0.3 | | LOST CORE | | | | | | | | | | | | | |
| | | 88.23 | 88.5 | .27 | SST | Light gray, medium grain. A few thin bands of coarse grain sandstone. Carbonaceous infilling along major fracture planes. Broken to rubble. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 88.7 | | | | | | | | | | | | | |
| 13-14 | | 88.50 | 89.03 | .53 | SST | Light gray, medium grain, salt and pepper. A few carbonaceous wisps and fracture filling. Rubble core. | | | | | | | | | | | | | |
| | | 89.03 | 89.47 | 0.44 | | LOST CORE | | | | | | | | | | | | | |
| 14 | | 89.47 | 89.70 | .23 | BRECCIA | Contains fine grain sandstone - siltstone. Medium gray. Very rubbley. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 89.9 | | | | | | | | | | | | | |
| | | 89.7 | 90.32 | .62 | SST | Light gray, medium grain, salt and pepper. Contains very small dark gray siltstone clasts. Also, some very small COALY wisps. Broken to rubbley core. | | | | | | | | | | | | | |
| | | 90.32 | 90.59 | 0.27 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 90.8 | | | | | | | | | | | | | |
| | | 90.59 | 91.33 | .74 | SST | Light gray, very weakly laminated. Medium grain at top but becomes coarse at base. Semi-stick to broken. Contains small dark gray siltstone clasts. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M.% | ANALYTICAL DATA F.C.% | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 91.33 | 91.69 | .36 | SST | Coarse grain, very fractured in center otherwise broken core. Weakly laminated. | | | | | | | | | | | | | |
| | | 91.69 | 91.16 | .47 | SST | Coarse grain, light gray. Faintly laminated. Contains some small siltstone clasts. Stick to broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 92.0 | | | | | | | | | | | | | |
| | | 91.16 | 92.8 | .64 | SST | Pebbly, coarse grain, light gray, faintly laminated. Pebbles are siltstone and fine grain sandstone. | | 53 | | | | | | | | | | | |
| | | 92.80 | 93.36 | .56 | SST/ SLST | INTERBEDDED. Siltstone is dark gray, soft. Sandstone is light gray, faintly laminated, fine grained. Very fractured. Fractures are carbonaceous and calcite infilled. Core is broken to rubble. | | | | | | | | | | | | | |
| | | 93.36 | 94.06 | 0.7 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 94.2 | | | | | | | | | | | | | |
| 14 15 | | 94.06 | 94.22 | .16 | SHALE | Carbonaceous, dark gray, very soft. Rubble core. | | | | | | | | | | | | | |
| | | 94.22 | 95.02 | 0.8 | | LOST CORE | | | | | | | | | | | | | |
| 15 | | 95.02 | 95.1 | .08 | SST/ SLST | Medium grain. Sandstone and siltstone interbedded. Carbonaceous infilling. | | | | | | | | | | | | | |
| | | 95.1 | 95.46 | .36 | SST | Coarse grain - medium grain, light gray, massive. Brecciated to rubble. | | | | | | | | | | | | | |
| | | 95.46 | 96.1 | .64 | SST | Fine grain, laminated, light gray. Brecciated with gouge material at base. Some carbonaceous infilling. Core is broken to semi-stick. Very gouged at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 95.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

# MEASURED FROM THE HORIZONTAL PLANE

* R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15-16 | | 96.1 | 98.64 | 2.54 | CONGL. | Randomly oriented pebbles. Pebbles occur in bands. Bands are ~.02 - .85m thick. In between is very coarse grain sandstone. Light gray. Clasts are chert and quartz. Condensed framework. Pebbles are rounded to sub-angular. Calcite infilling. Small blotches of iron-staining. Semi-stick to stick. Occasional carbonaceous wisps. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 98.7 | | | | | | | | | | | | | |
| 16 | | 98.64 | 101.53 | 2.89 | CONGL | Pebbles tend to increase in size down-section. | | | | | | | | | | | | | |
| 16-17 | | 101.53 | 101.94 | .41 | SST | Pebbles, coarse grain, light gray. Carbonaceous infilling on major fractures. COALY wisps. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 103.2 | | | | | | | | | | | | | |
| 17 | | 101.94 | 103.18 | 1.24 | SST | Conglomeratic. Pebbles are in bands. COALY partings. Semi-stick to stick. broken at base. | | | | | | | | | | | | | |
| | | 103.18 | 103.46 | .28 | SHALE | Dark gray, broken to rubble core. | | | | | | | | | | | | | |
| | | 103.46 | 104.05 | 0.59 | | LOST CORE | | | | | | | | | | | | | |
| | | 104.05 | 104.28 | .23 | SST | Light gray, well indurated, fine grain. Quartzite pebbles. Calcite infilling. Rubble core. | | | | | | | | | | | | | |
| | | 104.28 | 104.34 | .06 | GOUGE | Dark brown, clayey, soft. | | | | | | | | | | | | | |
| | | 104.34 | 104.62 | .28 | BRECCIA | Very compact at base, broken at top. Siltstone clasts. | | | | | | | | | | | | | |
| | | 104.62 | 104.68 | .06 | SST | Ground-up. Medium grain, light gray, massive. Salt and pepper. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 104.5 | | | | | | | | | | | | | |
| | | 104.68 | 104.77 | .09 | SST | As above. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 104.77 | 105.16 | .39 | BRECCIA | Very soft but compact. Small band of pebbley coarse grain sandstone in middle. Matrix composed of coarse gained sandstone supporting conglomerate clasts. | | | | | | | | | | | | | |
| 17-18 | | 105.16 | 106.27 | 1.11 | SST | Medium grain, light gray. Calcite infilled fractures. Some small siltstone clasts. Semi-stick to broken. | | | | | | | | | | | | | |
| | | 106.27 | 106.66 | .39 | SST | As above. Core is broken. Coarser grained near base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 107.3 | | | | | | | | | | | | | |
| | | 106.66 | 107.7 | 1.04 | SST | Coarse grain, pebbley. Broken to rubble. Very fractured. Becomes more conglomeratic near base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 108.2 | | | | | | | | | | | | | |
| | | 107.70 | 108.18 | .48 | CONGL | Same as other conglomerate description. Sharp contact at base with siltstone. | | | | | | | | | | | | | |
| 18-19 | | 108.18 | 110.15 | 1.97 | SLST/SST | Dark gray sandstone is very fine grain, medium gray. Carbonaceous and COALY throughout. Brecciated gouge zone, (.18 m) in centre. Calcite fractures. More silty at top and more sandy at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 111.2 | | | | | | | | | | | | | |
| | | 110.15 | 112.24 | 2.09 | SST | Fine grain, light gray, faintly laminated and cross-bedded. Core-axis angle taken on cross-beds. Cross-bedding suggests an upright sequence. Some calcite infilling. Semi-stick to stick at top, broken at base. | | 73 | | | | | | | | | | | |
| | | 112.24 | 112.76 | .52 | SST | Fine grain, dark gray. Round quartzite nodules. Fine laminations at top. Gets silty at base. Stick core. | | 71 | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 113.4 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 112.76 | 113.06 | .3 | GOUGE | Carbonaceous and silty, very soft, compact. Medium gray. | | | | | | | | | | | | | |
| 20 | | 113.06 | 113.15 | .09 | GOUGE | Dark gray to dark green, very soft and compact. | | | | | | | | | | | | | |
| | | 113.15 | 115.30 | 2.15 | GOUGE | Dark red with occasional gray wisps. Yellow limonitic staining in centre. Highly fractured. Occasional pebble bands. Slickensides common. Compact core. Becomes very dark red at base. Base is some what fresher and appears to be a strongly altered sandstone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 116.4 | | | | | | | | | | | | | |
| 20-21 | | 115.30 | 118.42 | 3.12 | GOUGE | As above but occasional bands of dark green alternation - which appears to be chlorite. Compact core. Ground core at top. Massive. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 119.8 | | | | | | | | | | | | | |
| | | 118.42 | 119.77 | 1.35 | GOUGE | As above. | | | | | | | | | | | | | |
| | | 119.77 | 120.50 | .73 | SST | Fine grain, sandstone. Weakly laminated to massive. Stick core. | | | | | | | | | | | | | |
| | | 120.50 | 121.36 | .86 | GOUGE | Dark red, as above. Semi-stick to stick. | | | | | | | | | | | | | |
| | | 121.36 | 121.59 | .23 | SST | Medium grain, strongly altered. Intense iron-staining. Massive. Semi-stick core. | | | | | | | | | | | | | |
| 21-22 | | 121.59 | 123.11 | 1.52 | SST | Medium grain, as above. | | | | | | | | | | | | | |
| | | 123.11 | 123.44 | .33 | GOUGE | Dark red as before. Compact to semi-stick. | | | | | | | | | | | | | |
| | | 123.44 | 124.35 | .91 | SLST | Sandy, light gray to medium gray. Breccia zone in centre. Stick core. Brecciated at base and top. Strongly chloritized. | | | | | | | | | | | | | |
| | | 124.35 | 124.67 | .32 | GOUGE | Dark red as before. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 125.9 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† = R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22-23 | | 124.67 | 127.79 | 3.12 | GOUGE | Strongly brecciated and altered. Dark red with dark green chloritic blotches, very soft. Compact core. Rock appears to have been a sandy siltstone. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 128.9 | | | | | | | | | | | | | |
| | | 127.79 | 129.77 | 1.98 | GOUGE | Same as above. | | | | | | | | | | | | | |
| | | 129.77 | 130.45 | .68 | GOUGE | Dark red as before but with occasional medium green chloritized blotches. Semi-stick core. | | | | | | | | | | | | | |
| 23-24 | | 130.45 | 130.97 | .52 | GOUGE | Dark red as before. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 131.7 | | | | | | | | | | | | | |
| | | 130.97 | 132.02 | 1.05 | GOUGE | Dark red as before. | | | | | | | | | | | | | |
| | | 132.02 | 132.47 | .45 | GOUGE | Strongly brecciated. Reduced core size. Dark red and dark green splotchy appearance. Compact core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 132.9 | | | | | | | | | | | | | |
| | | 132.47 | 132.59 | .12 | GOUGE | Medium green, chloritized. Compact. | | | | | | | | | | | | | |
| | | 132.59 | 133.03 | .44 | GOUGE | Dark red and gray splotchy appearance. Strongly altered. Compact core. | | | | | | | | | | | | | |
| | | 133.03 | 133.78 | 0.75 | | LOST CORE | | | | | | | | | | | | | |
| | | 133.78 | 133.88 | .1 | GOUGE | Strongly chloritized gouge. Medium green. | | | | | | | | | | | | | |
| | | 133.88 | 134.10 | .22 | GOUGE | Splotchy green and red, soft. Compact. | | | | | | | | | | | | | |
| | | 134.10 | 135.14 | 1.04 | GOUGE | Dark red with occasional medium gray to green blotches. Very soft. Stick to compact. | | | | | | | | | | | | | |
| | | 135.14 | 135.32 | .18 | GOUGE | Dark green, strongly brecciated. Compact core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 135.6 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE
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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. CONTINUED 306 D



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | | 135.32 | 136.02 | .7 | SLST | Strongly chloritized, dark green to gray green. Brecciated at top. Stick core. | | | | | | | | | | | | | |
| | | 136.02 | 136.83 | .81 | GOUGE | Gray to dark red. Highly fracture and brecciated. Semi-stick to compact. | | | | | | | | | | | | | |
| | | 136.83 | 137.17 | .34 | SLST | Moderately altered. Dark gray green. Stick core. Occasional fracture. | | | | | | | | | | | | | |
| | | 137.17 | 137.63 | .46 | SST | Medium grain. Very strongly altered. Gray green with dark red to dark gray alteration patches. Stick core. | | | | | | | | | | | | | |
| | | 137.63 | 138.37 | .74 | GOUGE | Dark red and green splotchy appearance. Strongly fractured. Very soft at base. Compact core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 138.7 | | | | | | | | | | | | | |
| | | 138.37 | 138.87 | 0.5 | | LOST CORE | | | | | | | | | | | | | |
| | | 138.87 | 139.67 | .8 | GOUGE | Dark red with minor dark gray splotches. Compact core. Soft. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 139.6 | | | | | | | | | | | | | |
| | | 139.67 | 140.01 | .34 | BRECCIA | Dark gray-green siltstone. Highly chloritized. Strongly brecciated. | | | | | | | | | | | | | |
| 25-26 | | 140.01 | 140.44 | .43 | BRECCIA | Dark red and dark gray. Possibly siltstone. Compact. | | | | | | | | | | | | | |
| | | 140.44 | 140.69 | .25 | SST | Moderately altered, fine grain, light gray. Massive. Semi-stick. | | | | | | | | | | | | | |
| | | 140.69 | 141.07 | .38 | GOUGE | Dark red, same as above. | | | | | | | | | | | | | |
| | | 141.07 | 141.71 | .64 | BRECCIA | Dark gray siltstone clasts in dark red gouge matrix. Very soft. Compact. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 141.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 141.71 | 141.91 | .2 | GOUGE | Dark red, same as above. | | | | | | | | | | | | | |
| | | 141.91 | 142.01 | .1 | BRECCIA | Siltstone clasts in pale gray-green sandy matrix. | | | | | | | | | | | | | |
| | | 142.01 | 143.15 | 1.14 | BRECCIA | Pale gray green, siltstone clasts in a dark green to dark red gouge matrix. Compact core. Very soft. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 143.8 | | | | | | | | | | | | | |
| | | 143.15 | 143.87 | .72 | BRECCIA | Dark gray siltstone clasts in a pale gray green gouge matrix. Semi-stick. Several fractures. | | | | | | | | | | | | | |
| 26-27 | | 143.87 | 146.92 | 3.05 | BRECCIA | Siltstone clasts in pale green gouge matrix at top grading to a dark red to red matrix at base. Stick to compact. | | | | | | | | | | | | | |
| | | 146.92 | 147.32 | 0.4 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 147.2 | | | | | | | | | | | | | |
| | | 147.32 | 147.50 | .18 | BRECCIA | Dark gray siltstone clasts in red gouge matrix. Compact core. | | | | | | | | | | | | | |
| | | 147.50 | 148.34 | .84 | BRECCIA | Gray siltstone in pale gray green matrix. Compact to stick. | | | | | | | | | | | | | |
| | | 148.34 | 148.52 | .18 | SLST | Sandy, gray, strongly fractured. Stick core. | | | | | | | | | | | | | |
| | | 148.52 | 148.74 | .22 | BRECCIA | Dark gray and red. Strongly fractured. Stick core. | | | | | | | | | | | | | |
| | | 148.74 | 148.97 | .23 | SLST | Massive, gray, fractured. Stick core. | | | | | | | | | | | | | |
| 27-28 | | 148.97 | 149.57 | .60 | BRECCIA | Siltstone; dark gray, several fractures. Stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
T = R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
= RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 149.57 | 150.47 | .9 | GOUGE | Dark red with occasional light gray splotches. Compact. Very soft. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 150.6 | | | | | | | | | | | | | |
| | | 150.47 | 151.15 | .68 | GOUGE | Dark red, same as above. | | | | | | | | | | | | | |
| | | 151.15 | 151.61 | .46 | BRECCIA | Dark siltstone clasts in dark gray matrix. Stick core. | | | | | | | | | | | | | |
| | | 151.61 | 151.72 | .11 | SLST | Dark gray massive, sandy, equigranular. Stick core. | | | | | | | | | | | | | |
| | | 151.72 | 152.06 | .34 | BRECCIA | Fine grain sandstone clasts and dark gray siltstone clasts in dark gray matrix. Compact core. Moderately soft, some medium gray sandstone clasts show faint laminations. | | | | | | | | | | | | | |
| | | 152.06 | 152.29 | .23 | GOUGE | Resembles lithified mud. Medium dark gray with some red staining. Very soft. Semi-stick. | | | | | | | | | | | | | |
| | | 152.29 | 153.59 | 1.3 | BRECCIA | Fine grain, dark gray, weakly laminated sandstone clasts in a dark gray matrix. Stick core. Soft at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 153.0 | | | | | | | | | | | | | |
| 29 | | 153.59 | 154.29 | .7 | BRECCIA | Sandstone, same as above. | | | | | | | | | | | | | |
| | | 154.29 | 154.99 | .7 | SST/ SLST | Sandstone interbedded with siltstone. Fine siltstone laminae in medium gray, fine grain sandstone. Siltstone appears carbonaceous. | | 73 | | | | | | | | | | | |
| | | 154.99 | 155.89 | 0.9 | | LOST CORE | | | | | | | | | | | | | |
| | | 155.89 | 156.59 | .7 | SLST/ SST | Same as above, but fine grain sandstone is more dominant. Semi-stick core. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 156.59 | 157.46 | .87 | BRECCIA | Medium grain, salt and pepper, light gray sandstone clasts in COALY carbonaceous black gouge matrix. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 157. | | | | | | | | | | | | | |
| | | 157.46 | 157.80 | .34 | BRECCIA | Same as above. | | | | | | | | | | | | | |
| | | 157.80 | 157.91 | .11 | SST | Medium grain, salt and pepper, equigranular. Broken core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 158.5 | | | | | | | | | | | | | |
| 29-30 | | 157.91 | 158.91 | 1.0 | BRECCIA | Sandstone same as above. | | | | | | | | | | | | | |
| | | 158.91 | 159.35 | .44 | BRECCIA | Sandstone, as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 159.7 | | | | | | | | | | | | | |
| | | 159.35 | 159.74 | .39 | COAL | Silty at top - soft at base | | | | | | 1 | | | | | | | |
| | | 159.74 | 160.02 | .28 | BRECCIA | Sandstone, as before. | | | | | | | | | | | | | |
| 30-31 | | 160.02 | 163.12 | 3.1 | BRECCIA | Sandstone, as before. Reduced core size at top of run chastic bedding in center of run, with some laminations in breccia fragments parallel to core axis. Stick core. Sandstone fragments in chastic zone are only slightly displaced from each other. Appears to be a very strongly disturbed zone. Medium gray in color. COALY wisps are common. Sandstone fragments are medium grained. | | | | | | | | | | | | | |
| | | 163.12 | 163.68 | 0.56 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 163.1 | | | | | | | | | | | | | |
| | | 163.68 | 165.6 | 1.92 | BRECCIA | As above. | | | | | | | | | | | | | |
| 31-32 | | 165.6 | 168.3 | 2.7 | BRECCIA | Same as above. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

▲ ANGLE MEASURED FROM CORE AXIS

† • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

HOLE No. 306 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 166.1 | | | | | | | | | | | | | |
| | | 168.3 | 168.46 | .16 | COAL | Black to dark gray. Silty. S5 Semi-stick core. Dull. | | | | | | 2 | | | | | | | |
| | | 168.46 | 169.13 | 0.67 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 169.2 | | | | | | | | | | | | | |
| | | 169.13 | 169.5 | .37 | COAL | Same as above. | | | | | | 2 | | | | | | | |
| | | 169.5 | 170.03 | .53 | BRECCIA | Sandstone, same as above. | | | | | | | | | | | | | |
| | | 170.03 | 170.24 | .21 | COAL | Dull. S5. Semi-stick to rubble. Appears to be quite dirty. Somewhat sheared with slickened surfaces. | | | | | | 3 | | | | | | | |
| | | 170.24 | 170.49 | 0.25 | | LOST CORE | | | | | | | | | | | | | |
| | | 170.49 | 171.06 | .57 | COAL | Same as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 170.7 | | | | | | | | | | | | | |
| | | 171.06 | 171.12 | .06 | COAL | Very shaley, soft compact. S1 Almost a coal mud. | | | | | | 3 | | | | | | | |
| 32-33 | | 171.12 | 171.6 | .48 | COAL | Dull, hard. S5. Flakey with polished surfaces. Powdery at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 171.9 | | | | | | | | | | | | | |
| | | 171.6 | 174.12 | 2.52 | SLST | Brecciated at base and strongly brecciated at top. Gray to medium gray. Sandy. Stick to semi-stick core. | | | | | | | | | | | | | |
| | | 174.12 | 174.73 | .61 | SLST | Brecciated, medium gray. Numerous lenses and stringers of black bright COAL. Also polished carbonaceous surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 175.3 | | | | | | | | | | | | | |
| | | 174.73 | 175.78 | 1.05 | SLST | As before. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† :• R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 34 | | 175.78 | 176.72 | .94 | SLST | Medium gray, sandy. Weakly brecciated and weakly laminated. Numerous thin carbonate stringers at base. | | 75 | | | | | | | | | | | |
| | | 176.72 | 177.72 | 1.0 | SLST | Dark gray. Abundant polished carbonaceous surfaces and occasional dull coal stringer. Appears to become sandier at base. Semi-stick to broken rubble at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 178.3 | | | | | | | | | | | | | |
| | | 177.72 | 179.30 | 1.58 | SST | Fine laminated, fine grain, medium gray, strongly brecciated. Core is stick to semi-stick. Sandstone matrix appears to be strongly granulated and crushed. | | | | | | | | | | | | | |
| 34-35 | | 179.30 | 180.05 | .75 | SLST | Finely laminated. Very similar to the sandstone but more silty and numerous polished carbonaceous shear surfaces and COALY lenses. Stick core. | | 60 | | | | | | | | | | | |
| | | 180.05 | 180.79 | .74 | SST | Brecciated as above. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 181.3 | | | | | | | | | | | | | |
| | | 180.79 | 182.77 | 1.98 | SST | Breccia. Laminated in middle. Matrix around sandstone fragments is very mud-like. More strongly brecciated at base. Sandstone is fine grained. | | | | | | | | | | | | | |
| | | 182.77 | 183.74 | .97 | SST | Breccia, similar to above, but occasional dull dark COALY bands and stringers. Sandstone is fine grained. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 184.4 | | | | | | | | | | | | | |
| 35-36 | | 183.74 | 184.33 | .59 | SST | Breccia, as above. | | | | | | | | | | | | | |
| | | 184.33 | 186.66 | 2.33 | SST | Medium grained breccia, salt and pepper. Stick core, some lamination at base. COALY bands and stringers more common at base of run. | | 58 | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 186.66 | 186.70 | .04 | COAL | Dull, S3. Powdery when crushed. | | | | | | | | | | | | | |
| | | 186.70 | 186.74 | .04 | SHALE | COALY black and dull. | | | | | | | | | | | | | |
| | | 186.74 | 186.78 | .04 | COAL | Dull, somewhat shaley. Powdery when crushed. | | | | | | | | | | | | | |
| | | 186.78 | 186.84 | .06 | SLST | Dark gray. Numerous COALY bands and stringers. Polished carbonaceous surfaces. | | | | | | | | | | | | | |
| | | 186.84 | 188.46 | 1.62 | SLST | Dark gray, brecciated. Occasional COALY plant fragments at top of run and COALY stringers in the middle. | | | | | | | | | | | | | |
| 37 | | 188.46 | 188.53 | .07 | SLST | Very COALY. Dark gray, massive. COAL is very fine grain, granular dull with bright. | | | | | | | | | | | | | |
| | | 188.53 | 188.72 | .19 | SLST | Dark gray, massive. Polished carbonaceous surfaces. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 189.6 | | | | | | | | | | | | | |
| | | 188.72 | 189.11 | .39 | SLST | As above, with COALY and carbonaceous polished surfaces. Somewhat brecciated at bottom of run. | | | | | | | | | | | | | |
| | | 189.11 | 189.92 | .81 | SLST | Brecciated medium gray, with occasional 0.01m bands of light gray fine grain sandstone. | | | | | | | | | | | | | |
| | | 189.92 | 190.17 | .25 | SLST | Very COALY. Dark gray. Bands of COAL are polished with some cleat developed. | | | | | | | | | | | | | |
| | | 190.17 | 190.58 | .41 | SLST | Dark gray, brecciated and carbonaceous. Occasional fragments of fine grain sandstone, salt and pepper. | | | | | | | | | | | | | |
| | | 190.58 | 190.93 | .35 | SST | Salt and pepper. Fine grain, grades downwards into medium grain. Carbonaceous. Fracture planes. | | | | | | | | | | | | | |
| | | 190.93 | 191.07 | .14 | SLST | Dark gray, brecciated as before. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 191.07 | 191.21 | .14 | SST | As before. | | | | | | | | | | | | | |
| | | 191.21 | 191.71 | .50 | SLST | Polished carbonaceous fractured surfaces. Fine grain, salt and pepper sandstone band at base of run. Stick core to rubbley at base. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 192.6 | | | | | | | | | | | | | |
| | | 191.71 | 192.61 | .9 | SLST | Dark gray. Brecciated with numerous carbonaceous stringers and veinlets. | | | | | | | | | | | | | |
| 38 | | 192.61 | 192.69 | .08 | SLST | As before. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 195.7 | | | | | | | | | | | | | |
| | | 192.69 | 195.40 | 2.71 | SLST | Breccia, dark gray. Occasional white calcite veinlets. Carbonaceous plant fragments and polished surfaces. Some COALY lenses. | | | | | | | | | | | | | |
| | | 195.40 | 195.71 | .31 | SST | Medium grain. Numerous white calcite veinlets at base. Very COALY with carbonaceous fractured surfaces. Salt and pepper. | | | | | | | | | | | | | |
| | | 195.71 | 195.85 | .14 | SST | Fine grain. Polished surfaces parallel to bedding. COALY and carbonaceous stringers and bands. | | | | | | | | | | | | | |
| | | 195.85 | 196.18 | .33 | SST | Fine grain, finely laminated with dark gray siltstone laminae. Semi-stick core. | | 77 | | | | | | | | | | | |
| | | 196.18 | 196.48 | 0.3 | | LOST CORE | | | | | | | | | | | | | |
| | | 196.48 | 196.78 | .3 | SST | Medium grain, rubble. COALY veinlets and stringers. Calcite veinlets at top. Salt and pepper. | | | | | | | | | | | | | |
| | | 196.78 | 196.95 | .17 | SLST | Breccia. COALY at base. | | | | | | | | | | | | | |
| 38-39 | | 196.95 | 197.21 | .26 | COAL | Polished. Dull. S3. | | | | | | | | | | | | | |
| | | 197.21 | 197.41 | .2 | COAL | Shaley, very dull, soft S1 - S2. Powdery when crushed. | | | | | | 4 | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE
† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | EILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ. | SUMMARY GEOTECH RQD | SAMPLE NO | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | MARKER BLOCK @ 198.1 | | | | | | | | | | | | | |
| | | 197.41 | 198.45 | 1.04 | | LOST CORE | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 199.0 | | | | | | | | | | | | | |
| | | 198.45 | 200.17 | 1.72 | SLST | Shaley at base, very carbonaceous. Somewhat COALY at base. Semi-stick. Abundant polished surfaces. Dark gray to black. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 200.2 | | | | | | | | | | | | | |
| | | 200.17 | 202.32 | 2.15 | SLST | Very carbonaceous as above. Dark gray to black. Semi-stick. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 202.7 | | | | | | | | | | | | | |
| 40 | | 202.32 | 203.61 | 1.29 | SLST | Dark gray to black. Brecciated COALY at base. Stick to semi-stick. Almost a shale. | | | | | | | | | | | | | |
| | | 203.61 | 203.79 | .18 | COAL | Shaley, dull, compact core. S4. | | | | | | | | | | | | | |
| | | 203.79 | 203.95 | .16 | SHALE | COALY. S5. Polished surfaces. | | | | | | | | | | | | | |
| | | 203.95 | 204.20 | .25 | COAL | Granular. Occasional bright bands but mostly dull. S2. Compact. | | | | | | 5 | | | | | | | |
| | | 204.20 | 204.33 | .13 | SHALE | COALY dull, S5. | | | | | | | | | | | | | |
| | | 204.33 | 204.6 | .27 | SLST | Dark gray, very carbonaceous with polished surfaces. Carbonaceous plant fragments. COALY at base. | | | | | | 6 | | | | | | | |
| | | 204.6 | 205.35 | 0.75 | | LOST CORE | | | | | | | | | | | | | |
| | | 205.35 | 205.60 | .25 | SHALE | Very COALY with polished surfaces. S5 | | | | | | 7 | | | | | | | |
| | | 205.60 | 205.66 | .06 | COAL | Powdery, dull. Rubble core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 205.7 | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

† : • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb.1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | MOIST % residual | ASH % | V.M. % | F.C. % | F.S.I. | C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 205.66 | 205.72 | .06 | SHALE | COALY dull, S5 | | | | | | 7 | | | | | | | |
| | | 205.72 | 206.4 | .68 | COAL | Stick to semi-stick, S3. Dull with bright pyrite crystals. Powdery when crushed. | | | | | | | | | | | | | |
| | | 206.40 | 206.98 | .58 | SST | Fine grain, faint laminations and occasional white calcite fractures. Somewhat brecciated. Medium gray, stick core. Carbonaceous fractured planes. Weakly calcareous. | | | | | | | | | | | | | |
| 40-41 | | 206.98 | 207.42 | .44 | GOUGE | Siltstone, dark gray to dark brown. Angular pebbles 0.01m in size imbedded in dark brown muddy matrix. COALY bands moderately calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 207.9 | | | | | | | | | | | | | |
| | | 207.42 | 208.51 | 1.09 | GOUGE | Fine grain, light gray sandstone fragments in dull gray mud matrix. Occasional white calcite veinlets in sandstone fragments or as clasts in matrix. Strongly calcareous. | | | | | | | | | | | | | |
| | | 208.51 | 208.79 | .28 | SLST | Medium gray to medium brown. Strongly altered. Breaks easily into angular fragments. Moderately calcareous. | | | | | | | | | | | | | |
| | | 208.79 | 210.64 | 1.85 | GOUGE | As before. Strongly calcareous. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 210.9 | | | | | | | | | | | | | |
| 41-42 | | 210.64 | 213.21 | 2.57 | GOUGE | As above, but more carbonaceous. Strongly calcareous. | | | | | | | | | | | | | |
| | | 213.21 | 213.45 | .24 | LS | Crypto crystalline, medium brown. Fresh limestone with crystalline calcite micro-veinlets and stringers. Very calcareous. Rock appears to be only partly preserved the rest has been altered to a dull brown looking mud which is very calcerous. Not sure if rock is in situ. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* : MEASURED FROM THE HORIZONTAL PLANE

† : •R &/OR S — GOLDER ASSOCIATES HARDNESS CODE

•RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No. BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

CROWS NEST RESOURCES LIMITED

# CORE & COAL CORE DESCRIPTION

| PROJECT | LILLYBURT |
|---|---|
| AREA | SOUTH EAST B.C. |

HOLE No. 306 D
CONTINUED



| BOX No. | DEPTH AT TOP OF BOX | DEPTH FROM | DEPTH TO | TH. | LITHO DESCRIPTION MAIN | LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM) | SEAM DESIG | ▲ BEDDING ANGLE (°) | SUMMARY GEOTECH HARDNESS | SUMMARY GEOTECH FRAC FREQ | SUMMARY GEOTECH RQD | SAMPLE NO. | ANALYTICAL DATA MOIST % a.r.b. | ANALYTICAL DATA MOIST % residual | ANALYTICAL DATA ASH % | ANALYTICAL DATA V.M. % | ANALYTICAL DATA F.C. % | ANALYTICAL DATA F.S.I. | ANALYTICAL DATA C.V. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 213.45 | 213.83 | .38 | GOUGE | Dull brown, similar to altered matrix of above rock. Compact core. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 213.9 | | | | | | | | | | | | | |
| | | 213.83 | 215.76 | 1.93 | GOUGE | Compact core. Dull brown as above. Strongly calcareous. Strongly polished surfaces. Has very polished angular fragments and pebbles in the dull brown matrix. | | | | | | | | | | | | | |
| | | | | | | MARKER BLOCK @ 215.8 | | | | | | | | | | | | | |
| | | | | | | END OF HOLE | | | | | | | | | | | | | |
| | | | | | | NOTE: Drill got stuck at bottom of the hole and hole was abandoned. Part of the core barrel was left in the hole but rods were recovered. | | | | | | | | | | | | | |

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE
! • R &/OR S — GOLDER ASSOCIATES HARDNESS CODE
• RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 306 D

FILE No BA-267
REVISED Feb. 1981
FORMERLY FILE No. BA-212A

APPENDIX II

# LONG LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWNEST RESOURCES LTD. | FILE NO. | 21311 |
| ATTENTION | Ken McCullough | DATE | April 22, 1981 |
| PROJECT | Lillybush - LB-201 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I. | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-159 | Raw Coal | | | Air Dried | | 0.40 | | 25.95 | | | | | |
| 1 | (93.5-135.5 mm) | | | Dry Basis | | - | | 26.05 | | | | | |
| | +1.62 Flt | | 64.36 | Air Dried | | 1.26 | 23.74 | 9.92 | 65.18 | | | 7 | |
| | | | | Dry Basis | | - | 24.02 | 10.04 | 65.94 | | | | |
| 80-160 | Raw Coal | | | Air Dried | | 0.47 | | 27.73 | | | | | |
| 2 | (65.0-74.5 mm) | | | Dry Basis | | - | | 27.86 | | | | | |
| | +1.62 Flt | | 53.55 | Air Dried | | 3.28 | 20.72 | 10.82 | 65.18 | | | 1 | |
| | | | | Dry Basis | | - | 21.42 | 11.19 | 67.39 | | | | |
| 80-161 | Raw Coal | | | Air Dried | | 0.47 | | 37.41 | | | | | |
| 3 | (133.0-135.7 mm) | | | Dry Basis | | - | | 37.59 | | | | | |
| | +1.62 Flt | | 51.16 | Air Dried | | 1.80 | 19.98 | 12.54 | 65.68 | | | 3½ | |
| | | | | Dry Basis | | - | 20.35 | 12.77 | 66.88 | | | | |
| 80-162 | Raw Coal | | | Air Dried | | 0.51 | | 38.99 | | | | | |
| 4 | (169-177.5 mm) | | | Dry Basis | | - | | 39.19 | | | | | |
| | +1.62 Flt | | 40.20 | Air Dried | | 1.36 | 19.71 | 19.88 | 59.05 | | | 1½ | |
| | | | | Dry Basis | | - | 19.98 | 20.15 | 59.87 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Fidler

# KOTANG LABOR TORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWNEST RESOURCES LTD. | FILE NO. | 21[illegible] |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-202 | PAGE 1 | of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-217 | Raw Coal | | | Air Dried | | 0.60 | | 69.25 | | | | | |
| | | | | Dry Basis | | - | | 69.67 | | | | | |
| 5 | (109- 120m) | | | | | | | | | | | | |
| | +1.62 Flt | | 11.06 | Air Dried | | 0.73 | 16.79 | 24.88 | 57.60 | | | 1 | |
| | | | | Dry Basis | | - | 16.91 | 25.06 | 58.03 | | | | |
| 80-220 | Raw Coal | | | Air Dried | | 0.81 | | 64.97 | | | | | |
| | | | | Dry Basis | | - | | 65.50 | | | | | |
| 8 | (120- 124 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 2.70 | Air Dried | | 0.88 | 16.53 | 27.70 | 54.89 | | | 1 | |
| | | | | Dry Basis | | - | 16.68 | 27.95 | 55.37 | | | | |
| 80-289 | Raw Coal | | | Air Dried | | 0.91 | | 62.84 | | | | | |
| | | | | Dry Basis | | - | | 63.42 | | | | | |
| 16 | (18- 20 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 16.55 | Air Dried | | 0.65 | 18.62 | 18.01 | 62.72 | | | 1½ | |
| | | | | Dry Basis | | - | 18.74 | 18.13 | 63.13 | | | | |
| 80-290 | Raw Coal | | | Air Dried | | 0.43 | | 75.20 | | | | | |
| | | | | Dry Basis | | - | | 75.52 | | | | | |
| 17A | (64.1 – 66.2 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 1.39 | Air Dried | | 2.02 | 20.88 | 25.32 | 51.58 | | | 2 | |
| | | | | Dry Basis | | - | 21.35 | 25.89 | 52.76 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LOMAS LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWNEST RESOURCES LTD. | FILE NO. | 21312 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-202 | PAGE | 2 of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-291 | Raw Coal | | | Air Dried | | 0.54 | | 78.59 | | | | | |
| | | | | Dry Basis | | - | | 79.02 | | | | | |
| 178 | (1355m - 1375m) | | | | | | | | | | | | |
| | +1.62 Flt | | 16.67 | Air Dried | | 0.60 | 16.71 | 27.75 | 54.94 | | | 1 | |
| | | | | Dry Basis | | - | 16.81 | 27.92 | 55.27 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Eder

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21312-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-202 | PAGE 1 of 1 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(217+ 220) | Raw | | | Air Dried | | 0.80 | | 68.88 | | | | | |
| | | | | Dry Basis | | - | | 69.44 | | | | | |
| 5+8 | (.109 - 124 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 9.41 | Air Dried | | 0.72 | 18.22 | 19.73 | 61.33 | .48 | 12,045 | 1½ | |
| | | | | Dry Basis | | - | 18.35 | 19.87 | 61.78 | .48 | 12,132 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: R. Endly

# LOTING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyhurt - LB-203 |
| FILE NO. | 21513 |
| DATE | April 23, 1981 |
| PAGE | 1 of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-218 | Raw Coal | | | Air Dried | | 0.63 | | 49.85 | | | | | |
| | | | | Dry Basis | | - | | 50.17 | | | | | |
| 6 | (104.5-107m) | | | | | | | | | | | | |
| | +1.62 Flt | | 33.53 | Air Dried | | 3.13 | 20.89 | 18.43 | 57.55 | | | 1 | |
| | | | | Dry Basis | | - | 21.56 | 19.03 | 59.41 | | | | |
| 80-219 | Raw Coal | | | Air Dried | | 0.74 | | 77.56 | | | | | |
| | | | | Dry Basis | | - | | 78.14 | | | | | |
| 7 | (99.5-104.5m) | | | | | | | | | | | | |
| | +1.62 Flt | | 8.42% | Air Dried | | 0.99 | 21.30 | 18.14 | 59.57 | | | 1 | |
| | | | | Dry Basis | | - | 21.51 | 18.32 | 60.17 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Eddy

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21313-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-203 | PAGE 1 of 1 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(218+ 219) 6+7 | Raw (99.5-107 m) | | | Air Dried | | 0.47 | | 63.40 | | | | | |
| | | | | Dry Basis | | - | | 63.70 | | | | | |
| | +1.62 Flt | | 15.70 | Air Dried | | 2.71 | 21.73 | 15.15 | 60.41 | .32 | 12,617 | 1 | |
| | | | | Dry Basis | | - | 22.34 | 15.57 | 62.09 | .33 | 12,968 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Endsp

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21314 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-204 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-287 | Raw Coal | | | Air Dried | | 0.80 | | 84.15 | | | | | |
| 14 | (22- 23 m) | | | Dry Basis | | - | | 84.83 | | | | | |
| | +1.62 | | 0.44 | Air Dried | | 1.30 | 21.84 | 16.28 | 60.58 | | | 1 | |
| | | | | Dry Basis | | - | 22.13 | 16.49 | 61.38 | | | | |
| 80-288 | Raw Coal | | | Air Dried | | 0.73 | | 56.91 | | | | | |
| 15 | (23- 25 m) | | | Dry Basis | | - | | 57.33 | | | | | |
| | +1.62 Flt | | 21.10 | Air Dried | | 1.53 | 21.42 | 17.62 | 59.43 | | | 1 | |
| | | | | Dry Basis | | - | 21.75 | 17.89 | 60.36 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21314-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-204 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(287+ 288) | Raw | | | Air Dried | | 1.42 | | 72.67 | | | | | |
| | (22 → | 25m) | | Dry Basis | | - | | 73.72 | | | | | |
| 14+ 15 | +1.62 Flt | | 7.71 | Air Dried | | 1.98 | 21.41 | 19.60 | 57.01 | .57 | 11,945 | 1 | |
| | | | | Dry Basis | | - | 21.84 | 20.00 | 58.16 | .58 | 12,186 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enebel

# KOMIC LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 11315 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillybert - LB-206 | PAGE | 1 of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-282 | Raw Coal | | | Air Dried | | 0.82 | | 60.65 | | | | | |
| | | | | Dry Basis | | - | | 61.15 | | | | | |
| 9 | (140 - 150.25 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 20.14 | Air Dried | | 1.05 | 22.57 | 20.53 | 55.85 | | | 1½ | |
| | | | | Dry Basis | | - | 22.81 | 20.75 | 56.44 | | | | |
| 80-283 | Raw Coal | | | Air Dried | | 1.17 | | 77.51 | | | | | |
| | | | | Dry Basis | | - | | 78.43 | | | | | |
| 10 | (113 - 114 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 10.00 | Air Dried | | 0.73 | 26.62 | 17.14 | 55.51 | | | 3½ | |
| | | | | Dry Basis | | - | 26.82 | 17.27 | 55.91 | | | | |
| 80-284 | Raw Coal | | | Air Dried | | 0.94 | | 57.44 | | | | | |
| | | | | Dry Basis | | - | | 57.99 | | | | | |
| 11 | (114 - 117 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 32.27 | Air Dried | | 0.77 | 26.04 | 12.89 | 60.30 | | | 3 | |
| | | | | Dry Basis | | - | 26.24 | 12.99 | 60.77 | | | | |
| 80-285 | Raw Coal | | | Air Dried | | 0.84 | | 36.62 | | | | | |
| | | | | Dry Basis | | - | | 36.93 | | | | | |
| 12 | (117 - 123 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 55.66 | Air Dried | | 1.00 | 24.60 | 13.67 | 60.73 | | | 1 | |
| | | | | Dry Basis | | - | 24.85 | 13.81 | 61.34 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21315 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-206 | PAGE 2 | of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-286 | Raw Coal | | | Air Dried | | 0.84 | | 28.17 | | | | | |
| | | | | Dry Basis | | - | | 28.41 | | | | | |
| 13 | (204.7-206.2) | | | | | | | | | | | | |
| | +1.62 Flt. | | 71.92 | Air Dried | | 1.01 | 19.59 | 15.80 | 63.60 | | | 0 | |
| | | | | Dry Basis | | - | 19.79 | 15.96 | 64.25 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Endlop

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21315-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-206 | PAGE 1 of 1 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(283+ 284+285) | Raw | | | Air Dried | | 1.43 | | 46.09 | | | | | |
| | | | | Dry Basis | | - | | 46.76 | | | | | |
| 10- | (113 → 123m) | | | | | | | | | | | | |
| 12 | +1.62 Flt | | 44.91 | Air Dried | | 1.11 | 24.92 | 12.92 | 61.05 | .31 | 13,000 | 1½ | |
| | | | | Dry Basis | | - | 25.20 | 13.07 | 61.73 | .31 | 13,146 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enders

FILE NO. AA-467

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21316 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-207 | PAGE 1 | of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-292 | Raw Coal | | | Air Dried | | 0.76 | | 36.12 | | | | | |
| 18 | (16-21 m) | | | Dry Basis | | - | | 36.40 | | | | | |
| | +1.62 Flt | | 63.30 | Air Dried | | 2.37 | 20.06 | 28.40 | 49.17 | | | 1 | |
| | | | | Dry Basis | | - | 20.55 | 29.09 | 50.36 | | | | |
| 80-293 | Raw Coal | | | Air Dried | | 0.82 | | 61.05 | | | | | |
| 19 | (21-25 m) | | | Dry Basis | | - | | 61.55 | | | | | |
| | +1.62 Flt | | 23.90 | Air Dried | | 1.82 | 21.26 | 18.01 | 58.91 | | | 1½ | |
| | | | | Dry Basis | | - | 21.65 | 18.34 | 60.01 | | | | |
| 80-294 | Raw Coal | | | Air Dried | | 0.78 | | 58.54 | | | | | |
| 20 | (25-27m) | | | Dry Basis | | - | | 59.00 | | | | | |
| | +1.62 Flt | | 24.02 | Air Dried | | 0.70 | 20.95 | 19.85 | 58.50 | | | 3½ | |
| | | | | Dry Basis | | - | 21.10 | 19.99 | 58.91 | | | | |
| 80-295 | Raw Coal | | | Air Dried | | 0.88 | | 37.04 | | | | | |
| 21 | (57-59 m) | | | Dry Basis | | - | | 37.37 | | | | | |
| | +1.62 Flt | | 59.69 | Air Dried | | 0.74 | 20.30 | 15.38 | 63.58 | | | 1 | |
| | | | | Dry Basis | | - | 20.45 | 15.49 | 64.06 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Bichel

# CORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROMSNEST RESOURCES LTD. | FILE NO. | 21316 |
| ATTENTION | Ken McCullough | DATE | April 24, 1981 |
| PROJECT | Lillyburt - LB-207 | PAGE 2 of 2 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-296 | Raw Coal | | | Air Dried | | 0.82 | | 32.94 | | | | | |
| | | | | Dry Basis | | - | | 33.21 | | | | | |
| 22 | (63-66 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 58.72 | Air Dried | | 0.62 | 19.09 | 22.90 | 57.39 | | | 1½ | |
| | | | | Dry Basis | | - | 19.21 | 23.04 | 57.75 | | | | |
| 80-297 | Raw Coal | | | Air Dried | | 1.00 | | 56.44 | | | | | |
| | | | | Dry Basis | | - | | 57.01 | | | | | |
| 23 | (95.5 96 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 23.49 | Air Dried | | 0.86 | 22.14 | 19.63 | 57.37 | | | 1½ | |
| | | | | Dry Basis | | - | 22.33 | 19.80 | 57.87 | | | | |
| 80-298 | Raw Coal | | | Air Dried | | 0.85 | | 25.89 | | | | | |
| | | | | Dry Basis | | - | | 26.11 | | | | | |
| 24 | (97-101 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 62.78 | Air Dried | | 0.70 | 22.28 | 16.49 | 60.53 | | | 4½ | |
| | | | | Dry Basis | | - | 22.44 | 16.61 | 60.95 | | | | |
| 80-299 | Raw Coal | | | Air Dried | | 0.71 | | 33.43 | | | | | |
| | | | | Dry Basis | | - | | 33.67 | | | | | |
| 25 | (101-105 m) | | | | | | | | | | | | |
| | +1.62 Flt | | 52.47 | Air Dried | | 0.89 | 23.39 | 14.11 | 61.61 | | | 6 | |
| | | | | Dry Basis | | - | 23.60 | 14.24 | 62.16 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enders

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyhurt - LB-207 |
| FILE NO. | 21316-1 |
| DATE | May 11, 1981 |
| PAGE | 1 of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(292+ 293+294) | Raw | | | Air Dried | | 1.60 | | 52.85 | | | | | |
| 18 → 20 | (16→ 27m) | | | Dry Basis | | - | | 53.71 | | | | | |
| | +1.62 Flt | | 40.79 | Air Dried | | 3.37 | 20.36 | 23.58 | 52.69 | .34 | 11,035 | 1 | |
| | | | | Dry Basis | | - | 21.07 | 24.40 | 54.53 | .35 | 11,420 | | |
| 80-(298+ 299) | Raw | | | Air Dried | | 0.64 | | 30.08 | | | | | |
| 24+ 25 | (97→ 105m) | | | Dry Basis | | - | | 30.27 | | | | | |
| | +1.62 Flt | | 58.44 | Air Dried | | 1.84 | 23.03 | 14.82 | 60.31 | .60 | 12,703 | 4 | |
| | | | | Dry Basis | | - | 23.46 | 15.10 | 61.44 | .61 | 12,941 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

FILE NO. AA-147

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-208 |
| FILE NO. | 21317 |
| DATE | April 27, 1981 |
| PAGE | 1 of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-348 | Raw Coal | | | Air Dried | | 0.73 | | 45.82 | | | | | |
| 47 | (88m → 96m) | | | Dry Basis | | - | | 46.16 | | | | | |
| | +1.62 Flt | | 34.76 | Air Dried | | 0.63 | 21.51 | 18.74 | 59.12 | | | 3 | |
| | | | | Dry Basis | | - | 21.65 | 18.86 | 59.49 | | | | |
| 80-349 | Raw Coal | | | Air Dried | | 0.69 | | 29.94 | | | | | |
| 48 | (52m → 54m) | | | Dry Basis | | - | | 30.15 | | | | | |
| | +1.62 Flt | | 69.93 | Air Dried | | 0.64 | 18.84 | 15.25 | 65.27 | | | 1½ | |
| | | | | Dry Basis | | - | 18.96 | 15.35 | 65.69 | | | | |
| 80-350 | Raw Coal | | | Air Dried | | 0.77 | | 62.60 | | | | | |
| 49 | (4.5 → 5.5m) | | | Dry Basis | | - | | 63.09 | | | | | |
| | +1.62 Flt | | 9.04 | Air Dried | | 0.78 | 19.62 | 25.15 | 54.45 | | | 1½ | |
| | | | | Dry Basis | | - | 19.77 | 25.35 | 54.88 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enders

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21318 |
| ATTENTION | Ken McCullough | DATE | April 27, 1981 |
| PROJECT | Lillyburt - LB-209 | PAGE 1 of 3 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-336 | Raw Coal | | | Air Dried | | 0.95 | | 21.39 | | | | | |
| 35 | (52m → 56m) | | | Dry Basis | | - | | 21.60 | | | | | |
| | +1.62 Flt | | 68.21 | Air Dried | | 1.37 | 24.83 | 14.71 | 59.09 | | | 1½ | |
| | | | | Dry Basis | | - | 25.17 | 14.91 | 59.92 | | | | |
| 80-337 | Raw Coal | | | Air Dried | | 0.63 | | 26.65 | | | | | |
| 36 | (56m → 58m) | | | Dry Basis | | - | | 26.82 | | | | | |
| | +1.62 Flt | | 71.33 | Air Dried | | 0.85 | 22.92 | 13.95 | 62.28 | | | 1 | |
| | | | | Dry Basis | | - | 23.12 | 14.07 | 62.81 | | | | |
| 80-338 | Raw Coal | | | Air Dried | | 0.76 | | 29.08 | | | | | |
| 37 | (58m → 61m) | | | Dry Basis | | - | | 29.30 | | | | | |
| | +1.62 Flt | | 62.05 | Air Dried | | 0.72 | 24.72 | 13.55 | 61.01 | | | 1½ | |
| | | | | Dry Basis | | - | 24.90 | 13.65 | 61.45 | | | | |
| 80-339 | Raw Coal | | | Air Dried | | 0.76 | | 35.67 | | | | | |
| 38 | (61m → 64m) | | | Dry Basis | | - | | 35.94 | | | | | |
| | +1.62 Flt | | 52.49 | Air Dried | | 0.55 | 24.53 | 14.10 | 60.82 | | | 1½ | |
| | | | | Dry Basis | | - | 24.67 | 14.18 | 61.15 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enclose

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-209 |
| FILE NO. | 21318 |
| DATE | April 27, 1981 |
| PAGE | 2 of 3 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-340 | Raw Coal | | | Air Dried | | 0.99 | | 54.24 | | | | | |
| 39 | (64m → 69m) | | | Dry Basis | | - | | 54.78 | | | | | |
| | +1.62 Flt | | 29.77 | Air Dried | | 0.92 | 22.92 | 16.67 | 59.49 | | | 1 | |
| | | | | Dry Basis | | - | 23.13 | 16.82 | 60.05 | | | | |
| 80-341 | Raw Coal | | | Air Dried | | 1.04 | | 52.19 | | | | | |
| 40 | (71.5m → 73.5m) | | | Dry Basis | | - | | 52.74 | | | | | |
| | +1.62 Flt | | 27.48 | Air Dried | | 0.88 | 22.81 | 15.81 | 60.50 | | | 1 | |
| | | | | Dry Basis | | - | 23.01 | 15.95 | 61.04 | | | | |
| 80-342 | Raw Coal | | | Air Dried | | 0.95 | | 56.61 | | | | | |
| 41 | (73.5m → 75.5m) | | | Dry Basis | | - | | 57.15 | | | | | |
| | +1.62 Flt | | 23.43 | Air Dried | | 0.75 | 21.70 | 17.36 | 60.19 | | | 1½ | |
| | | | | Dry Basis | | - | 21.86 | 17.49 | 60.65 | | | | |
| 80-343 | Raw Coal | | | Air Dried | | 0.73 | | 45.96 | | | | | |
| 42 | (75.5m → 78.5m) | | | Dry Basis | | - | | 46.30 | | | | | |
| | +1.62 Flt | | 52.05 | Air Dried | | 0.79 | 21.57 | 17.19 | 60.45 | | | 1 | |
| | | | | Dry Basis | | - | 21.74 | 17.33 | 60.93 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Endle

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21318 |
| ATTENTION | Ken McCullough | DATE | April 27, 1981 |
| PROJECT | Lillyburt - LB-209 | PAGE 3 of 3 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-344 | Raw Coal | | | Air Dried | | 0.76 | | 88.26 | | | | | |
| | | | | Dry Basis | | - | | 88.94 | | | | | |
| 43 | (69→ 71.5m) | | | | | | | | | | | | |
| | +1.60 Flt | | 0.07 | Air Dried | | 2.33 | 20.94 | 20.44 | 56.29 | | | 1 | |
| | | | | Dry Basis | | - | 21.43 | 20.93 | 57.64 | | | | |
| 80-345 | Raw Coal | | | Air Dried | | 0.94 | | 49.55 | | | | | |
| | | | | Dry Basis | | - | | 50.02 | | | | | |
| 44 | (126→ 130m) | | | | | | | | | | | | |
| | +1.62 Flt | | 43.87 | Air Dried | | 1.38 | 21.11 | 18.44 | 59.07 | | | 1½ | |
| | | | | Dry Basis | | - | 21.41 | 18.70 | 59.89 | | | | |
| 80-346 | Raw Coal | | | Air Dried | | 1.04 | | 63.42 | | | | | |
| | | | | Dry Basis | | - | | 64.09 | | | | | |
| 45 | (179→ 184m) | | | | | | | | | | | | |
| | +1.62 Flt | | 15.82 | Air Dried | | 0.74 | 20.73 | 21.78 | 56.75 | | | 1 | |
| | | | | Dry Basis | | - | 20.88 | 21.94 | 57.18 | | | | |
| 80-347 | Raw Coal | | | Air Dried | | 0.97 | | 56.38 | | | | | |
| | | | | Dry Basis | | - | | 56.93 | | | | | |
| 46 | (132→ 134m) | | | | | | | | | | | | |
| | +1.62 Flt | | 28.39 | Air Dried | | 0.91 | 21.57 | 18.81 | 58.71 | | | 1 | |
| | | | | Dry Basis | | - | 21.77 | 18.98 | 59.25 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Ewell

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21318-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-209 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(336-343) | Raw | | | Air Dried | | 0.74 | | 39.27 | | | | | |
| | | | | Dry Basis | | - | | 39.56 | | | | | |
| 35 → 42 | (52 → 78.5 ~) | | | | | | | | | | | | |
| | +1.62 Flt | | 52.72 | Air Dried | | 1.10 | 23.65 | 14.41 | 60.84 | .32 | 12,631 | 1 | |
| | | | | Dry Basis | | - | 23.91 | 14.57 | 61.52 | .32 | 12,771 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: [signature]

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-210 |
| FILE NO. | 21319 |
| DATE | April 23, 1981 |
| PAGE | 1 of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-351 | Raw Coal | | | Air Dried | | 0.72 | | 67.63 | | | | | |
| 50 | (23.25 - 23.75 m) | | | Dry Basis | | - | | 68.12 | | | | | |
| | +1.62 Flt | | 19.11 | Air Dried | | 0.85 | 23.32 | 14.41 | 61.42 | | | 1 | |
| | | | | Dry Basis | | - | 23.52 | 14.53 | 61.95 | | | | |
| 80-352 | Raw Coal | | | Air Dried | | 0.92 | | 49.66 | | | | | |
| 51 | (66 - 69 m) | | | Dry Basis | | - | | 50.12 | | | | | |
| | +1.62 Flt | | 35.73 | Air Dried | | 0.76 | 23.42 | 18.25 | 57.57 | | | 1½ | |
| | | | | Dry Basis | | - | 23.60 | 18.39 | 58.01 | | | | |
| 80-353 | Raw Coal | | | Air Dried | | 0.91 | | 40.22 | | | | | |
| 52 | (134 - 139 m) | | | Dry Basis | | - | | 40.59 | | | | | |
| | +1.62 Flt | | 48.45 | Air Dried | | 0.97 | 21.79 | 16.25 | 60.99 | | | 1 | |
| | | | | Dry Basis | | - | 22.00 | 16.41 | 61.59 | | | | |
| 80-354 | Raw Coal | | | Air Dried | | 0.71 | | 22.58 | | | | | |
| 53 | (131 - 134 m) | | | Dry Basis | | - | | 22.74 | | | | | |
| | +1.62 Flt | | 78.90 | Air Dried | | 4.19 | 22.96 | 10.52 | 62.33 | | | 1 | |
| | | | | Dry Basis | | - | 23.96 | 10.98 | 65.06 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21312 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-210 | PAGE 2 of 2 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-355 | Raw Coal | | | Air Dried | | 0.81 | | 30.17 | | | | | |
| 54 | (128-137 m) | | | Dry Basis | | - | | 30.42 | | | | | |
| | +1.62 Flt | | 63.68 | Air Dried | | 2.08 | 23.27 | 11.73 | 62.92 | | | 1 | |
| | | | | Dry Basis | | - | 23.76 | 11.98 | 64.26 | | | | |
| 80-356 | Raw Coal | | | Air Dried | | 0.83 | | 26.10 | | | | | |
| 55 | (125-128 m) | | | Dry Basis | | - | | 26.32 | | | | | |
| | +1.62 Flt | | 74.33 | Air Dried | | 1.22 | 22.98 | 13.95 | 61.85 | | | 1 | |
| | | | | Dry Basis | | - | 23.26 | 14.12 | 62.62 | | | | |
| 80-357 | Raw Coal | | | Air Dried | | 0.90 | | 52.42 | | | | | |
| 56 | (120-125 m) | | | Dry Basis | | - | | 52.90 | | | | | |
| | +1.62 Flt | | 37.92 | Air Dried | | 1.47 | 25.49 | 11.15 | 61.89 | | | 3½ | |
| | | | | Dry Basis | | - | 25.87 | 11.32 | 62.81 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21319-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt 210 | PAGE 1 of 1 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(353+ 354) | Raw | | | Air Dried | | 0.97 | | 29.28 | | | | | |
| | (131 → | 139 m) | | Dry Basis | | - | | 29.57 | | | | | |
| 80-52+ 53 | +1.62 Flt | | 64.99 | Air Dried | | 2.90 | 21.93 | 11.57 | 63.60 | .28 | 12,975 | 1 | |
| | | | | Dry Basis | | - | 22.58 | 11.92 | 65.50 | .29 | 13,363 | | |
| 80-(355+ 357) | Raw | | | Air Dried | | 1.38 | | 26.15 | | | | | |
| | (120 → | 131 m) | | Dry Basis | | - | | 26.52 | | | | | |
| 80-54+ 56 | +1.62 Flt | | 52.62 | Air Dried | | 1.09 | 24.35 | 11.47 | 63.09 | .29 | 13,190 | 1 | |
| | | | | Dry Basis | | - | 24.62 | 11.60 | 63.78 | .29 | 13,335 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Endell

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-211 |
| FILE NO. | 21321 |
| DATE | April 27, 1981 |
| PAGE | 1 of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-378 | Raw Coal | | | Air Dried | | 0.70 | | 38.77 | | | | | |
| 28 | (19.5→ 20.5 m) | | | Dry Basis | | - | | 39.04 | | | | | |
| | +1.62 Flt | | 52.45 | Air Dried | | 0.73 | 18.84 | 26.34 | 54.09 | | | 0 | |
| | | | | Dry Basis | | - | 18.98 | 26.53 | 54.49 | | | | |
| 80-379 | Raw Coal | | | Air Dried | | 0.64 | | 46.64 | | | | | |
| 29 | (20.5→ 21.5 m) | | | Dry Basis | | - | | 46.94 | | | | | |
| | +1.62 Flt | | 48.95 | Air Dried | | 1.04 | 21.38 | 19.49 | 58.09 | | | ½ | |
| | | | | Dry Basis | | - | 21.60 | 19.69 | 58.71 | | | | |
| 80-380 | Raw Coal | | | Air Dried | | 0.59 | | 62.12 | | | | | |
| 30 | (74.5→ 75.5 m) | | | Dry Basis | | - | | 62.49 | | | | | |
| | +1.62 Flt | | 8.28 | Air Dried | | 0.94 | 18.89 | 26.25 | 53.92 | | | 1 | |
| | | | | Dry Basis | | - | 19.07 | 26.50 | 54.43 | | | | |
| 80-381 | Raw Coal | | | Air Dried | | 0.55 | | 47.08 | | | | | |
| 31 | (75.5→ 76.5 m) | | | Dry Basis | | - | | 47.34 | | | | | |
| | +1.62 Flt | | 22.22 | Air Dried | | 1.16 | 21.73 | 25.00 | 52.11 | | | 1 | Analysis re-checked for Ash & Sink-Float. |
| | | | | Dry Basis | | - | 21.99 | 25.29 | 52.72 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Gobles

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21321 |
| ATTENTION | Ken McCullough | DATE | April 27, 1981 |
| PROJECT | Lillyburt - LB-211 | PAGE 2 | of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-382 | Raw Coal | | | Air Dried | | 0.56 | | 54.15 | | | | | |
| 32 | (76.5 → 77.5m) | | | Dry Basis | | - | | 54.45 | | | | | |
| | +1.62 Flt | | 3.15 | Air Dried | | 1.60 | 18.44 | 39.83 | 40.13 | | | ½ | |
| | | | | Dry Basis | | - | 18.74 | 40.48 | 40.78 | | | | |
| 80-383 | Raw Coal | | | Air Dried | | 0.52 | | 57.58 | | | | | |
| 33 | (77.5 → 78.5m) | | | Dry Basis | | - | | 57.88 | | | | | |
| | +1.62 Flt | | 9.92 | Air Dried | | 1.30 | 21.49 | 29.34 | 47.87 | | | 1 | |
| | | | | Dry Basis | | - | 21.77 | 29.73 | 48.50 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: R. Endsor

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21321-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-211 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(378+ 379) | Raw | | | Air Dried | | 0.88 | | 41.67 | | | | | |
| | (19.5 → 21.5 m) | | | Dry Basis | | - | | 42.04 | | | | | |
| 28+ 29 | +1.62 Flt | | 46.04 | Air Dried | | 1.01 | 19.97 | 20.10 | 58.92 | .42 | 11,638 | 1 | |
| | | | | Dry Basis | | - | 20.17 | 20.31 | 59.52 | .42 | 11,757 | | |
| 80-(380-383) | Raw | | | Air Dried | | 0.54 | | 54.98 | | | | | |
| | (74.5 → 78.5 m) | | | Dry Basis | | - | | 55.28 | | | | | |
| | +1.62 Flt | | 12.00 | Air Dried | | 1.38 | 21.28 | 26.71 | 50.63 | .52 | 10,651 | 1 | |
| | | | | Dry Basis | | - | 21.58 | 27.08 | 51.34 | .53 | 10,800 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-212 |
| FILE NO. | 21320 |
| DATE | April 27, 1981 |
| PAGE | 1 of 2 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-334 | Raw Coal | | | Air Dried | | 0.55 | | 52.44 | | | | | |
| 26 | (141 → 143 m) | | | Dry Basis | | - | | 52.73 | | | | | |
| | +1.62 Flt | | 7.73 | Air Dried | | 1.61 | 20.28 | 30.88 | 47.23 | | | 1 | |
| | | | | Dry Basis | | - | 20.61 | 31.39 | 48.00 | | | | |
| 80-335 | Raw Coal | | | Air Dried | | 0.52 | | 32.25 | | | | | |
| 27 | (23.5 → 25.5 m) | | | Dry Basis | | - | | 32.42 | | | | | |
| | +1.62 Flt | | 56.96 | Air Dried | | 1.80 | 21.41 | 16.68 | 60.11 | | | ½ | |
| | | | | Dry Basis | | - | 21.80 | 16.99 | 61.21 | | | | |
| 80-358 | Raw Coal | | | Air Dried | | 0.55 | | 48.14 | | | | | |
| 57 | (138 → 140 m) | | | Dry Basis | | - | | 48.41 | | | | | |
| | +1.62 Flt | | 22.83 | Air Dried | | 1.54 | 22.94 | 27.81 | 47.71 | | | 1 | |
| | | | | Dry Basis | | - | 23.30 | 28.24 | 48.46 | | | | |
| 80-359 | Raw Coal | | | Air Dried | | 0.74 | | 32.79 | | | | | |
| 58 | (140 → 141 m) | | | Dry Basis | | - | | 33.03 | | | | | |
| | +1.62 Flt | | 50.56 | Air Dried | | 1.89 | 22.95 | 18.24 | 56.92 | | | 1½ | |
| | | | | Dry Basis | | - | 23.39 | 18.59 | 58.02 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D Ender

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21320 |
| ATTENTION | Ken McCullough | DATE | April 27, 1981 |
| PROJECT | Lillyburt - LB-212 | PAGE 2 of 2 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-360 | Raw Coal | | | Air Dried | | 7.67 | | 23.76 | | | | | |
| 59 | (15→16m) | | | Dry Basis | | - | | 25.73 | | | | | |
| | +1.62 Flt | | 57.42 | Air Dried | | 6.08 | 19.62 | 15.76 | 58.54 | | | 0 | |
| | | | | Dry Basis | | - | 20.89 | 16.78 | 62.33 | | | | |
| 80-361 | Raw Coal | | | Air Dried | | 0.66 | | 57.18 | | | | | |
| 60 | (25.5→26.5m) | | | Dry Basis | | - | | 57.56 | | | | | |
| | +1.62 Flt | | 30.32 | Air Dried | | 0.70 | 25.03 | 11.48 | 62.79 | | | 3 | |
| | | | | Dry Basis | | - | 25.21 | 11.56 | 63.23 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enders

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21320-1 |
| ATTENTION | Ken McCullough | DATE | May 15, 1981 |
| PROJECT | Lillyburt # 212. | PAGE 1 of 1 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(358+ 359+334) 57+58+ 26 | Raw (138 m → 143 m) | | | Air Dried | | 2.43 | | 43.11 | | | | | Sample has been rechecked for Sink-Float Test & Ash Content. |
| | | | | Dry Basis | | – | | 44.18 | | | | | |
| | +1.62 Flt | | 30.05 | Air Dried | | 1.44 | 22.69 | 22.15 | 53.72 | .53 | 11,348 | 1 | |
| | | | | Dry Basis | | – | 23.02 | 22.47 | 54.51 | .54 | 11,514 | | |
| 80-(335+ 361) 27+60 | Raw (23.5 → 26.5 m) | | | Air Dried | | 1.31 | | 46.53 | | | | | |
| | | | | Dry Basis | | – | | 47.15 | | | | | |
| | +1.62 Flt | | 45.70 | Air Dried | | 1.19 | 22.79 | 14.95 | 61.07 | .38 | 12,564 | 1 | |
| | | | | Dry Basis | | – | 23.06 | 15.13 | 61.81 | .38 | 12,715 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST:

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-213 |
| FILE NO. | 21322 |
| DATE | April 27, 1981 |
| PAGE | 1 of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-471 | Raw Coal | | | Air Dried | | 0.80 | | 70.83 | | | | | |
| 34 | (34 → 35m) | | | Dry Basis | | - | | 71.40 | | | | | |
| | +1.62 Flt | | 1.84 | Air Dried | | 0.92 | 23.88 | 15.40 | 59.80 | | | 4½ | |
| | | | | Dry Basis | | - | 24.10 | 15.54 | 60.36 | | | | |
| 80-472 | Raw Coal | | | Air Dried | | 1.23 | | 38.06 | | | | | |
| 65 | (35 → 36m) | | | Dry Basis | | - | | 38.53 | | | | | |
| | +1.62 Flt | | 40.81 | Air Dried | | 1.08 | 22.41 | 19.02 | 57.49 | | | 1 | |
| | | | | Dry Basis | | - | 22.65 | 19.23 | 58.12 | | | | |
| 80-473 | Raw Coal | | | Air Dried | | 0.52 | | 27.30 | | | | | |
| 66 | (36 → 37m) | | | Dry Basis | | - | | 27.44 | | | | | |
| | +1.62 Flt | | 58.35 | Air Dried | | 1.25 | 23.60 | 16.10 | 59.05 | | | 3½ | |
| | | | | Dry Basis | | - | 23.90 | 16.30 | 59.80 | | | | |
| 80-474 | Raw Coal | | | Air Dried | | 0.63 | | 21.50 | | | | | |
| 67 | (37 → 38m) | | | Dry Basis | | - | | 21.64 | | | | | |
| | +1.62 Flt | | 59.53 | Air Dried | | 1.40 | 26.08 | 13.91 | 58.61 | | | 7½ | |
| | | | | Dry Basis | | - | 26.45 | 14.11 | 59.44 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Endell

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21322-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-213 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(471-474) | Raw | | | Air Dried | | 0.95 | | 42.47 | | | | | |
| | | | | Dry Basis | | - | | 42.88 | | | | | |
| 34+ | (34 → 38 m) | | | | | | | | | | | | |
| 65 → 67 | +1.62 Flt | | 40.80 | Air Dried | | 2.20 | 23.48 | 19.25 | 55.07 | .52 | 11,763 | 3 | |
| | | | | Dry Basis | | - | 24.01 | 19.68 | 56.31 | .53 | 12,028 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enderby

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21323 |
| ATTENTION | Ken McCullough | DATE | April 24, 1981 |
| PROJECT | Lillyburt - LB-214 | PAGE 1 | of 3 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-459 | Raw Coal | | | Air Dried | | 0.52 | | 46.87 | | | | | |
| 68 | (158 → 160.5m) | | | Dry Basis | | - | | 47.11 | | | | | |
| | +1.62 flt | | 40.07 | Air Dried | | 1.22 | 22.54 | 16.05 | 60.19 | | | 1 | |
| | | | | Dry Basis | | - | 22.82 | 16.25 | 60.93 | | | | |
| 80-460 | Raw Coal | | | Air Dried | | 0.68 | | 52.60 | | | | | |
| 69 | (160.5 → 166m) | | | Dry Basis | | - | | 52.96 | | | | | |
| | +1.62 flt | | 33.61 | Air Dried | | 1.72 | 22.75 | 11.03 | 64.50 | | | 1 | |
| | | | | Dry Basis | | - | 23.15 | 11.22 | 65.63 | | | | |
| 80-461 | Raw Coal | | | Air Dried | | 0.78 | | 65.14 | | | | | |
| 70 | (166 → 168m) | | | Dry Basis | | - | | 65.65 | | | | | |
| | +1.62 flt | | 16.09 | Air Dried | | 1.42 | 22.05 | 27.07 | 49.46 | | | 1 | |
| | | | | Dry Basis | | - | 22.37 | 27.46 | 50.17 | | | | |
| 80-462 | Raw Coal | | | Air Dried | | 1.06 | | 85.53 | | | | | |
| 71 | (168 → 172.5m) | | | Dry Basis | | - | | 86.45 | | | | | |
| | +1.62 flt | | 1.95 | Air Dried | | 1.04 | 20.77 | 22.78 | 55.41 | | | 1 | |
| | | | | Dry Basis | | - | 20.99 | 23.02 | 55.99 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. [illegible]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-214 |
| FILE NO. | 21323 |
| DATE | April 27, 1981 |
| PAGE | 2 of 3 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-463 | Raw Coal | | | Air Dried | | 0.82 | | 51.83 | | | | | |
| 72 | (172.5 → 177 m) | | | Dry Basis | | - | | 52.26 | | | | | |
| | +1.62 flt | | 20.42 | Air Dried | | 1.01 | 21.32 | 16.22 | 61.45 | | | 1 | |
| | | | | Dry Basis | | - | 21.54 | 16.39 | 62.07 | | | | |
| 80-464 | Raw Coal | | | Air Dried | | 1.08 | | 37.81 | | | | | |
| 73 | (177 → 179 m) | | | Dry Basis | | - | | 38.22 | | | | | |
| | +1.62 flt | | 27.58 | Air Dried | | 1.03 | 20.91 | 15.77 | 62.29 | | | 1 | |
| | | | | Dry Basis | | - | 21.13 | 15.93 | 62.94 | | | | |
| 80-465 | Raw Coal | | | Air Dried | | 1.05 | | 68.13 | | | | | |
| 74 | (232 → 234 m) | | | Dry Basis | | - | | 68.85 | | | | | |
| | +1.62 flt | | 20.71 | Air Dried | | 1.10 | 21.86 | 15.80 | 61.24 | | | 1 | |
| | | | | Dry Basis | | - | 22.10 | 15.98 | 61.92 | | | | |
| 80-466 | Raw Coal | | | Air Dried | | 0.96 | | 54.43 | | | | | |
| 75 | (252.5 → 253 m) | | | Dry Basis | | - | | 54.96 | | | | | |
| | +1.62 flt | | 23.06 | Air Dried | | 0.32 | 21.82 | 16.91 | 60.95 | | | 1 | |
| | | | | Dry Basis | | - | 21.89 | 16.96 | 61.15 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Ender

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | Ken McCullough |
| PROJECT | Lillyburt - LB-214 |
| FILE NO. | 21323 |
| DATE | April 27, 1981 |
| PAGE | 3 of 3 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-467 | Raw Coal | | | Air Dried | | 0.96 | | 44.05 | | | | | |
| 76 | (253→ | 259m) | | Dry Basis | | - | | 44.48 | | | | | |
| | +1.62 flt | | 46.95 | Air Dried | | 0.60 | 23.09 | 15.83 | 60.48 | | | 3½ | |
| | | | | Dry Basis | | - | 23.23 | 15.92 | 60.85 | | | | |
| 80-468 | Raw Coal | | | Air Dried | | 1.14 | | 57.05 | | | | | |
| 77 | (213→ | 214m) | | Dry Basis | | - | | 57.71 | | | | | |
| | +1.62 flt | | 31.35 | Air Dried | | 0.46 | 20.77 | 18.07 | 60.70 | | | 1 | |
| | | | | Dry Basis | | - | 20.87 | 18.15 | 60.98 | | | | |
| 80-469 | Raw Coal | | | Air Dried | | 1.29 | | 68.05 | | | | | |
| 78 | (218→ | 220m) | | Dry Basis | | - | | 68.94 | | | | | |
| | +1.62 flt | | 24.32 | Air Dried | | 0.48 | 19.64 | 14.95 | 64.93 | | | 1 | |
| | | | | Dry Basis | | - | 19.73 | 15.02 | 65.24 | | | | |
| 80-470 | Raw Coal | | | Air Dried | | 1.36 | | 74.08 | | | | | |
| 79 | (221→ | 221.75m) | | Dry Basis | | - | | 75.10 | | | | | |
| | +1.62 flt | | 11.53 | Air Dried | | 0.47 | 19.56 | 19.50 | 60.47 | | | 1 | |
| | | | | Dry Basis | | - | 19.65 | 19.59 | 60.76 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enders

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21323-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyhurt - 214 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(459-464) | Raw (158 → 179 m) | | | Air Dried | | 0.67 | | 43.81 | | | | | |
| | | | | Dry Basis | | - | | 44.11 | | | | | |
| 68 → 73 | +1.62 Flt | | 32.14 | Air Dried | | 1.46 | 21.79 | 13.91 | 62.84 | .28 | 12,742 | 1 | |
| | | | | Dry Basis | | - | 22.11 | 14.12 | 63.77 | .28 | 12,931 | | |
| 80-(466+467) | Raw (252.5 → 259 m) | | | Air Dried | | 0.59 | | 46.99 | | | | | |
| | | | | Dry Basis | | - | | 47.27 | | | | | |
| 75 + 76 | +1.62 Flt | | 40.71 | Air Dried | | 1.07 | 22.38 | 16.50 | 60.05 | .51 | 12,473 | 2½ | |
| | | | | Dry Basis | | - | 22.62 | 16.68 | 60.70 | .52 | 12,608 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Enebs

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21524 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-215 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-475 | Raw Coal | | | Air Dried | | 0.83 | | 48.46 | | | | | |
| | | | | Dry Basis | | - | | 48.87 | | | | | |
| 80 | (28- 30m) | | | | | | | | | | | | |
| | +1.62 Flt | | 23.91 | Air Dried | | 0.70 | 19.06 | 18.56 | 61.68 | | | 1 | |
| | | | | Dry Basis | | - | 19.19 | 18.69 | 62.12 | | | | |
| 80-476 | Raw Coal | | | Air Dried | | 0.92 | | 43.87 | | | | | |
| | | | | Dry Basis | | - | | 44.28 | | | | | |
| 81 | (30m - 33m) | | | | | | | | | | | | |
| | +1.62 Flt | | 48.13 | Air Dried | | 1.25 | 20.85 | 12.44 | 65.46 | | | 1 | |
| | | | | Dry Basis | | - | 21.11 | 12.60 | 66.29 | | | | |
| 80-477 | Raw Coal | | | Air Dried | | 1.17 | | 73.47 | | | | | |
| | | | | Dry Basis | | - | | 74.34 | | | | | |
| 82 | (33- 34m) | | | | | | | | | | | | |
| | +1.62 Flt | | 4.48 | Air Dried | | 0.50 | 20.36 | 18.90 | 60.24 | | | 5 | |
| | | | | Dry Basis | | - | 20.46 | 18.99 | 60.55 | | | | |
| 80-478 | Raw Coal | | | Air Dried | | 1.15 | | 83.63 | | | | | |
| | | | | Dry Basis | | - | | 84.60 | | | | | |
| 83 | (34 - 35m) | | | | | | | | | | | | |
| | +1.62 Flt | | 1.96 | Air Dried | | 0.65 | 21.26 | 17.43 | 60.66 | | | 7½ | |
| | | | | Dry Basis | | - | 21.40 | 17.54 | 61.06 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Eddy

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21324-1 |
| ATTENTION | Ken McCullough | DATE | May 11, 1981 |
| PROJECT | Lillyburt - LB-215 | PAGE 1 | of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-(475-478) | Raw (28 - 35m) | | | Air Dried | | 0.49 | | 63.40 | | | | | |
| | | | | Dry Basis | | - | | 63.71 | | | | | |
| 80 → 83 | +1.62 Flt | | 18.36 | Air Dried | | 0.85 | 19.44 | 19.76 | 59.95 | .51 | 12,011 | 1 | |
| | | | | Dry Basis | | - | 19.61 | 19.93 | 60.46 | .51 | 12,114 | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Ender

FILE NO. AA-447

# LOWING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 21325 |
| ATTENTION | Ken McCullough | DATE | April 23, 1981 |
| PROJECT | Lillyburt - LB-217 | PAGE | 1 of 1 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80-932 | Raw Coal | | | Air Dried | | 0.33 | | 57.47 | | | | | |
| 1 | (17 - 19 m) | | | Dry Basis | | - | | 58.01 | | | | | |
| | +1.62 Flt | | 16.79 | Air Dried | | 0.50 | 17.32 | 19.37 | 62.41 | | | 1 | |
| | | | | Dry Basis | | - | 17.41 | 19.87 | 62.72 | | | | |
| 80-933 | Raw Coal | | | Air Dried | | 0.33 | | 62.10 | | | | | |
| 2 | (37.2 - 38.5 m) | | | Dry Basis | | - | | 62.62 | | | | | |
| | +1.62 Flt | | 18.42 | Air Dried | | 0.83 | 19.41 | 16.29 | 63.47 | | | 3 | |
| | | | | Dry Basis | | - | 19.57 | 16.43 | 64.00 | | | | |

PURCHASE ORDER NUMBER: 22352

ANALYST: D. Golds

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22663 |
| ATTENTION | T. Timmons | DATE | November 13, 1981 |
| PROJECT | Lillyburt | PAGE 6 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 300 | | | | | | | | | | | | | |
| 81-1358 | Raw Coal | | | Air Dried | | 0.87 | | 21.54 | | | | | |
| | | | | Dry Basis | | - | | 21.73 | | | | | |
| | 1.60 Flt | | 59 | Air Dried | | 2.22 | | 7.82 | | | | | |
| | | | | Dry Basis | | - | | 8.00 | | | | | |
| 81-1359 | Raw Coal | | | Air Dried | | 0.85 | | 31.86 | | | | | |
| | | | | Dry Basis | | - | | 32.13 | | | | | |
| | 1.60 Flt | | 41 | Air Dried | | 1.51 | | 11.78 | | | | | |
| | | | | Dry Basis | | - | | 11.96 | | | | | |
| 81-1360 | Raw Coal | | | Air Dried | | 0.93 | | 19.83 | | | | | |
| | | | | Dry Basis | | - | | 20.02 | | | | | |
| | 1.60 Flt | | 57 | Air Dried | | 2.02 | | 9.55 | | | | | |
| | | | | Dry Basis | | - | | 9.77 | | | | | |

Note: Sink/Float Analysis - E.N.R.L. Lab.

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enders

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22664 |
| ATTENTION | T. Timmons | DATE | November 18, 1981 |
| PROJECT | Lillyburt | PAGE 1 of 1 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 301 | | | | | | | | | | | | | |
| 81-1280-1284 | Raw | | | Air Dried | | 0.63 | | 69.92 | | | | | |
| | | | | Dry Basis | | - | | 70.36 | | | | | |
| | Flt 1.6 | | 18 | Air Dried | | 0.67 | 28.72 | 15.40 | 55.21 | .68 | 13,026 | 8 | |
| | | | | Dry Basis | | - | 28.91 | 15.50 | 55.59 | .68 | 13,114 | | |
| 81-1286+1287 | Raw | | | Air Dried | | 0.58 | | 22.63 | | | | | |
| | | | | Dry Basis | | - | | 22.76 | | | | | |
| | Flt 1.6 | | 71 | Air Dried | | 1.47 | 21.98 | 9.91 | 66.64 | .22 | 13,735 | 1½ | |
| | | | | Dry Basis | | - | 22.31 | 10.06 | 67.63 | .22 | 13,940 | | |
| 81-1286-1289 | Raw | | | Air Dried | | 0.71 | | 36.49 | | | | | |
| | | | | Dry Basis | | - | | 36.75 | | | | | |
| | Flt 1.6 | | 52 | Air Dried | | 1.64 | 21.71 | 11.81 | 64.84 | .28 | 13,572 | 1 | |
| | | | | Dry Basis | | - | 22.07 | 12.01 | 65.92 | .28 | 13,798 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: [signature]

CROWS NEST RESOURCES ANALYSIS REPORT

AREA: LILYBURT HOLE NO. #301 DATE: 20/8/81 ANALYST

(CORE)

| LAB. NO. | SAMPLE NO. | SEAM | INTERVAL (METRES) | FRACTION | % AIR DRY LOSS | % MOISTURE | % ASH | % V.M. | % F.C. | F.S.I. | SULFUR | % YIELD | Kcal/kg | CALC BAST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RAW | .30 | .82 | 52.79 | | | 2 | | | | ADB |
| 81 - | 01 | F | 87.4 - | | | | | | | | | | | ARB |
| 1280 | | E | 88.25 | | | | 53.23 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .71 | 18.31 | 25.58 | 55.40 | 8 | | 38 | | ADB |
| | | | | | | | 18.44 | 25.76 | 55.80 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 1.31 | .96 | 82.06 | | | 0 | | | | ADB |
| 81 - | 02 | F | 88.25 - | | | | | | | | | | | ARB |
| 1281 | | E | 89.36 | | | | 82.86 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .97 | 11.28 | 25.78 | 61.97 | 8½ | | 4 | | ADB |
| | | | | | | | 11.39 | 26.03 | 62.58 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | .75 | .75 | 22.02 | | | 7½ | | | | ADB |
| 81 - | 03 | F | 89.36 - | | | | | | | | | | | ARB |
| 1282 | | E | 90.45 | | | | 22.19 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .71 | 10.17 | 27.28 | 61.84 | 8½ | | 72 | | ADB |
| | | | | | | | 10.24 | 27.48 | 62.28 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |

CROWS NEST RESOURCES ALYSIS REPORT

AREA: LILYBURT HOLE NO. #301 (CORE) DATE: 20/8/81 ANALYST

| LAB. NO. | SAMPLE NO. | SEAM | INTERVAL (METRES) | FRACTION | % AIR DRY LOSS | % MOISTURE | % ASH | % V.M. | % F.C. | F.S.I. | SULFUR | % YIELD | Kcal/kg | CAL BAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81 - | 04 | E ~~E~~ | 90.45 - | RAW | .85 | .80 | 87.37 | | | 0 | | | | AD |
| | | | | | | | | | | | | | | AR |
| 1283 | | | 91.35 | | | | 88.07 | | | | | | | DB |
| | | | | 1.6 FLOAT | | 0 - | FLOAT | | | - | | 0 | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 1.78 | .56 | 34.62 | | | 6½ | | | | AD |
| 81 - | 05 | E | 91.35 - | | | | | | | | | | | AR |
| | | | | | | | 34.81 | | | | | | | DB |
| 1284 | | | 92.14 | 1.6 FLOAT | | 1.21 | 14.30 | 24.81 | 59.68 | 8½ | | 52 | | AD |
| | | | | | | | 14.47 | 25.12 | 60.41 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | .97 | .72 | 45.99 | | | 1 | | | | AD |
| 81 - | 06 | ~~E~~ D | 146.8 - | | | | | | | | | | | AR |
| | | | | | | | 46.32 | | | | | | | DB |
| 1285 | | | 147.35 | 1.6 FLOAT | | 1.04 | 16.23 | 21.53 | 61.20 | 2 | | 33 | | AD |
| | | | | | | | 16.40 | 21.76 | 61.84 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |

CROWS NEST RESOURCES ALYSIS REPORT

AREA: LILYBURT HOLE NO. #301 DATE: 20/8/81 ANALYST

(CORE)

| LAB. NO. | SAMPLE NO. | SEAM | INTERVAL (METRES) | FRACTION | % AIR DRY LOSS | % MOISTURE | % ASH | % V.M. | % F.C. | F.S.I. | SULFUR | % YIELD | Kcal/kg | CAL BAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RAW | .86 | .72 | 34.48 | | | 1 | | | | AD |
| 81 - | 65 | C | 220.91 - | | | | | | | | | | | AR |
| | | | | | | | 34.73 | | | | | | | DB |
| 1286 | | | 222.5 | 1.6 FLOAT | | .84 | 8.23 | 23.14 | 67.79 | 3½ | | 54 | | AD |
| | | | | | | | 8.30 | 23.34 | 68.36 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 1.83 | .67 | 18.69 | | | 1 | | | | AD |
| 81 - | 66 | | 222.5 - | | | | | | | | | | | AR |
| | | | | | | | 18.82 | | | | | | | DB |
| 1287 | | | 225.22 | 1.6 FLOAT | | 1.33 | 9.20 | 20.89 | 68.58 | 1 | | 75 | | AD |
| | | C | | | | | 9.32 | 21.17 | 69.51 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | A |
| | | | | | | | | | | | | | | D |
| | | | | FLOAT | | | | | | | | | | A |
| | | | | | | | | | | | | | | D |
| | | | | RAW | .97 | .86 | 82.71 | | | 0 | | | | A |
| 81 - | 68 | | 225.22 - | | | | | | | | | | | A |
| | | | | | | | 83.43 | | | | | | | D |
| 1288 | | C | 225.54 | 1.6 FLOAT | | 0 - FLOAT | | | | - | | 0 | | A |
| | | | | | | | | | | | | | | D |
| | | | | FLOAT | | | | | | | | | | A |
| | | | | | | | | | | | | | | D |
| | | | | FLOAT | | | | | | | | | | A |
| | | | | | | | | | | | | | | D |

CROWS NEST RESOURCES ALYSIS REPORT

AREA: LILYBURT HOLE NO. #301 DATE: 20/8/81 ANALYST

(CORE)

| LAB. NO. | SAMPLE NO. | SEAM | INTERVAL (METRES) | FRACTION | % AIR DRY LOSS | % MOISTURE | % ASH | % V.M. | % F.C. | F.S.I. | SULFUR | % YIELD | Kcal/kg | CAL BAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RAW | 7.62 | .74 | 34.23 | | | 1 | | | | AD |
| 81 - | 69 | | 225.54 - | | | | | | | | | | | AR |
| | | | | | | | 34.49 | | | | | | | DB |
| 1289 | | C | 230.70 | 1.6 FLOAT | | 1.63 | 12.34 | 21.32 | 64.71 | 1½ | | 51 | | AD |
| | | | | | | | 12.54 | 21.67 | 65.79 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 3.10 | .46 | 38.67 | | | 1 | | | | AD |
| 81 - | 60 | | 234.4 - | | | | | | | | | | | AR |
| | | | | | | | 38.85 | | | | | | | DB |
| 1290 | | | 234.94 | 1.6 FLOAT | | .57 | 16.90 | 20.22 | 62.31 | 2 | | 47 | | AD |
| | | | | | | | 17.00 | 20.34 | 62.66 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 1.74 | .51 | 39.48 | | | 1 | | | | AD |
| 81 - | 07 | | 238.35 - | | | | | | | | | | | AR |
| | | | | | | | 39.68 | | | | | | | DB |
| 1291 | | | 238.8 | 1.6 FLOAT | | .38 | 18.81 | 20.59 | 60.22 | 2½ | | 73 | | AD |
| | | | | | | | 18.88 | 20.67 | 60.45 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |

CROWS NEST RESOURCES ALYSIS REPORT

AREA: LILYBURT HOLE NO. #301 (CORE) DATE: 20/8/81 ANALYST

| LAB. NO. | SAMPLE NO. | SEAM | INTERVAL (METRES) | FRACTION | % AIR DRY LOSS | % MOISTURE | % ASH | % V.M. | % F.C. | F.S.I. | SULFUR | % YIELD | Kcal/kg | CALC. BASIS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RAW | 1.56 | .51 | 24.03 | | | 1½ | | | | ADB |
| 81 - | 61 | | 248.43 - | | | | | | | | | | | ARB |
| 1292 | | | 248.96 | | | | 24.15 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .40 | 14.77 | 20.95 | 63.88 | 2½ | | 74 | | ADB |
| | | | | | | | 14.83 | 21.04 | 64.13 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 1.06 | .67 | 82.74 | | | 0 | | | | ADB |
| 81 - | 62 | | 248.96 - | | | | | | | | | | | ARB |
| 1293 | | | 249.38 | | | | 83.30 | | | | | | | DB |
| | | | | 1.6 FLOAT | | 0 - FLOAT | | | | - | | 0 | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 2.07 | .44 | 51.07 | | | 1 | | | | ADB |
| 81 - | 63 | | 249.38 - | | | | | | | | | | | ARB |
| 1294 | | | 249.58 | | | | 51.30 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .59 | 15.06 | 20.89 | 63.46 | 3 | | 18 | | ADB |
| | | | | | | | 15.15 | 21.02 | 63.83 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | ADB |
| | | | | | | | | | | | | | | DB |

CROWS NEST RESOURCES ALYSIS REPORT

AREA: LILYBURT HOLE NO. #301 DATE: 20/8/81 ANALYST

| LAB. NO. | SAMPLE NO. | SEAM | INTERVAL (METRES) | FRACTION | % AIR DRY LOSS | % MOISTURE | % ASH | % V.M. | % F.C. | F.S.I. | SULFUR | % YIELD | Kcal/kg | CAL BAS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | RAW | 0 | .48 | 34.09 | | | 1 | | | | AD |
| 81 - | 64 | | 259.95 - | | | | | | | | | | | AR |
| 1295 | | | 260.81 | | | | 34.25 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .63 | 13.06 | 19.87 | 66.44 | 1 | | 61 | | AD |
| | | | | | | | 13.14 | 20.00 | 66.86 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | 3.37 | .92 | 18.74 | | | 1 | | | | AD |
| 81 - | 72 | | 272.5 - | | | | | | | | | | | AR |
| 1296 | | B | 273.5 | | | | 18.91 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .65 | 9.35 | 19.34 | 70.66 | 1 | | 70 | | AD |
| | | | | | | | 9.41 | 19.47 | 71.12 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | RAW | .92 | .84 | 50.77 | | | 1 | | | | AD |
| 81 - | 73 | A | 300.1 - | | | | | | | | | | | AR |
| 1297 | | | 303.2 | | | | 51.20 | | | | | | | DB |
| | | | | 1.6 FLOAT | | .62 | 17.59 | 20.03 | 61.76 | 1½ | | 23 | | AD |
| | | | | | | | 17.70 | 20.16 | 62.14 | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |
| | | | | FLOAT | | | | | | | | | | AD |
| | | | | | | | | | | | | | | DB |

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22663 |
| ATTENTION | T. Timmons | DATE | November 13, 1981 |
| PROJECT | Lillyburt | PAGE | 1 of 6 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 302 | | | | | | | | | | | | | |
| 81-1298 | Raw Coal | | | Air Dried | | 1.13 | | 66.76 | | | | | |
| | | | | Dry Basis | | - | | 67.52 | | | | | |
| | 1.60 Flt | | 15 | Air Dried | | 1.11 | | 17.04 | | | | | |
| | | | | Dry Basis | | - | | 17.23 | | | | | |
| 81-1299 | Raw Coal | | | Air Dried | | 1.07 | | 34.19 | | | | | |
| | | | | Dry Basis | | - | | 34.56 | | | | | |
| | 1.60 Flt | | 57 | Air Dried | | 1.43 | | 15.64 | | | | | |
| | | | | Dry Basis | | - | | 15.87 | | | | | |
| 81-1300 | Raw Coal | | | Air Dried | | 1.44 | | 59.44 | | | | | |
| | | | | Dry Basis | | - | | 60.31 | | | | | |
| | 1.60 Flt | | 25 | Air Dried | | 1.57 | | 10.15 | | | | | |
| | | | | Dry Basis | | - | | 10.31 | | | | | |
| ✓ C (Upper) 81-1301 | Raw Coal | | | Air Dried | | 1.42 | | 56.26 | | | | | |
| | | | | Dry Basis | | - | | 57.07 | | | | | |
| | 1.60 Flt | | 23 | Air Dried | | 1.63 | | 8.13 | | | | | |
| | | | | Dry Basis | | - | | 8.26 | | | | | |

Note: Sink/Float Analysis - C.N.R.L. Lab.

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enlos

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | T. Timmons |
| PROJECT | Lillyburt |
| FILE NO. | 22663 |
| DATE | November 13, 198 |
| PAGE | 2 of 6 |

| Seam | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hole # 302 | | | | | | | | | | | | | |
| ✓ C Upper | 81-1302 | Raw Coal | | | Air Dried | | 1.34 | | 22.96 | | | | | |
| | | | | | Dry Basis | | - | | 23.27 | | | | | |
| | | 1.60 Flt | | 68 | Air Dried | | 1.59 | | 10.11 | | | | | |
| | | | | | Dry Basis | | - | | 10.27 | | | | | |
| ✓ C Upper | 81-1303 | Raw Coal | | | Air Dried | | 1.25 | | 27.69 | | | | | |
| | | | | | Dry Basis | | - | | 28.04 | | | | | |
| | | 1.60 Flt | | 54 | Air Dried | | 2.53 | | 10.79 | | | | | |
| | | | | | Dry Basis | | - | | 11.07 | | | | | |
| ✓ C Upper | 81-1304 | Raw Coal | | | Air Dried | | 1.17 | | 28.52 | | | | | |
| | | | | | Dry Basis | | - | | 28.86 | | | | | |
| | | 1.60 Flt | | 57 | Air Dried | | 1.33 | | 11.06 | | | | | |
| | | | | | Dry Basis | | - | | 11.21 | | | | | |
| C Upper | ✓ 81-1305 | Raw Coal | | | Air Dried | | 1.08 | | 28.91 | | | | | |
| | | | | | Dry Basis | | - | | 29.23 | | | | | |
| | | 1.60 Flt | | 55 | Air Dried | | 2.23 | | 10.41 | | | | | |
| | | | | | Dry Basis | | - | | 10.65 | | | | | |

Note: Sink/Float Analysis - C.N.R.L. Lab.

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enders

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22663 |
| ATTENTION | T. Timmons | DATE | November 13, 198 |
| PROJECT | Lillyburt | PAGE 3 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 302 | | | | | | | | | | | | | |
| √C 81-1306 | Raw Coal | | | Air Dried | | 1.04 | | 32.47 | | | | | |
| upper | | | | Dry Basis | | - | | 32.81 | | | | | |
| | 1.60 Flt | | 51 | Air Dried | | 1.23 | | 14.75 | | | | | |
| | | | | Dry Basis | | - | | 14.93 | | | | | |
| √C 81-1307 | Raw Coal | | | Air Dried | | 1.02 | | 75.99 | | | | | |
| Upper | | | | Dry Basis | | - | | 76.77 | | | | | |
| | 1.60 Flt | | 0 | Air Dried | | NS* | | NS* | | | | | |
| | | | | Dry Basis | | - | | - | | | | | |
| √C 81-1308 | Raw Coal | | | Air Dried | | 0.79 | | 40.85 | | | | | |
| lower | | | | Dry Basis | | - | | 41.18 | | | | | |
| | 1.60 Flt | | 32 | Air Dried | | 1.05 | | 16.48 | | | | | |
| | | | | Dry Basis | | - | | 16.65 | | | | | |
| √C 81-1309 | Raw Coal | | | Air Dried | | 0.95 | | 38.43 | | | | | |
| lower | | | | Dry Basis | | - | | 38.80 | | | | | |
| | 1.60 Flt | | 35 | Air Dried | | 1.15 | | 19.73 | | | | | |
| | | | | Dry Basis | | - | | 19.96 | | | | | |

(*) = No Sample

Note: Sink/Float Analysis - C.N.R.L. Lab.

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Eveller

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22663 |
| ATTENTION | T. Timmons | DATE | November 13, 198 |
| PROJECT | Lillyburt | PAGE 4 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 302 | | | | | | | | | | | | | |
| 81-1311 | Raw Coal | | | Air Dried | | 1.22 | | 63.79 | | | | | |
| | | | | Dry Basis | | - | | 64.58 | | | | | |
| | 1.60 Flt | | 17 | Air Dried | | 0.95 | | 14.85 | | | | | |
| | | | | Dry Basis | | - | | 14.99 | | | | | |
| ✓B 81-1312 | Raw Coal | | | Air Dried | | 1.23 | | 15.67 | | | | | |
| | | | | Dry Basis | | - | | 15.87 | | | | | |
| | 1.60 Flt | | 84 | Air Dried | | 1.34 | | 8.97 | | | | | |
| | | | | Dry Basis | | - | | 9.09 | | | | | |
| B 81-1313 | Raw Coal | | | Air Dried | | 1.19 | | 39.98 | | | | | |
| | | | | Dry Basis | | - | | 40.46 | | | | | |
| | 1.60 Flt | | 43 | Air Dried | | 1.05 | | 14.83 | | | | | |
| | | | | Dry Basis | | - | | 14.99 | | | | | |
| 81-1314 | Raw Coal | | | Air Dried | | 1.29 | | 37.01 | | | | | |
| | | | | Dry Basis | | - | | 37.49 | | | | | |
| | 1.60 Flt | | 48 | Air Dried | | 1.60 | | 8.98 | | | | | |
| | | | | Dry Basis | | - | | 9.13 | | | | | |

Note: Sink/Float Analysis - C.N.R.A. Lab.

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Ewalesk

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22663 |
| ATTENTION | T. Timmons | DATE | November 13, 1981 |
| PROJECT | Lillyburt | PAGE 5 of 6 | |

| Seam | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hole # 302 | | | | | | | | | | | | | |
| ✓ A | 81-1316 | Raw Coal | | | Air Dried | | 0.85 | | 21.83 | | | | | |
| | | | | | Dry Basis | | - | | 22.02 | | | | | |
| | | 1.60 Flt | | 71 | Air Dried | | 1.04 | | 13.52 | | | | | |
| | | | | | Dry Basis | | - | | 13.66 | | | | | |
| ✓ C lower | 81-1559 | Raw Coal | | | Air Dried | | 0.95 | | 28.69 | | | | | |
| | | | | | Dry Basis | | - | | 28.97 | | | | | |
| | | 1.60 Flt | | 58 | Air Dried | | 1.31 | | 10.61 | | | | | |
| | | | | | Dry Basis | | - | | 10.75 | | | | | |
| A | ✓ 81-1560 | Raw Coal | | | Air Dried | | 0.84 | | 46.54 | | | | | |
| | | | | | Dry Basis | | - | | 46.93 | | | | | |
| | | 1.60 Flt | | 17 | Air Dried | | 1.01 | | 16.31 | | | | | |
| | | | | | Dry Basis | | - | | 16.48 | | | | | |

Note: Sink/Float Analysis - C.N.R.L. Lab.

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enders

FILE NO. A3-16

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | T. Cole |
| PROJECT | Lillyburt |
| FILE NO. | 22665 |
| DATE | November 24, 198 |
| PAGE | 1 of 12 |

| Seam | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | Hole # 304R | | | | | | | | | | | | | |
| | 81-1317 | Raw Coal | | | Air Dried | | 0.61 | | 41.27 | | | | | |
| | | | | | Dry Basis | | - | | 41.52 | | | | | |
| | | -1.60 Flt | | 39 | Air Dried | | 1.65 | 23.67 | 8.49 | 66.19 | .77 | 13,806 | 5 | |
| | | | | | Dry Basis | | - | 24.07 | 8.63 | 67.30 | .78 | 14,038 | | |
| C | 81-1318 | Raw Coal | | | Air Dried | | 0.67 | | 36.37 | | | | | |
| | | | | | Dry Basis | | - | | 36.62 | | | | | |
| | | -1.60 Flt | | 46 | Air Dried | | 2.96 | 20.49 | 9.20 | 67.35 | .26 | 13,396 | 1 | |
| | | | | | Dry Basis | | - | 21.12 | 9.48 | 69.40 | .27 | 13,805 | | |
| C | 81-1319 | Raw Coal | | | Air Dried | | 0.75 | | 33.99 | | | | | |
| | | | | | Dry Basis | | - | | 34.25 | | | | | |
| | | -1.60 Flt | | 53 | Air Dried | | 3.22 | 21.70 | 9.15 | 65.93 | .35 | 13,381 | 1½ | |
| | | | | | Dry Basis | | - | 22.42 | 9.45 | 68.13 | .36 | 13,826 | | |
| | 81-1320 | Raw Coal | | | Air Dried | | 0.77 | | 77.13 | | | | | |
| | | | | | Dry Basis | | - | | 77.73 | | | | | |
| | | -1.60 Flt | | 2 | Air Dried | | 0.76 | 23.21 | 11.08 | 64.95 | .67 | 13,662 | 8½ | |
| | | | | | Dry Basis | | - | 23.39 | 11.16 | 65.45 | .68 | 13,767 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Eales

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 198 |
| PROJECT | Lillyburt | PAGE 2 of 12 | |

| | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hole # 304R | | | | | | | | | | | | | |
| C | 81-1321 | Raw Coal | | | Air Dried | | 0.74 | | 20.00 | | | | | |
| | | | | | Dry Basis | | - | | 20.15 | | | | | |
| | | -1.60 Flt | | 68 | Air Dried | | 2.14 | 20.68 | 9.20 | 67.98 | .22 | 13,402 | 1 | |
| | | | | | Dry Basis | | - | 21.13 | 9.40 | 69.47 | .22 | 13,695 | | |
| C | 81-1322 | Raw Coal | | | Air Dried | | 0.68 | | 20.29 | | | | | |
| | | | | | Dry Basis | | - | | 20.43 | | | | | |
| | | -1.60 Flt | | 73 | Air Dried | | 1.92 | 22.35 | 7.07 | 68.66 | .22 | 13,853 | 1 | |
| | | | | | Dry Basis | | - | 22.79 | 7.21 | 70.00 | .22 | 14,124 | | |
| C | 81-1323 | Raw Coal | | | Air Dried | | 0.67 | | 25.92 | | | | | |
| | | | | | Dry Basis | | - | | 26.09 | | | | | |
| | | -1.60 Flt | | 56 | Air Dried | | 2.74 | 21.49 | 8.75 | 67.02 | .22 | 13,410 | 1 | |
| | | | | | Dry Basis | | - | 22.10 | 9.00 | 68.90 | .23 | 13,788 | | |
| C | 81-1324 | Raw Coal | | | Air Dried | | 0.70 | | 34.97 | | | | | |
| | | | | | Dry Basis | | - | | 35.22 | | | | | |
| | | -1.60 Flt | | 39 | Air Dried | | 2.04 | 20.41 | 12.78 | 64.77 | .24 | 12,893 | 1 | |
| | | | | | Dry Basis | | - | 20.84 | 13.05 | 66.11 | .24 | 13,161 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enders

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 1981 |
| PROJECT | Lillyburt | PAGE 3 of 12 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 304R | | | | | | | | | | | | | |
| 81-1325 | Raw Coal | | | Air Dried | | 0.83 | | 32.05 | | | | | |
| | | | | Dry Basis | | - | | 32.32 | | | | | |
| | -1.60 Flt | | 40 | Air Dried | | 1.41 | 21.16 | 8.06 | 69.37 | .22 | 13,753 | ½ | |
| | | | | Dry Basis | | - | 21.46 | 8.18 | 70.36 | .22 | 13,950 | | |
| 81-1326 | Raw Coal | | | Air Dried | | 0.79 | | 36.15 | | | | | |
| | | | | Dry Basis | | - | | 36.44 | | | | | |
| | -1.60 Flt | | 38 | Air Dried | | 1.30 | 19.34 | 12.05 | 67.31 | .21 | 13,183 | ½ | |
| | | | | Dry Basis | | - | 19.59 | 12.21 | 68.20 | .21 | 13,357 | | |
| 81-1327 | Raw Coal | | | Air Dried | | 0.46 | | 32.36 | | | | | |
| | | | | Dry Basis | | - | | 32.51 | | | | | |
| | -1.60 Flt | | 41 | Air Dried | | 1.30 | 19.45 | 13.46 | 65.79 | .25 | 12,893 | ½ | |
| | | | | Dry Basis | | - | 19.71 | 13.64 | 66.65 | .25 | 13,063 | | |
| 81-1328 | Raw Coal | | | Air Dried | | 0.61 | | 31.66 | | | | | |
| | | | | Dry Basis | | - | | 31.85 | | | | | |
| | -1.60 Flt | | 44 | Air Dried | | 1.88 | 20.54 | 11.30 | 66.28 | .32 | 13,225 | 1 | |
| | | | | Dry Basis | | - | 20.93 | 11.52 | 67.55 | .33 | 13,478 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enderby

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 198 |
| PROJECT | Lillyburt | PAGE 4 of 12 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 304R | | | | | | | | | | | | | |
| C 81-1329 | Raw Coal | | | Air Dried | | 0.64 | | 20.51 | | | | | |
| | | | | Dry Basis | | - | | 20.64 | | | | | |
| | -1.60 Flt | | 60 | Air Dried | | 1.16 | 19.69 | 12.25 | 66.90 | .33 | 13,096 | 1 | |
| | | | | Dry Basis | | - | 19.92 | 12.39 | 67.69 | .33 | 13,250 | | |
| C 81-1330 | Raw Coal | | | Air Dried | | 0.73 | | 21.98 | | | | | |
| | | | | Dry Basis | | - | | 22.14 | | | | | |
| | -1.60 Flt | | 59 | Air Dried | | 1.89 | 19.94 | 11.99 | 66.18 | .33 | 13,107 | 1 | |
| | | | | Dry Basis | | - | 20.32 | 12.22 | 67.46 | .34 | 13,359 | | |
| C 81-1331 | Raw Coal | | | Air Dried | | 0.74 | | 27.59 | | | | | |
| | | | | Dry Basis | | - | | 27.80 | | | | | |
| | -1.60 Flt | | 43 | Air Dried | | 1.85 | 20.46 | 12.05 | 65.64 | .31 | 13,067 | 1 | |
| | | | | Dry Basis | | - | 20.85 | 12.28 | 66.87 | .32 | 13,313 | | |
| C 81-1332 | Raw Coal | | | Air Dried | | 0.65 | | 24.51 | | | | | |
| | | | | Dry Basis | | - | | 24.67 | | | | | |
| | -1.60 Flt | | 48 | Air Dried | | 1.53 | 19.59 | 11.54 | 67.34 | .31 | 13,265 | 1 | |
| | | | | Dry Basis | | - | 19.89 | 11.72 | 68.39 | .31 | 13,471 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. [illegible]

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 198 |
| PROJECT | Lillyburt | PAGE 5 of 12 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 304R | | | | | | | | | | | | | |
| 81-1333 | Raw Coal | | | Air Dried | | 0.70 | | 56.79 | | | | | |
| | | | | Dry Basis | | - | | 57.19 | | | | | |
| | -1.60 Flt | | 21 | Air Dried | | 0.73 | 21.33 | 13.02 | 64.92 | .39 | 13,105 | 4 | |
| | | | | Dry Basis | | - | 21.49 | 13.12 | 65.39 | .39 | 13,201 | | |
| 81-1334 | Raw Coal | | | Air Dried | | 0.57 | | 58.63 | | | | | |
| | | | | Dry Basis | | - | | 58.97 | | | | | |
| | -1.60 Flt | | 15 | Air Dried | | 0.67 | 19.47 | 18.85 | 61.01 | .47 | 12,325 | 1 | |
| | | | | Dry Basis | | - | 19.60 | 18.98 | 61.42 | .47 | 12,408 | | |
| 81-1335 | Raw Coal | | | Air Dried | | 0.66 | | 70.62 | | | | | |
| | | | | Dry Basis | | - | | 71.09 | | | | | |
| | -1.60 Flt | | 15 | Air Dried | | 0.61 | 19.93 | 15.35 | 64.11 | .54 | 12,810 | 1½ | |
| | | | | Dry Basis | | - | 20.05 | 15.44 | 64.51 | .54 | 12,889 | | |
| 81-1336 | Raw Coal | | | Air Dried | | 0.77 | | 60.57 | | | | | |
| | | | | Dry Basis | | - | | 61.04 | | | | | |
| | -1.60 Flt | | 18 | Air Dried | | 0.80 | 19.96 | 14.24 | 65.00 | .62 | 13,061 | 2 | |
| | | | | Dry Basis | | - | 20.12 | 14.35 | 65.53 | .62 | 13,166 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Golden

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 198 |
| PROJECT | Lillyburt | PAGE | 6 of 12 |

| | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hole # 304R | | | | | | | | | | | | | |
| B | 81-1337 | Raw Coal | | | Air Dried | | 0.64 | | 63.21 | | | | | |
| | | | | | Dry Basis | | - | | 63.62 | | | | | |
| | | -1.60 Flt | | 16 | Air Dried | | 0.74 | 20.09 | 14.26 | 64.91 | .57 | 13,012 | 1½ | |
| | | | | | Dry Basis | | - | 20.24 | 14.37 | 65.39 | .57 | 13,109 | | |
| A | 81-1338 | Raw Coal | | | Air Dried | | 0.29 | | 36.61 | | | | | |
| | | | | | Dry Basis | | - | | 36.72 | | | | | |
| | | -1.60 Flt | | 37 | Air Dried | | 0.75 | 22.40 | 13.70 | 63.15 | .59 | 13,159 | 7½ | |
| | | | | | Dry Basis | | - | 22.57 | 13.80 | 63.63 | .59 | 13,258 | | |
| | 81-1339 | Raw Coal | | | Air Dried | | 0.59 | | 41.43 | | | | | |
| | | | | | Dry Basis | | - | | 41.68 | | | | | |
| | | -1.60 Flt | | 35 | Air Dried | | 0.78 | 20.99 | 18.41 | 59.82 | .58 | 12,351 | 7 | |
| | | | | | Dry Basis | | - | 21.16 | 18.55 | 60.29 | .58 | 12,448 | | |
| A | 81-1430 | Raw Coal | | | Air Dried | | 0.64 | | 65.39 | | | | | |
| | | | | | Dry Basis | | - | | 65.81 | | | | | |
| | | -1.60 Flt | | 12 | Air Dried | | 0.87 | 20.18 | 15.67 | 63.28 | .51 | 12,636 | 1½ | |
| | | | | | Dry Basis | | - | 20.36 | 15.81 | 63.83 | .51 | 12,747 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Enderby

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 198 |
| PROJECT | Lillyburt | PAGE 7 of 12 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 305R | | | | | | | | | | | | | |
| 81-1340 | Raw Coal | | | Air Dried | | 0.54 | | 47.45 | | | | | |
| | | | | Dry Basis | | - | | 47.71 | | | | | |
| | -1.60 Flt | | 42 | Air Dried | | 0.78 | 27.21 | 14.28 | 57.73 | .60 | 12,847 | 8½ | |
| | | | | Dry Basis | | - | 27.42 | 14.39 | 58.19 | .60 | 12,948 | | |
| C 81-1341 | Raw Coal | | | Air Dried | | 0.83 | | 58.23 | | | | | |
| | | | | Dry Basis | | - | | 58.72 | | | | | |
| | -1.60 Flt | | 22 | Air Dried | | 0.28 | 21.84 | 15.78 | 62.10 | .31 | 12,557 | 1½ | |
| | | | | Dry Basis | | - | 21.90 | 15.82 | 62.28 | .31 | 12,592 | | |
| C 81-1342 | Raw Coal | | | Air Dried | | 0.79 | | 48.08 | | | | | |
| | | | | Dry Basis | | - | | 48.46 | | | | | |
| | -1.60 Flt | | 38 | Air Dried | | 1.58 | 21.21 | 12.88 | 64.33 | .27 | 12,789 | 2 | |
| | | | | Dry Basis | | - | 21.55 | 13.09 | 65.36 | .27 | 12,994 | | |
| C 81-1343 | Raw Coal | | | Air Dried | | 0.58 | | 51.09 | | | | | |
| | | | | Dry Basis | | - | | 51.39 | | | | | |
| | -1.60 Flt | | 33 | Air Dried | | 1.49 | 21.28 | 12.49 | 64.74 | .27 | 12,873 | 1½ | |
| | | | | Dry Basis | | - | 21.60 | 12.68 | 65.72 | .27 | 13,068 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Ruddell

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 1981 |
| PROJECT | Lillyburt | PAGE 8 | of 12 |

| | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hole # 305R | | | | | | | | | | | | | |
| C | 81-1344 | Raw Coal | | | Air Dried | | 0.56 | | 43.22 | | | | | |
| | | | | | Dry Basis | | - | | 43.46 | | | | | |
| | | -1.60 Flt | | 40 | Air Dried | | 2.00 | 21.57 | 9.26 | 67.17 | .28 | 13,428 | 1½ | |
| | | | | | Dry Basis | | - | 22.01 | 9.45 | 68.54 | .29 | 13,702 | | |
| C | 81-1345 | Raw Coal | | | Air Dried | | 0.55 | | 39.11 | | | | | |
| | | | | | Dry Basis | | - | | 39.33 | | | | | |
| | | -1.60 Flt | | 41 | Air Dried | | 1.69 | 21.20 | 10.03 | 67.08 | .23 | 13,290 | 1½ | |
| | | | | | Dry Basis | | - | 21.56 | 10.20 | 68.24 | .23 | 13,518 | | |
| C | 81-1346 | Raw Coal | | | Air Dried | | 0.59 | | 55.95 | | | | | |
| | | | | | Dry Basis | | - | | 56.28 | | | | | |
| | | -1.60 Flt | | 23 | Air Dried | | 1.05 | 19.78 | 15.05 | 64.12 | .18 | 12,508 | 1½ | |
| | | | | | Dry Basis | | - | 19.99 | 15.21 | 64.80 | .18 | 12,641 | | |
| C | 81-1347 | Raw Coal | | | Air Dried | | 0.65 | | 33.62 | | | | | |
| | | | | | Dry Basis | | - | | 33.84 | | | | | |
| | | -1.60 Flt | | 59 | Air Dried | | 1.30 | 18.40 | 12.45 | 67.85 | .17 | 13,056 | 1½ | |
| | | | | | Dry Basis | | - | 18.64 | 12.61 | 68.75 | .17 | 13,228 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Evelyn

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 1981 |
| PROJECT | Lillyburt | PAGE 9 of 12 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 305R | | | | | | | | | | | | | |
| 81-1348 | Raw Coal | | | Air Dried | | 0.74 | | 60.63 | | | | | |
| | | | | Dry Basis | | - | | 61.08 | | | | | |
| | -1.60 Flt | | 14 | Air Dried | | 1.26 | 19.43 | 13.10 | 66.21 | .16 | 12,899 | 1 | |
| | | | | Dry Basis | | - | 19.68 | 13.27 | 67.05 | .16 | 13,064 | | |
| 81-1349 | Raw Coal | | | Air Dried | | 0.85 | | 39.13 | | | | | |
| | | | | Dry Basis | | - | | 39.47 | | | | | |
| | -1.60 Flt | | 46 | Air Dried | | 1.70 | 19.66 | 10.95 | 67.69 | .20 | 13,189 | 1 | |
| | | | | Dry Basis | | - | 20.00 | 11.14 | 68.86 | .20 | 13,417 | | |
| 81-1350 | Raw Coal | | | Air Dried | | 0.70 | | 51.10 | | | | | |
| | | | | Dry Basis | | - | | 51.46 | | | | | |
| | -1.60 Flt | | 25 | Air Dried | | 1.30 | 19.27 | 13.87 | 65.56 | .19 | 12,728 | 1 | |
| | | | | Dry Basis | | - | 19.52 | 14.05 | 66.43 | .19 | 12,896 | | |
| 81-1351 | Raw Coal | | | Air Dried | | 0.57 | | 32.19 | | | | | |
| | | | | Dry Basis | | - | | 32.37 | | | | | |
| | -1.60 Flt | | 31 | Air Dried | | 1.20 | 19.39 | 12.10 | 67.31 | .25 | 13,019 | 1½ | |
| | | | | Dry Basis | | - | 19.63 | 12.25 | 68.12 | .25 | 13,177 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. [illegible]

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | T. Cole | DATE | November 24, 198 |
| PROJECT | Lillyburt | PAGE 10 of 12 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 305R | | | | | | | | | | | | | |
| 81-1352 | Raw Coal | | | Air Dried | | 0.63 | | 44.92 | | | | | |
| | | | | Dry Basis | | - | | 45.20 | | | | | |
| | -1.60 Flt | | 27 | Air Dried | | 0.92 | 19.21 | 14.84 | 65.03 | .24 | 12,649 | 1½ | |
| | | | | Dry Basis | | - | 19.39 | 14.98 | 65.63 | .24 | 12,766 | | |
| 81-1353 | Raw Coal | | | Air Dried | | 0.68 | | 38.43 | | | | | |
| | | | | Dry Basis | | - | | 38.69 | | | | | |
| | -1.60 Flt | | 42 | Air Dried | | 1.02 | 19.65 | 12.79 | 66.54 | .26 | 12,966 | 1½ | |
| | | | | Dry Basis | | - | 19.85 | 12.92 | 67.23 | .26 | 13,100 | | |
| 81-1354 | Raw Coal | | | Air Dried | | 0.81 | | 40.31 | | | | | |
| | | | | Dry Basis | | - | | 40.64 | | | | | |
| | -1.60 Flt | | 45 | Air Dried | | 1.02 | 19.76 | 13.08 | 66.14 | .29 | 12,931 | 1½ | |
| | | | | Dry Basis | | - | 19.96 | 13.21 | 66.83 | .29 | 13,064 | | |
| 81-1355 | Raw Coal | | | Air Dried | | 0.81 | | 62.96 | | | | | |
| | | | | Dry Basis | | - | | 62.45 | | | | | |
| | -1.60 Flt | | 23 | Air Dried | | 0.92 | 19.72 | 14.27 | 65.09 | .30 | 12,688 | 1½ | |
| | | | | Dry Basis | | - | 19.90 | 14.40 | 65.70 | .30 | 12,806 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Evelos

FILE NO. AA-467

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 22665 |
| ATTENTION | Lillyburt | DATE | November 24, 198 |
| PROJECT | T. Cole | PAGE 11 of 12 | |

| | SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Hole # 305R | | | | | | | | | | | | | |
| A | 81-1356 | Raw Coal | | | Air Dried | | 0.82 | | 50.18 | | | | | |
| | | | | | Dry Basis | | - | | 50.59 | | | | | |
| | | -1.60 Flt | | 20 | Air Dried | | 0.96 | 20.40 | 15.55 | 63.09 | .55 | 12,661 | 1½ | |
| | | | | | Dry Basis | | - | 20.60 | 15.70 | 63.70 | .56 | 12,784 | | |
| A | 81-1357 | Raw Coal | | | Air Dried | | 0.76 | | 45.09 | | | | | |
| | | | | | Dry Basis | | - | | 45.44 | | | | | |
| | | -1.60 Flt | | 39 | Air Dried | | 1.04 | 21.22 | 15.38 | 62.36 | .55 | 12,708 | 4 | |
| | | | | | Dry Basis | | - | 21.44 | 15.54 | 63.02 | .56 | 12,842 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Gudos

FILE NO. AA-467

CROWS NEST RESOURCES LTD.

PROJECT - LILLYBURT

Hole #LBR 309 Chip

| Lab. No. | Sample No. | Interval (M) | Sink/Float | Yield |
|---|---|---|---|---|
| 81-1688 | 10 | 13-14 | 40 | |
| 81-1689 | 7 | 20-22 | 57 | |
| 81-1690 | 1 | 22-24 | 54 | |
| 81-1691 | 11 | 24-26 | 38 | |
| 81-1692 | 12 | 26-27 | 38 | |
| 81-1693 | 2 | 27-28 | 45 | |
| 81-1694 | 3 | 28-29 | 46 | |
| 81-1695 | 5 | 29-30 | 23 | |
| 81-1696 | 9 | 30-31 | 5 | |
| 81-1697 | 4 | 35-36 | 23 | |
| 81-1698 | 13 | | 61 | |
| 81-1699 | 14 | | 42 | |
| 81-1700 | 6 | 111-112 | 35 | |
| 81-1701 | 8 | 112-113 | 20 | |

Hole LBR 308

| | | | | |
|---|---|---|---|---|
| 81-1702 | 1 | 15-16 | 34 | |

Hole LBR 306 Core

| | | | | |
|---|---|---|---|---|
| 81-1856 | 15 | | 29 | |
| 81-1857 | 16 | | 47 | |
| 81-1858 | 17 | | 54 | |
| 81-1859 | 18 | | 64 | |
| 81-1860 | 19 | | 40 | |
| 81-1861 | 20 | | 1 | |
| 81-1862 | 21 | | 38 | |

1982.02.16

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 23061 |
| ATTENTION | T. Cole | DATE | February 2, 1982 |
| PROJECT | Lillyburt | PAGE 6 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 306D | | | | | | | | | | | | | |
| 81-1860 | Raw | | | Air Dried | | 0.57 | | 37.80 | | | | | |
| | | | | Dry Basis | | - | | 38.02 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.64 | | 17.55 | | | | | |
| | | | | Dry Basis | | - | | 17.66 | | | | | |
| 81-1861 | Raw | | | Air Dried | | 0.77 | | 77.58 | | | | | |
| | | | | Dry Basis | | - | | 78.18 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.72 | | 20.77 | | | | | |
| | | | | Dry Basis | | - | | 20.92 | | | | | |
| 81-1862 | Raw | | | Air Dried | | 0.78 | | 38.14 | | | | | |
| | | | | Dry Basis | | - | | 38.44 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.61 | | 17.22 | | | | | |
| | | | | Dry Basis | | - | | 17.33 | | | | | |

**PURCHASE ORDER NUMBER:** CN 20928

**ANALYST:** [illegible]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 23061 |
| ATTENTION | T. Cole | DATE | February 2, 1982 |
| PROJECT | Lillyburt | PAGE | 5 of 6 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 306D | | | | | | | | | | | | | |
| 81-1856 | Raw | | | Air Dried | | 0.63 | | 35.95 | | | | | |
| | | | | Dry Basis | | - | | 36.18 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.08 | | 17.48 | | | | | |
| | | | | Dry Basis | | - | | 17.67 | | | | | |
| 81-1857 | Raw | | | Air Dried | | 0.75 | | 29.76 | | | | | |
| | | | | Dry Basis | | - | | 29.98 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.19 | | 12.54 | | | | | |
| | | | | Dry Basis | | - | | 12.69 | | | | | |
| 81-1858 | Raw | | | Air Dried | | 0.73 | | 24.17 | | | | | |
| | | | | Dry Basis | | - | | 24.35 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.25 | | 10.22 | | | | | |
| | | | | Dry Basis | | - | | 10.35 | | | | | |
| 81-1859 | Raw | | | Air Dried | | 0.66 | | 17.93 | | | | | |
| | | | | Dry Basis | | - | | 18.05 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.22 | | 9.23 | | | | | |
| | | | | Dry Basis | | - | | 9.34 | | | | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: [signature]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | |
|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. |
| ATTENTION | T. Cole |
| PROJECT | Lillyburt |
| FILE NO. | 22665 |
| DATE | November 24, 198 |
| PAGE | 12 of 12 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 308 | | | | | | | | | | | | | |
| 81-1535 | Raw Coal | | | Air Dried | | 0.80 | | 39.32 | | | | | |
| | | | | Dry Basis | | - | | 39.64 | | | | | |
| | -1.60 Flt | | 50 | Air Dried | | 0.72 | 21.03 | 11.85 | 66.40 | .57 | 13,131 | 1½ | |
| | | | | Dry Basis | | - | 21.18 | 11.94 | 66.88 | .57 | 13,226 | | |
| | Raw Coal | | | Air Dried | | 1.07 | | 56.93 | | | | | |
| | | | | Dry Basis | | - | | 57.55 | | | | | |
| | -1.60 Flt | | 24 | Air Dried | | 0.61 | 20.14 | 14.01 | 65.24 | .55 | 12,942 | 1½ | |
| | | | | Dry Basis | | - | 20.26 | 14.10 | 65.64 | .55 | 13,021 | | |
| 81-1537 | Raw Coal | | | Air Dried | | 0.95 | | 49.18 | | | | | |
| | | | | Dry Basis | | - | | 49.65 | | | | | |
| | -1.60 Flt | | 28 | Air Dried | | 0.65 | 20.04 | 15.28 | 64.03 | .49 | 12,686 | 1½ | |
| | | | | Dry Basis | | - | 20.17 | 15.38 | 64.45 | .49 | 12,769 | | |
| 81-1538 | Raw Coal | | | Air Dried | | 0.86 | | 42.99 | | | | | |
| | | | | Dry Basis | | - | | 43.36 | | | | | |
| | -1.60 Flt | | 45 | Air Dried | | 0.69 | 20.14 | 10.66 | 68.51 | .44 | 13,486 | 1 | |
| | | | | Dry Basis | | - | 20.28 | 10.73 | 68.99 | .44 | 13,580 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: D. Gibbs

FILE NO. AA-467

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 23061 |
| ATTENTION | T. Cole | DATE | February 2, 1982 |
| PROJECT | Lillyburt | PAGE | 1 of 6 |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 309 | | | | | | | | | | | | | |
| 81-1688 | Raw | | | Air Dried | | 0.46 | | 34.01 | | | | | |
| | | | | Dry Basis | | - | | 34.17 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.17 | 22.81 | 17.09 | 58.93 | .64 | 12,594 | 4 | |
| | | | | Dry Basis | | - | 23.08 | 17.29 | 59.63 | .65 | 12,743 | | |
| 81-1689 | Raw | | | Air Dried | | 0.30 | | 23.95 | | | | | |
| | | | | Dry Basis | | - | | 24.02 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.42 | 22.73 | 11.68 | 64.17 | .30 | 13,242 | 1½ | |
| | | | | Dry Basis | | - | 23.06 | 11.85 | 65.09 | .30 | 13,433 | | |
| 81-1690 | Raw | | | Air Dried | | 0.60 | | 26.61 | | | | | |
| | | | | Dry Basis | | - | | 26.77 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.72 | 23.93 | 8.84 | 65.51 | .29 | 13,669 | 1½ | |
| | | | | Dry Basis | | - | 24.35 | 8.99 | 66.66 | .30 | 13,908 | | |
| 81-1691 | Raw | | | Air Dried | | 0.63 | | 33.51 | | | | | |
| | | | | Dry Basis | | - | | 33.72 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.71 | 21.79 | 12.62 | 63.88 | .29 | 12,981 | 1 | |
| | | | | Dry Basis | | - | 22.17 | 12.84 | 64.99 | .30 | 13,207 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: [signature]

# LORING LABORATORIES LTD.

CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 23061 |
| ATTENTION | T. Cole | DATE | February 2, 1982 |
| PROJECT | Lillyburt | PAGE 2 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 309 | | | | | | | | | | | | | |
| 81-1692 | Raw | | | Air Dried | | 0.66 | | 33.59 | | | | | |
| | | | | Dry Basis | | - | | 33.81 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.58 | 21.01 | 14.82 | 62.59 | .30 | 12,367 | 1 | |
| | | | | Dry Basis | | - | 21.35 | 15.06 | 63.59 | .30 | 12,566 | | |
| 81-1693 | Raw | | | Air Dried | | 0.52 | | 22.05 | | | | | |
| | | | | Dry Basis | | - | | 22.17 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.54 | 21.76 | 11.01 | 65.69 | .36 | 13,296 | 1 | |
| | | | | Dry Basis | | - | 22.10 | 11.18 | 66.72 | .37 | 13,504 | | |
| 81-1694 | Raw | | | Air Dried | | 0.58 | | 34.82 | | | | | |
| | | | | Dry Basis | | - | | 35.02 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.44 | 22.86 | 11.28 | 64.42 | .40 | 13,226 | 1½ | |
| | | | | Dry Basis | | - | 23.19 | 11.44 | 65.37 | .41 | 13,419 | | |
| 81-1695 | Raw | | | Air Dried | | 0.62 | | 56.52 | | | | | |
| | | | | Dry Basis | | - | | 56.87 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.05 | 21.23 | 12.34 | 65.38 | .40 | 13,192 | 1½ | |
| | | | | Dry Basis | | - | 21.46 | 12.47 | 66.07 | .40 | 13,332 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: [signature]

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 23061 |
| ATTENTION | T. Cole | DATE | February 2, 1982 |
| PROJECT | Lillyburt | PAGE 3 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 309 | | | | | | | | | | | | | |
| 81-1696 | Raw | | | Air Dried | | 0.69 | | 77.27 | | | | | |
| | | | | Dry Basis | | - | | 77.81 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.07 | 23.57 | 11.12 | 64.24 | .52 | 13,532 | 4½ | |
| | | | | Dry Basis | | - | 23.82 | 11.24 | 64.94 | .53 | 13,678 | | |
| 81-1697 | Raw | | | Air Dried | | 0.58 | | 49.88 | | | | | |
| | | | | Dry Basis | | - | | 50.17 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.73 | 21.35 | 15.58 | 62.34 | .54 | 12,779 | 2 | |
| | | | | Dry Basis | | - | 21.51 | 15.69 | 62.80 | .54 | 12,873 | | |
| 81-1698 | Raw | | | Air Dried | | 3.08 | | 23.76 | | | | | |
| | | | | Dry Basis | | - | | 24.52 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.98 | 27.80 | 6.95 | 63.27 | .78 | 11,913 | 0 | |
| | | | | Dry Basis | | - | 28.36 | 7.09 | 64.55 | .80 | 12,154 | | |
| 81-1699 | Raw | | | Air Dried | | 0.48 | | 32.61 | | | | | |
| | | | | Dry Basis | | - | | 32.77 | | | | | |
| | 1.60 Flt | | | Air Dried | | 1.09 | 21.88 | 11.60 | 65.43 | .35 | 13,267 | 1½ | |
| | | | | Dry Basis | | - | 22.12 | 11.73 | 66.15 | .35 | 13,413 | | |

PURCHASE ORDER NUMBER: CN 20928

ANALYST: [signature]

# LORING LABORATORIES LTD.

## CERTIFICATE OF COAL TESTING

| | | | |
|---|---|---|---|
| COMPANY | CROWSNEST RESOURCES LTD. | FILE NO. | 23061 |
| ATTENTION | T. Cole | DATE | February 2, 1982 |
| PROJECT | Lillyburt | PAGE 4 of 6 | |

| SAMPLE NUMBER | SAMPLE TYPE | % RECOVERY SINK | % RECOVERY FLOAT | BASIS OF ANALYSIS | REC'D % $H_2O$ | % $H_2O$ | % V.M. | % ASH | % F.C. | % S | Btu/lb | F.S.I | NOTES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hole # 309 | | | | | | | | | | | | | |
| 81-1700 | Raw | | | Air Dried | | 0.51 | | 32.59 | | | | | |
| | | | | Dry Basis | | - | | 32.76 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.85 | 21.66 | 17.54 | 59.95 | .62 | 12,417 | 1½ | |
| | | | | Dry Basis | | - | 21.85 | 17.69 | 60.46 | .63 | 12,523 | | |
| 81-1701 | Raw | | | Air Dried | | 0.46 | | 44.63 | | | | | |
| | | | | Dry Basis | | - | | 44.84 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.83 | 21.67 | 18.75 | 58.75 | .62 | 12,227 | 1 | |
| | | | | Dry Basis | | - | 21.85 | 18.91 | 59.24 | .63 | 12,329 | | |
| 81-1702-L | Raw | | | Air Dried | | 0.38 | | 48.00 | | | | | |
| | | | | Dry Basis | | - | | 48.18 | | | | | |
| | 1.60 Flt | | | Air Dried | | 0.49 | 21.09 | 20.29 | 58.13 | .47 | 11,973 | 1½ | |
| | | | | Dry Basis | | - | 21.19 | 20.39 | 58.42 | .47 | 12,032 | | |

**PURCHASE ORDER NUMBER:** CN 20928

**ANALYST:** [signature]

K. SHELL LILLYBURT 81(3)A
Book 2

Lillyburt 1981
Geophysical Logs

B McKinsey

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