

A COAL INDEX FOR YUKON AND DISTRICT OF MACKENZIE,
NORTHWEST TERRITORIES

B.D. Ricketts

OPEN FILE 1115

Contents

Introduction	*
Summary of coal locations	
Coal index	
References	

INTRODUCTION

This index provides a summary of data, from all known coal occurrences in Yukon and the western mainland of Northwest Territories (District of Mackenzie). The list includes all outcrops, former mine sites, and subsurface information from boreholes as of 1984. No limit has been set on the thickness of seams to be reported. The following information is given for each location:

- The area is subdivided into NTS Quadrangles and its contained Map areas. A specific occurrence is located as precisely as possible (Latitude and Longitude) together with a description of relevant topographical features. Each occurrence is given a MAP Number (see Fig. 1).
- Type of Locality: most of the coal occurrences are known only from outcrop. Other categories include mine site, subsurface (either borehole or geophysical) or trenches cleared during an exploration program.
- Under "Name" the formal status and age are given for the coal-bearing strata.
- "The Nature of Seams stratigraphy" provides information on the physical nature of the coal and associated strata, seam thickness, environments of deposition, and tectonic features.
- Coal ranks are classified according to ASTM standards. Where analyses are available, these are quoted individually, or as a range of values where large amounts of data have been published. In most cases, results for analyses 'as Received' are quoted for proximate, sulphur and calorific values. Vitrinite reflectance data is also listed.

- Very few indications of reserves are available, but where present, are quoted in terms of the scheme outlined by Bielenstein et al. (1979) in Department of Energy, Mines and Resources, Report ER79-9.
- Under "History of Exploration or Mining" a synopsis is given of the exploration and prospecting activities of mining companies, where companies have conducted geophysical surveys, drilling, trenching, geological mapping, or in the case of mining, dates, production rates and uses.
- References are listed by number in order of appearance.

SUMMARY OF COAL LOCATIONS

Coal occurrences by rank:

- Lignite 4, 11, 14, 15, 16, 19, 20, 30, 35, 36, 37, 38, 40, 53, 54, 55, 56, 57, 66, 67.
- Sub-bit. 1, 5, 8, 9, 10, 12, 13, 17, 18, 33, 34, 39, 58, 59, 60, 61.
- hvb. 2, 3, 6, 7, 23, 28, 29, 30, 31, 41, 46, 49, 50, 70, 71, 72.
- lvb. 69.

Coal occurrences by age:

- Tertiary 4, 5, 9, 10, 16, 20, 28, 34, 35, 37, 38, 39, 40, 54, 55, 56, 57, 58, 59, 60, 61, 66, 67.
- Upper Cretaceous 1, 30, 68, 70, 71, 72.
- Lower Cretaceous 14, 15, 17, 18, 21, 22, 23, 24, 25, 26, 27, 33, 42, 44, 46, 49, 53?, 63, 64, 65, 69.
- Cretaceous (undivided) 8, 11, 12, 13, 19, 29, 32.
- Jurassic 36, 41, 43, 45, 47, 48, 50, 62.
- Carboniferous 2, 3, 6, 7, 31, 73, 74.
- unknown 51, 52.

Coal occurrences for which analyses are available:

- 2, 3, 7, 9, 10, 16, 17, 19, 20, 21, 28, 30, 39, 48, 49, 56, 57, 58, 59, 60, 69, 71, 73, 74.

Coal mines:

- 22, 33, 39, 46, 48, 49, 50, 55, 56, 58, 59, 71.

Reserves available:

- 1, 2, 5, 9, 10, 28, 30, 39, 41, 58, 71.

REFERENCES

1. Lord, C.C. 1983. Nahanni Region. in: Department of Indian and Northern Affairs. Mineral Industry Report 1979, Northwest Territories, EGS-1983-9, pp. 245-265.
2. Douglas, R.J.W. and Norris, D.K. 1959. Fort Liard and La Biche map-areas, Northwest Territories and Yukon. Geological Survey of Canada, Paper 59-6.
3. Richards, B.C. Institute of Sedimentary and Petroleum Geology. Personal communication.
4. Cameron, A.R. and Pratt, K. 1982. Report on rank and maceral composition of coals in the Mattson Formation, Mackenzie District, Northwest Territories. Unpublished report, Coal Technology Section, Institute of Sedimentary and Petroleum Geology, Calgary.
5. Richards, B.C. 1983. Uppermost Devonian and Lower Carboniferous stratigraphy, sedimentation and diagenesis, southwestern District of Mackenzie and southeastern Yukon Territory. Unpublished Ph. D. thesis, University of Kansas, 373 pp.
6. Harker, P. 1963. Carboniferous and Permian rocks, southwestern District of Mackenzie. Geological Survey of Canada, Bulletin 95.
7. Gabrielse, H. and Blusson, S.L. 1969. Geology of Coal River map area, Yukon Territory and District of Mackenzie (95D). Geological Survey of Canada, Paper 68-38.
8. Yukon Geology and Exploration 1979-80. Department of Indian and Northern Affairs.
9. Yukon Geology and Exploration 1981. Department of Indian and Northern Affairs.
10. Hacquebard, P.A. and Barss, M.S. 1957. A carboniferous spore assemblage in coal from the South Nahanni River area, Northwest Territories. Geological Survey of Canada, Bulletin 40.
11. Hancock, W.P., Wetterberg, D.C. and Worthington, W.T. 1944. The Redstone River. Imperial Oil Ltd., Canol Project, Assignment No. 12.
12. Ricketts, B.D., Sweet, A.R. and Norris, D.K. in prep. Brackett Basin, Northwest Territories.
13. Yorath, C.J. and Cook, D.G. 1981. Cretaceous and Tertiary stratigraphy and paleogeography, northern Interior Plains, District of Mackenzie. Geological Survey of Canada, Memoir 398.
14. Balkwill, H.R. 1971. Reconnaissance geology, southern Great Bear Plain, District of Mackenzie. Geological Survey of Canada, Paper 71-11.

15. Cook, D.G. and Aitken, J.D. 1971. Geology, Colville Lake map-area and part of Coppermine map-area, Northwest Territories. Geological Survey of Canada, Paper 70-12.
16. Yorath, C.J., Balkwill H.R. and Klassen, R.W. 1975. Franklin Bay and Mallock Hill map areas, District of Mackenzie. Geological Survey of Canada, Paper 74-36.
17. Balkwill, H.R. and Yorath, C.J. 1971. Brock River map-area, District of Mackenzie. Geological Survey of Canada, Paper 70-32.
18. Thomas, O.L. 1943. Mineral possibilities of areas adjacent to the Alaska Highway. Part 1, Yukon section. Department of Mines and Resources, Transactions Vol. XLVI.
19. Geological Survey of Canada map 18-1960. North-central District of Mackenzie. Parts of sheets 86, 87, 96 and 97.
20. Internal report. Mines Branch, Fuel Research Laboratories, July 22, 1960.
21. Internal report. Mines Branch, February 14, 1950.
22. Hughes, J.D. and Lang, D.G.F. 1980. Geology and coal resource potential of early Tertiary strata along Tintina Trench, Yukon Territory. Geological Survey of Canada, Paper 79-32.
23. Department of Indian and Northern Affairs. Mineral Industry Report, Yukon, 1978.
24. Gabrielse, H. 1967. Geological Survey of Canada map 19-1966. Watson Lake, 105A.
25. Milner, M.W. and Craig, D.B. 1973. Coal areas in the Yukon. Department of Indian and Northern Affairs, Miscellaneous Report.
26. Cairnes, D.D. 1912. Wheaton District. Geological Survey of Canada, Memoir 31.
27. Morrison, G.W. Metallogenic Map: Whitehorse, Yukon. Department of Indian and Northern Affairs, Open File EGS 1979-6.
28. Tempelman-Kluit, D. 1978. Laberge map-area, NTS 105E. Geological Survey of Canada, Open File 578.
29. Yukon Territory Mineral Industry Report. 1977. Department of Indian and Northern Affairs.
30. Kindle, E.D. 1946. Geological reconnaissance along the Canol Road, from Teslin River to MacMillan Pass, Yukon. Geological Survey of Canada, Paper 45-21.
31. Blusson, S.L. 1971. Sekwi Mountain map-area, Yukon Territory and District of Mackenzie. Geological Survey of Canada, Paper 71-22.
32. Internal Report. 1973.

33. Norris, D.K. and Hopkins, W.S. Jr. 1977. The geology of the Bonnet Plume Basin, Yukon Territory. Geological Survey of Canada, Paper 76-8.
34. Long, D.G.F. 1978. Lignite deposits in the Bonnet Plume Formation, Yukon Territory. Geological Survey of Canada, Paper 78-1A, p. 399-401.
35. Mountjoy, E.W. 1967. Upper Cretaceous and Tertiary stratigraphy, northern Yukon Territory and northwestern District of Mackenzie. Geological Survey of Canada, Paper 66-16.
36. Norris, D.K. 1975. Geology, Snake River. Geological Survey of Canada, map 1529A.
37. Personal observation. 1982.
38. Norris, D.K. 1974. Geology, Arctic Red River. Geological Survey of Canada, map 1521A.
39. McKinnon, F.A. 1944. Canol Project assignment No. 22. The Arctic Red River area. Imperial Oil Ltd.
40. Muller, J.E. 1966. Geology, Kluane Lake. Geological Survey of Canada, map 1177A.
41. Muller, J.E. 1949. Internal Report. Department of Mines (No. 7483).
42. Muller, J.E. 1967. Kluane Lake map-area. Geological Survey of Canada, Memoir 340.
43. Mineral Industry Report. 1969-70. Yukon Territory and southwest sector of District of Mackenzie. Department of Indian and Northern Affairs.
44. Tempelman-Kluit, D. 1974. Reconnaissance geology of Aishihik Lake, Snag and part of Stewart River map-areas, west-central Yukon. Geological Survey of Canada, Paper 73-41.
45. Sinclair, W.D. and Gilbert, G.W. 1973. Mineral Industry Report, Yukon Territory, EGS 1975-7.
46. Department of Indian and Northern Affairs. Mineral Industry report, Yukon Territory, 1977.
47. Internal Report. 1965.
48. Hacquebard, P.A. 1970. The correlation of the main seam in the Tantalus Butte coal mine at Carmacks, Yukon Territory. Geological Survey of Canada, Topical Report No. 140.
49. Cairnes, D.D. 1908. Conrad and Whitehorse Mining Districts, Yukon. Department of Mines, Report 982.
50. Bostock, H.S. 1936. Carmacks District. Geological Survey of Canada, Memoir 189.

51. McConnell, R.G. 1901. Exploration of the Stewart River from its mouth to Fraser Falls, the Yukon between Stewart and Cliff Creek, and the Whitehorse copper deposits, Yukon. Geological Survey of Canada, Summary Report 1900.
52. Bostock, H.S. 1957. Yukon Territory 1898-1933. Geological Survey of Canada, Memoir 284.
53. Lowey, G.W. 1981. Preliminary report on Early Tertiary clastics, west-central Yukon. in: Yukon Exploration and Geology, 1981. Department of Indian and Northern Affairs, pp. 51-57.
54. McConnell, R.G. 1906. Lignite areas. Geological Survey of Canada, Annual Report Vol. XV, 1902-3, Report AA, p. 41-42.
55. Bostock, H.S. 1938. Mining Industry of Yukon, 1937. Geological Survey of Canada, Memoir 218.
56. Green, L.H. 1972. Geology of Nash Creek, Larsen Creek and Dawson map-areas. Yukon Territory. Geological Survey of Canada, Memoir 364.
57. Hopkins, W.S. Jr., Hughes, O.L. and Milner, M. 1975. Some coal-bearing Eocene sediments and comments on their combined microflora, Cliff Creek, Yukon Territory. Geological Survey of Canada, Paper 75-1C, p. 37-39.
58. Norris, D.K. 1976. Structural and stratigraphic studies in the northern Canadian Cordillera. Geological Survey of Canada, Paper 76-1A, p. 457-466.
59. Jeletzky, J.A. 1971. Stratigraphic, facies and paleogeography of Mesozoic rocks of northern and west-central Yukon. Geological Survey of Canada, Paper 71-1A, p. 203-221.
60. Norris, D.K. 1979. Geology, Ogilvie River. Geological Survey of Canada, map 1526A.
61. Jeletzky, J.A. 1974. Contributions to the Jurassic and Cretaceous geology of northern Yukon Territory and District of Mackenzie. Geological Survey of Canada, Paper 74-10.
62. Jeletzky, J.A. 1961. Upper Triassic and Lower Cretaceous rocks west flank of Richardson Mountains between the headwaters of Blow River and Bell River. Geological Survey of Canada, Paper 61-9.
63. Norris, D.K. 1975. Geology, Bell River. Geological Survey of Canada, map 1519A.
64. Norris, D.K. 1974. Structural and stratigraphic studies in the northern Canadian Cordillera. Geological Survey of Canada, Paper 74-1A, p. 343-349.
65. Mackay, B.R. Internal Report. 1946.
66. Norris, D.K. Personal communication.

67. Norris, D.K. 1976. Geology, Old Crow. Geological Survey of Canada, map 1518A.
68. Gabrielse, H. 1956. Geological reconnaissance in the northern Richardson Mountains, Yukon and Northwest Territories. Geological Survey of Canada, Paper 56-6.
69. Internal Report.
70. Norris, D.K. 1972. Structural and stratigraphic studies in the tectonic complex of northern Yukon Territory, north of Porcupine River. Geological Survey of Canada, Paper 72-1B, p. 91-99.
71. Young, F.G. 1975. Upper Cretaceous stratigraphy, Yukon coastal plain and northwestern Mackenzie delta. Geological Survey of Canada, Bulletin 249.
72. Internal Report.
73. Latour, B.A. Internal Report.

NTS QUADRANGLE 95

NTS MAP SHEET: 95B/3,4

MAP.NO 1

LATITUDE: $60^{\circ}15'$ N

LONGITUDE: $123^{\circ}30'$ W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Immediately west of Fort Liard.

NAME: Wapiti Formation. Upper Cretaceous.

NATURE OF SEAMS, STRATIGRAPHY: Coal-bearing, feldspathic sandstones occur as remnants capping a few of the hills adjacent to the left and right banks of Liard River. Coal has been mapped in thin seams up to 40 cm. near the base of the formation. The seams are structurally located in the Liard syncline.

RANK: Sub-bituminous B. Reported as low in sulphur and ash.

RESERVES: Estimated 240 million tonnes (1)

HISTORY OF EXPLORATION OR MINING: The first comprehensive map was published by Douglas and Norris(2).

Coal licenses were granted Utah Mines Ltd in 1978, who subsequently mapped on a scale of 1:50,000, and analysed coal samples. Coal licenses 102-108.

REFERENCES: 1, 2.

NTS QUADRANGLE 95

NTS MAP SHEET: 95B

MAP.NO 2

LATITUDE:

LONGITUDE:

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Near Sawmill Mountain, 48 km north of
Fort Liard.

NAME: Mattson Formation. Mississippian.

NATURE OF SEAMS, STRATIGRAPHY: Two seams up to 1.2 - 1.5 m
thick, are exposed on both limbs of the Liard Syncline.
Interbedded with sandstone, carbonaceous shale.

RANK: High volatile bituminous C. Contains 1.9% sulphur (1).

RESERVES: Estimated 154 million tonnes.

HISTORY OF EXPLORATION OR MINING: The first comprehensive map was
published by Douglas and Norris (1959).

Utah Mines Ltd obtained licenses in 1978

REFERENCES: 1,2.

NTS QUADRANGLE 95

NTS MAP SHEET: 95C . La Biche

MAP.NO 3

LATITUDE: $60^{\circ}50'$ N denotes general area.

LONGITUDE: $124^{\circ}25'$ W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Northeast corner of the map sheet, northern Liard and La Biche ranges.

NAME: Mattson Formation. Lower Carboniferous.

NATURE OF SEAMS, STRATIGRAPHY: Coal seams, locally up to 1.5 m thick; are interbedded with sandstone and carbonaceous shale, and are located near the top of map unit 8a (2). The seams have a lenticular geometry, and vary considerably in thickness. Sandstone/shale ratios are high. B.C. Richards has interpreted these features as indicating a braided river environment of deposition, probably within a lower delta plain (3). Harker (6) noted a thin seam interbedded with sandstone and bituminous shale at Tika Creek, west of La Biche River; Lat. $60^{\circ}45'$ N, Long. $124^{\circ}53'$ W.

RANK: Four samples analysed by A.R. Cameron and K. Pratt (4) indicate High volatile bituminous A or B ranks, and R_o max ranging from 0.79-1.14. The proportion of vitrinite is unusually low (14.4-20.5%).

RESERVES: Little prospect of mining because of mountainous terrane.

HISTORY OF EXPLORATION OR MINING: ~~The first comprehensive map was published by Douglas and Norris (2). Richards examined the Mattson as part of a comprehensive study of Upper Paleozoic strata in the Liard area (5).~~

REFERENCES: 2, 3, 4, 5, 6.

NTS QUADRANGLE 95

NTS MAP SHEET: 95D Coal River, D/11,14

MAP.NO 4

LATITUDE: 60°50' N approximate coordinates

LONGITUDE: 127°05'W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Little information available. Possible lignites in ~~Pleistocene~~ alluvium mapped as Pleistocene (7), flanking ridges underlain by Paleozoic strata.

NAME: N/A ?Pleistocene

NATURE OF SEAMS, STRATIGRAPHY:

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING: St Joseph Exploration Ltd held coal exploration licenses 115-122 in 1979-80. The eastern half of the leases were taken over by Sulpetro Minerals in 1980-81.(8)

REFERENCES: 7, 8.

NTS QUADRANGLE 95

NTS MAP SHEET: 95D Coal River, D/11,14

MAP.NO 5

LATITUDE: 60°40'N

LONGITUDE: 127°00'W

TYPE OF LOCALITY: Outcrop and subsurface

LOCATION DESCRIPTION: North oriented trough about 50 km long and 10 km wide, some 105 km north^{east} of Watson Lake. Bounded by ridges of Paleozoic strata.

NAME: Unnamed, Possibly Eocene

NATURE OF SEAMS, STRATIGRAPHY: More than 300 m of fine grained clastics accumulated in an extensional basin, bound by north trending faults. The sequence is: 125 m of basal sandstone and siltstone; 162m of interbedded coal and mudstone; and more than 44m of mudstone at the top. Seams up to 4.5 m occur

RANK: Mainly sub-bituminous C.- lignite
Potential use for hydroelectric power generation.

RESERVES: Estimated 50 million tonnes (9).

HISTORY OF EXPLORATION OR MINING: In 1981 Sulpetro Minerals Ltd. drilled 5 holes in coal exploration license 118, totalling 718 m. In 1982 a gravity survey was conducted on all licenses held by Sulpetro, and identified several anomalies (CEL. 117, 118, 121, 122).

REFERENCES: 7, 9

NTS QUADRANGLE 95

NTS MAP SHEET: 95F

MAP. NO 6

LATITUDE: $61^{\circ}10'N$

LONGITUDE: $124^{\circ}20'W$

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: North face of Tlogotsho Plateau, about
3.2 km northeast of fork at the headwaters of Ram Creek.

NAME: Lower member, Mattson Formation, Lower Carboniferous.

NATURE OF SEAMS, STRATIGRAPHY: A 1.5 m seam occurs 56 m below
the top of Harker's(6) Lower Member, interbedded
with thick sandstone and shale.

RANK: Probably bituminous; compare similar occurrences of Mattson
coal in adjacent map sheets.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 6

NTS QUADRANGLE 95

NTS MAP SHEET: 95G

MAP. NO 7

LATITUDE: $61^{\circ}06'N$

LONGITUDE: $123^{\circ}55'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: West side of Yohin Ridge, about 20 km south of South Nahanni River.

NAME: Lower Member, Mattson Formation, Lower Carboniferous.

NATURE OF SEAMS, STRATIGRAPHY: This, the type section of the Mattson Formation, contains two coal seams 0.9 m and 1.8 m thick, 260 m and 288 m above base of section (Harker, 6). Associated sandstones contain abundant fragments of Lepidodendron.

RANK: Samples collected nearby at $61^{\circ}06'N$; $123^{\circ}59'W$ are ranked as high volatile bituminous C or B (10); moisture = 3.3%, ash = 3.6%, volatiles = 34.9%, fixed carbon = 58.2%, calorific values - as rec'd = 12560 BTU, moisture-ash free = 12670 BTU.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 6, 10

NTS QUADRANGLE 95

NTS MAP SHEET: 95N

MAP.NO 8

LATITUDE: $63^{\circ}55'$ N (approximate)

LONGITUDE: 125° W

TYPE OF LOCALITY: Isolated outcrops

LOCATION DESCRIPTION: Two locations along Redstone River, 35 km and 48 km south of its confluence with Mackenzie River.

NAME: Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: At 35 km, thin seam in shale about 18 m above base of section ; at 48 km a thin seam at the top of a section of interbedded shale and sandstone-(11).

RANK: probably sub-bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING: Examined by geologists of Imperial Oil during the Canol Project.

REFERENCES: 11

NTS QUADRANGLE 96

NTS MAP SHEET: 96C Fort Norman

MAP.NO 9

LATITUDE: $64^{\circ}30'$ N (general coordinates)

LONGITUDE: $125^{\circ}45'$ W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Area of exposure includes most of Tertiary Hills, approximately 10 km west of Tate Lake, 45 km south of Fort Norman. Coal seams crop out in numerous stream cuts throughout the area.

NAME: Summit Creek Formation. Uppermost Maastrichtian - Paleocene

NATURE OF SEAMS, STRATIGRAPHY: Numerous fining upwards sequences of conglomerate and sandstone are capped by coal seams. Sediments accumulated in an alluvial fan setting - in particular, the coals upon vegetated, inactive segments of the fan (12). Two major coal zones occur mid-way through the formation, usually associated with thick units of tuff; the upper is 4 m and the lower zone 11 m thick (cumulative). They can be correlated at least 45 km north to Mackenzie River. Coals range from woody to herbaceous, bright banded to dull banded. There are numerous shale partings and tonsteins.

RANK: Ranges from lignite to sub-bituminous, and some high volatile bituminous.

Vitrinite reflectance values range from 0.31-1.23.

Numerous bocannes in the area.

RESERVES: Speculative resources of 1.61×10^9 tonnes, Tertiary Hills (12)

HISTORY OF EXPLORATION OR MINING: Manalta Coal Ltd. undertook general assessments of the area in 1973,75, confined to exposed seams. Drilling was conducted only in the Mackenzie River environs.

Four oil and gas wells penetrate Summit Creek strata near Stewart Lake: CanDel DECKMG et al Tate J-65, CanDel DECLRI et al Stewart B 30, Decalt LRI et al Keele River I-01, Shell Keele River L-04.

REFERENCES: 12, 13

NTS QUADRANGLE 96

NTS MAP SHEET: 96C Fort Norman

MAP.NO 10

LATITUDE: $64^{\circ}45'N$ (general coordinates)

LONGITUDE: $125^{\circ}20'W$

TYPE OF LOCALITY: Outcrop and subsurface

LOCATION DESCRIPTION: Includes the area north of Tate Lake, between MacKay Range and Seagull Island, to Fort Norman and adjacent the left bank of Great Bear River.

NAME: Summit Creek Formation. Uppermost Maastrichtian-Paleocene

NATURE OF SEAMS, STRATIGRAPHY: Coal is exposed discontinuously along Mackenzie River between Fort Norman and Seagull Is. Here, Summit creek strata are dominated by sandstone and represent the more distal, outer limits of an alluvial fan (see previous item 9). Seams up to 4 m, associated with thick tuffs, are correlated with the upper coal zone in Tertiary Hills (11) and Tate Lake (12). Steeply dipping seams are located opposite Police Island. A seam 2.8 m thick occurs at river level, 7 km east of Fort Norman. Active bocannes also are present in this area.

RANK: Lignite to sub-bituminous, some high volatile bituminous. (as for item 9).

Resource calculations are based on the assumption that seam thickness in the two zones remains constant throughout the area.

Two samples from Seagull Island seams analysed 7588 BTU and 10,610 BTU (dry)- (14). Two seams near Fort Norman analysed 9930 and 10,416 BTU (dry) (14).

RESERVES: Speculative resources are 8.02×10^9 tonnes. (12).

HISTORY OF EXPLORATION OR MINING: Manalta Coal Ltd. undertook surface and subsurface investigations ^{between} ~~in~~ 1973-75. Twenty-two shallow holes were drilled, on coal licenses 21-24.

REFERENCES: 12, 13, 14

NTS QUADRANGLE 96

NTS MAP SHEET: 96H

MAP. NO 11

LATITUDE: $65^{\circ}55'N$

LONGITUDE: $121^{\circ}45'W$

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: North side of Keith Arm, Great Bear Lake,
at Grizzly Bear Mountain, and Kokeragi Point.

NAME: Undivided Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Centimetre-thin lignite beds in
friable sandstone. Outcrops are scattered and widespread.

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 14, 13

NTS QUADRANGLE 96

NTS MAP SHEET: 96 H

MAP. NO 12

LATITUDE: $65^{\circ}55'N$

LONGITUDE: $121^{\circ}45'W$

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: North shore of Keith Arm, Great Bear Lake,
a few km east of Deerpass Bay.

NAME: Undivided Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Outcrops are scattered and wide-
spread. Here, a 1.5 m seam of black, powdery coal occurs
in a unit of sandstone several metres thick.

RANK: Lignite or sub-bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 13, 14

NTS QUADRANGLE 96

NTS MAP SHEET: 96K

MAP.NO 13

LATITUDE: $66^{\circ}45'$ N (general coordinates)

LONGITUDE: $124^{\circ}00'$ W

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: Isolated exposures found along the north
and south shores of Smith Arm, Great Bear Lake.

NAME: Undivided Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Thin seams of low grade coal in
sandstone.

RANK: Lignite or sub-bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 13, 15

NTS QUADRANGLE 97

NTS MAP SHEET: 97C

MAP.NO 14

LATITUDE: $68^{\circ}51'N$

LONGITUDE: $125^{\circ}24'W$

TYPE OF LOCALITY: Outcrop and subsurface

LOCATION DESCRIPTION: Near confluence of small tributary from
Gilmore Lake, and Horten River, 40 km south of Langton Bay.
The type section of the Gilmore Lake Member.

NAME: Gilmore Lake Member, Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Formerly the lower sandstone and
coal division of the 'silty Zone' (now Langton Bay Fm.-16).
Overlies Lower Paleozoic and Proterozoic with profound
unconformity. Contains lignite seams 0.05-0.45 m thick,
interbedded with friable sandstone.
Woody coal also encountered in the Elf Horton River G-02
well at 555-357 m.

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING: Coal has been used for decades
by trappers and the local Roman Catholic Mission

REFERENCES: 13, 16.

NTS QUADRANGLE 97

NTS MAP SHEET: 97D Brock River

MAP. NO 15

LATITUDE: $69^{\circ}10'N$

LONGITUDE: $123^{\circ}25'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Between Rummy and George Creeks confluence
with Hornaday River.

NAME: 'Silty zone' (later Langton Bay Fm. 16), Lower Cretaceous.

NATURE OF SEAMS, STRATIGRAPHY: Seams up to 90 cm, in the lower
part of a fine grained, cross bedded friable sandstone.
Overlain by marone siltstone and mudstone. The unit possibly
extends west toward Anderson Plain but exposure is poor
and scattered. Also is mappable northwards towards Darnley
Bay.

RANK: Lignite.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 13, 16, 17.

NTS QUADRANGLE 95

NTS MAP SHEET: 95D Coal River

MAP.NO 16

LATITUDE: 60°05'N

LONGITUDE: 127°05'W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Two localities: near Mt Granger at the head
of Coal Creek; 3-4 km west of Annie Lake.

NAME: Proably ^bTertiary equivalents of Tintina Trench coals.

NATURE OF SEAMS, STRATIGRAPHY: Three seams at the first locality:
2.9 m, 3.1 m, 0.8 m.

RANK: Lignite. Proximate analyses of the three seams, same order as
above: water: 2.15, 3.78, 3.76
volatiles 6.10, 10.06, 8.34
fixed carbon: 69.86, 38.38, 62.50
ash: 21.98, 47.48, 25.40 (18)

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 18

NTS QUADRANGLE 97

NTS MAP SHEET: 97D

MAP. NO 17

LATITUDE: $69^{\circ}30'N$

LONGITUDE: $122^{\circ}45'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Localities indicated on GSC Map 18-1960 (19):
Near Siolik Lake, 8 km due east of Brock Lagoon.

NAME: Probable equivalent to 'silty zone' or Langton Bay Fm.

NATURE OF SEAMS, STRATIGRAPHY: No data

RANK: Sub-bituminous B.

Analyses of two samples submitted by J.A. Fraser (20)

(dry) ash: 17.0, 46.1,

Volatiles: 36.0, 20.8

Fixed carbon: 47.0, 33.1

Cal. value: 10470 BTU, 6610 BTU

Sulphur: 0.7, 1.6

(as received analyses also available)

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 13, 16, 19, 20

NTS QUADRANGLE 97

NTS MAP SHEET: 97D

MAP. NO 18

LATITUDE: $69^{\circ}45'N$

LONGITUDE: $122^{\circ}45'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Along unnamed stream, 3 km southeast of
Cape Lyon (19).

NAME: Probably equivalent to 'silty zone' or Langton Bay Fm.

NATURE OF SEAMS, STRATIGRAPHY: Location only

RANK: probably sub-bituminous B (see item 17)

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 16, 19

NTS QUADRANGLE 96

NTS MAP SHEET: 96I

MAP. NO 19

LATITUDE: $66^{\circ}10'N$

LONGITUDE: $120^{\circ}50'W$

TYPE OF LOCALITY: Outcrops

LOCATION DESCRIPTION: West shore of Douglas Bay, Great Bear Lake.

NAME: Unnamed. Cretaceous.

NATURE OF SEAMS, STRATIGRAPHY: Twenty samples analysed from 16 locations within an outcrop distance of 1.4 km. Several seams (at least three) ranging in thickness from 1.1 m to 5.6 m; dip varies between 10° and 52° west or southwest, Seams interbedded with mudstone.

(21)

RANK: All analyses indicate Lignite. The range of 'as received' analyses is as follows: moisture 32.2- 48.9,
ash: 4.2 - 22.8
volatiles: 20.4 - 49.5
fixed carbon: 19.4 - 28.8
sulphur: 0.1 - 0.9
cal. value: 4465 - 6235

Analyses of air dried, dried at $108^{\circ}C$, mineral matter free also ^{available}

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 21

NTS QUADRANGLE 105

NTS MAP SHEET: 105A Watson Lake

MAP.NO 20

LATITUDE: $60^{\circ}08'N$ (general coordinates)

LONGITUDE: $129^{\circ}15'W$

TYPE OF LOCALITY: Outcrop and subsurface

LOCATION DESCRIPTION: Six localities indicated by Hughes and Long (22) between Watson Lake along Liard River and the confluence with Rancheria River, and about 12 km Frances River upstream from the confluence with Liard River.

NAME: Unnamed, Lower Tertiary.

NATURE OF SEAMS, STRATIGRAPHY: Thickest exposed section at the confluence with Rancheria River contains five seams between 0.4-2.1 m thick, interbedded with fluvial mudstone siltstone sandstone and conglomerate. Tectonic dips are steep. Coal seams also were intersected in three holes drilled by Placer Development Ltd. (23), at depths ranging from 30 m to 129.7 m. LC#1 contains 7.7 m coal and clay; LC#2 contains 5 seams, the thickest being 16.6 m (also bearing 7 partings up to 1.1 m), LC#3 with three seams 2.1, 1.2, and 6.9 m thick.

RANK: Lignite, and occasional sub-bituminous C. Analyses from Table 2 (22): Moisture (as rec'd) 14.0 - 49.3
ash: 4.7 - 41.5
volatiles: 18.1 - 39.6
Fixed carbon: 8.5 - 25.8
Sulphur: 1.40 - 0.15
Cal. value: (MJ/kg) 5.81 - 17.44
Ro : 0.11 - 0.32

RESERVES:

HISTORY OF EXPLORATION OR MINING: The first systematic exploration was undertaken by Placer Development in 1977-78, with 1000 m of trenching, and 416 m of drilling in three holes, covering eight exploration licenses. The pipeline corridor passes through licenses #126 and 125 (#8).

REFERENCES: 8, 22, 23, 24

NTS QUADRANGLE 105

NTS MAP SHEET: 105D Whitehorse

MAP. NO 21

LATITUDE: $60^{\circ}20'N$

LONGITUDE: $135^{\circ}03'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Bush Mountain area southeast of Whitehorse,
to Schnabell and Folle Creeks.

NAME: Tantalus Fm. Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Seams occur in a down-faulted block of Tantalus Fm, 2.5 km long and one km wide. Three seams 1.8, 0.4 and 0.3-1.0 m thick occur in strata dipping $60-80^{\circ}$ west. (25, 26). The seams are likely truncated at depth by an east dipping fault that crops out some 500 m west of the seam exposures. Locally intruded by diabase dykes.

RANK: Semi-anthracite (26). A sample taken from the 1.8 m seam gives moisture 4.78%; volatiles 8.6, fixed carbon 56.5, ash 30.1.

RESERVES:

HISTORY OF EXPLORATION OR MINING: Five properties listed in 105D/6 and 105D/11 as of 1981.
First discovered in 1906 by D.D. Cairnes.

REFERENCES: 25, 26

NTS QUADRANGLE 105

NTS MAP SHEET: 105D Whitehorse

MAP. NO 22

LATITUDE: $60^{\circ}31'N$

LONGITUDE: $135^{\circ}15'W$

TYPE OF LOCALITY: Outcrop, Mine.

LOCATION DESCRIPTION: Between Granger and Double Mountains, about 25 km due south of Whitehorse, Fish Lake area.

NAME: Tantalus Formation, Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Several small outcrops occur in downfaulted slivers of Tantalus Fm. 1-2 km wide and 10-15 km long. At least three seams, 0.8 m, 3.0 m, 3.1 m.

RANK: Anthracite (?)

RESERVES:

HISTORY OF EXPLORATION OR MINING: Two open cuts and a 20 m tunnel were driven into the best seam in 1907; a few open pits dug subsequently (25).

REFERENCES: 25, 27.

NTS QUADRANGLE 105

NTS MAP SHEET: 105E Laberge

MAP.NO 23

LATITUDE: $61^{\circ}20'N$

LONGITUDE: $135^{\circ}55'W$

TYPE OF LOCALITY: Outcrop, trench

LOCATION DESCRIPTION: Approximately 8 km north of Kingston Mt.
and 5 km east of Klusha Creek

NAME: Probably Tantalus Fm.

NATURE OF SEAMS, STRATIGRAPHY:

see map no. , for NTS 115H/8, Nordenskiöld Coal Area.

RANK: Bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING:

Property name = Corduroy (8)

REFERENCES: 8

NTS QUADRANGLE 105

NTS MAP SHEET: 105E Laberge

MAP.NO 24

LATITUDE: $61^{\circ}57'N$

LONGITUDE: $134^{\circ}47'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Jumpout Creek, approximately 3 km north of its junction with Walsh Creek, Big Salmon area.

NAME: ? Tantalus Fm. Lower Cretaceous, or Carmacks Group (28)

NATURE OF SEAMS, STRATIGRAPHY: Several shaly coal seams occur in a 100-200 m sequence of shale; lithologically the unit is similar to the Tantalus Fm, but contains Upper Cretaceous - Tertiary palynomorphs (28). Seams are a few centimetres thick.

In general exposure is poor.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING: Coal exploration Licenses taken out by Kerr Addison Mines Ltd. and Canadian Natural Resources Ltd. (#58, 59, 60), followed by mapping on a scale of 1:12500 and electromagnetic surveys.

REFERENCES: 8, 28, 29, 25

NTS QUADRANGLE 105

NTS MAP SHEET: 105E Laberge

MAP. NO 25

LATITUDE: $61^{\circ}36'N$

LONGITUDE: $134^{\circ}53'W$

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: Near the confluence of Teslin and Yukon
rivers.

NAME: Tantalus Fm. or Carmacks Group
NATURE OF SEAMS, STRATIGRAPHY:

Mapped as possible upper Triassic and lower Jurassic strata
(28). A sliver of Tantalus Fm. or Carmacks Group rocks crops
out immediately to the west, between the above coordinates
and the confluence.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING: Reported in Milner and Craig (25)

REFERENCES: 25, 28

NTS QUADRANGLE 105

NTS MAP SHEET: 105E Laberge

MAP.NO 26

LATITUDE: $61^{\circ}25'N$

LONGITUDE: $134^{\circ}30'W$

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: Immediately east of Mason Landing

NAME: Tantalus Fm. or Carmacks Group

NATURE OF SEAMS, STRATIGRAPHY:

Mapped as possible upper Triassic and lower Jurassic (28).

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

Reported in Milner and Craig(25).

REFERENCES: 25, 28

NTS QUADRANGLE 105

NTS MAP SHEET: 105E Laberge

MAP. NO 27

LATITUDE: $61^{\circ}58'N$

LONGITUDE: $135^{\circ}24'W$

TYPE OF LOCALITY: Isolated outcrop

LOCATION DESCRIPTION: Along Claire Creek, 6-8 km northwest of
Claire Lake.

NAME: Tantalus Fm. or Carmacks Group.

NATURE OF SEAMS, STRATIGRAPHY:

Mapped as a small, northwest-trending sliver of strata.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

Reported by Milner and Craig(25)

REFERENCES: 25, 28

NTS QUADRANGLE 105

NTS MAP SHEET: 105F Quiet Lake

MAP. NO 28

LATITUDE: $61^{\circ}58'N$

LONGITUDE: $132^{\circ}35'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Two principal areas of exposure: Ross River Block 1-4 km west and southwest of Ross River, and the Lapie River Block with main exposures along Lapie River about 8 km southwest of Ross River.

NAME: Unnamed, probably early to middle Eocene.

NATURE OF SEAMS, STRATIGRAPHY: Ross River Block: fault bounded, folded siltstone sandstone and mudstone with two seams, 3 m and 1.2 m thick. Seams also exposed in nearby trenches. Five seams also exposed along Canol Road. Lapie River Block: fault bounded, minor, lenticular coal seams occur within a sequence of indurated conglomerate, sandstone and shale. Interpreted as lacustrine (mudrocks) and lacustrine fan deltas coarse grained lithologies) (22).
Located near the southern extension of Tintina Trench.

RANK: Lapie R. high vol bituminous A, Ross R. low vol bituminous and semi-anthracite, based on Ro%. From Table 3 (22):
Moisture ranges from 3.4-21.8 (as rec'd); ash 10.4-31.9, volatiles 18.4-28.4, fixed carbon 28.6-58.1, sulphur 0.23-0.80, cal. value (MJ/kg) 13.28-29.66, Ro% 1.06- 2.03.
Coal ranks are considerably greater than those of other areas along Tintina Trench, possibly due to local heating by shallow intrusions.

RESERVES: Calculated for 2.7 m seam, inferred resources 370-1100 kiloton

HISTORY OF EXPLORATION OR MINING:

Apart from trenches near Canol Road, no other prospecting is known.

REFERENCES: 22, 30

NTS QUADRANGLE 105

NTS MAP SHEET: 105P

MAP.NO 29

LATITUDE: $63^{\circ}35'N$ (general coordinates)

LONGITUDE: $128^{\circ}30'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Godlin Lakes area between Keele River (south)
and Canol Road.

NAME: Unnamed, Lower or Upper Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: A downfaulted block of Cretaceous strata measuring about 960 m thick, and consisting of recessive shale and thin interbedded siltstone, sandstone and fine pebble conglomerate (31). Eight steeply dipping seams range from 1.5 m to 4.1 m; up to 20 seams may occur, with none being traced more than 400-500 m along strike (32). Lack of seam continuity and location mitigate against any major resource potential.

RANK: Generally in the range of high volatile bituminous C

RESERVES:

HISTORY OF EXPLORATION OR MINING:

Welcome North Mines granted an exploration license in 1971, (#25) and undertook preliminary mapping and analyses of coal.

REFERENCES: 31, 32.

NTS QUADRANGLE 106

NTS MAP SHEET: 106E Wind River

MAP.NO 30

LATITUDE: 65°15'N (general coordinates)

LONGITUDE: 135°00'W

TYPE OF LOCALITY: Outcrop and subsurface

LOCATION DESCRIPTION: ~~The~~ Bonnet Plume Basin is bound to the east by the Deslauriers Fault, and west by Knorr Fault splay (33); to the north by Peel River, and south by Precambrian Wernecke Group strata

NAME: Bonnet Plume Fm, Cretaceous - Lower Tertiary.

NATURE OF SEAMS, STRATIGRAPHY: Thick seams (4-11 m) in the upper (Paleocene) part of the sequence are associated with sandstone, shale and conglomerate; they represent braided stream - overbank settings. Two seams in the lower conglomeratic part of the sequence (4.5 and 9 m) formed in similar manner. Both sets of seams can be traced 10-15 km laterally. Tectonic dips are low. the upper between the confluences of Wind, Bonnet Plume and Peel rivers; the lower in the southwestern corner of the basin along Illyd Creek (34).

RANK: Lignite to high volatile C bituminous.

Saleable coal quality is as follows (23):

Moisture 5.6%

ash 13.5

volatiles 35.1

fixed carbon 45.8

sulphur less than 0.5

cal. value 10,130 BTU/lb

RESERVES: More than 200 million tonnes outlined as of 1980 (8)

HISTORY OF EXPLORATION OR MINING: Coal exploration licenses obtained by Pan Ocean Oil Ltd. in 1977, and by 1978 geologic mapping and drilling of three holes totalling 102.4 m completed. Subsequent drilling was on a one kilometre grid. The licenses were in good standing as of January, 1982.

23,
REFERENCES: 8, 33, 34, 35, ~~36~~

NTS QUADRANGLE 106

NTS MAP SHEET: 106F Snake River

MAP. NO 31

LATITUDE: 65°33'N

LONGITUDE: 133°49'W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: 15 km west of Snake River

NAME: Map unit Mo of Norris (36), Lower Carboniferous

NATURE OF SEAMS, STRATIGRAPHY: This coal seams 1-10 cm thick, at the top or base of coarsening upwards sequences of quartz sandstone, shale. Abundant cross-bedding, and fragments of Lepidodendron up to 2 m long.

RANK: Possibly high volatile bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 36, 37

NTS QUADRANGLE 106

NTS MAP SHEET: 106N

MAP.NO 32

LATITUDE: $67^{\circ}15'N$

LONGITUDE: $133^{\circ}45'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Along Arctic Red River, 24 km due south of
Arctic Red River Settlement.

NAME: Cretaceous, possibly Horton River or Arctic Red formations.

NATURE OF SEAMS, STRATIGRAPHY: Mapped during the Canol Project
as Cretaceous, although not identified by Norris(38). Some
thin seams of coal occur in the lower 4 m of section
in map unit 'A' (39).

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

Mapped as part of the Canol Project.

REFERENCES: 38, 39

NTS QUADRANGLE 107

NTS MAP SHEET: 107B Aklavik

MAP. NO 33

LATITUDE: $68^{\circ}12'N$

LONGITUDE: $135^{\circ}25'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: North and south walls of the lower canyon
of Donna Willow) River, 17 km west of Aklavik.

NAME: 'Coaly Quartzite Division', Lower Cretaceous. (40).

NATURE OF SEAMS, STRATIGRAPHY: Coal occurs in the Lower Member,
up to 1.5 m thick.

RANK: Probably sub-bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING:

Reported as locally mined and hauled to Aklavik.

REFERENCES: 40

NTS QUADRANGLE 107

NTS MAP SHEET: 107B Aklavik

MAP. NO 34

LATITUDE: $68^{\circ}15'N$

LONGITUDE: $134^{\circ}42'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Two localities in the Cariboo Hills:

- a) ~~two seams up to 3.1 m~~ 7.2 km north of Reindeer Depot,
- b) ~~thin shaly coals~~ 6.4 km south of the depot.

NAME: Reindeer Fm, Lower Tertiary

NATURE OF SEAMS, STRATIGRAPHY: At (a) two seams up to 3.1 m and
at (b) thin shaly coals

RANK: Sub-bituminous - Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 35

NTS QUADRANGLE 115

NTS MAP SHEET: 115A Dezadeash

MAP. NO 35

LATITUDE: $60^{\circ}42'N$

LONGITUDE: $137^{\circ}52'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: East of Sugden Creek, near the junction of
Alsek and Dusty rivers.

NAME: Unnamed, Tertiary

NATURE OF SEAMS, STRATIGRAPHY: Thin seams up to 5 cm are exposed
in conglomerate

RANK: ?Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 25

NTS QUADRANGLE 115

NTS MAP SHEET: 115B Kaskawulsh

MAP. NO 36

LATITUDE: $60^{\circ}50'N$

LONGITUDE: $138^{\circ}01'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Outcrops on two small creeks, Kimberly Creek
(as above), and Telluride Creek $60^{\circ}53'N$; $138^{\circ}07'W$.

NAME: Unnamed, Upper Jurassic - Lower Cretaceous.

NATURE OF SEAMS, STRATIGRAPHY: Thin seams in Upper Jurassic and
Lower Cretaceous conglomerate, overlain by greywacke and
argillite.

RANK: Lignite

Probably similar to coal at Burwash Creek and Donjek River.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 25, 18

NTS QUADRANGLE 115

NTS MAP SHEET: 115F Kluane *Lake*

MAP. NO 37

LATITUDE: $61^{\circ}46'N$ (approximate coordinates)

LONGITUDE: $140^{\circ}50'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: White River near the confluence with
Clair River, on McLellan Creek.

NAME: Unnamed, probably Tertiary

NATURE OF SEAMS, STRATIGRAPHY: Thin seams are associated with
sandstones containing abundant fossilised wood (18), and
overlain by extensive volcanics.
Seams may underlie a considerable area of the White River
district.

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 18

NTS QUADRANGLE 115

NTS MAP SHEET: 115G Kluane Lake

MAP. NO 38

LATITUDE: $61^{\circ}22'N$

LONGITUDE: $139^{\circ}46'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Located on the west wall of Donjek Valley,
~~of the mouth of Steele Creek~~ opposite the confluence of
Steele Creek and Donjek River

NAME: Amphitheatre Formation, Paleocene or Eocene

NATURE OF SEAMS, STRATIGRAPHY: Coal seams up to 1.2 m, associated
with sandstone and conglomerate, folded and faulted with
dips up to 60° . This is part of the Duke River Coal area
that may extend as far west as St. Clare Creek.

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 25, 40

NTS QUADRANGLE 115

NTS MAP SHEET: 115G Kluane Lake

MAP.NO 39

LATITUDE: $61^{\circ}18'N$

LONGITUDE: $139^{\circ}25'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Two localities: Amphitheatre Mt, north of Granite Creek; and the south side of Granite Creek, 21 km west of Burwash Landing.

NAME: Amphitheatre Fm. Paleocene or Eocene.

NATURE OF SEAMS, STRATIGRAPHY: Several thin seams up to 25 cm, interbedded with shale, occur below lavas and agglomerates of the St. Clare Volcanics. The southern location contains sandstone, conglomerate and coal, steeply dipping, with a major seam with cumulative thickness of 3.7 m over a stratigraphic interval of 5.7 m

RANK: Sub-bituminous C. Analyses from the above seams: moisture 20.6-22.6 (as rec'd); ash 10.1-27.6, volatiles 27.7-35.9, fixed carbon 24.1-31.4, sulphur trace - 0.1, calorific value 5750-8065, moisture & MM free 9287-9416.(41). Samples from other ~~thin~~ seams in the area indicate rank as high as sub-bituminous B with low ash and low sulphur.

RESERVES: Possibly several kilotonnes.

HISTORY OF EXPLORATION OR MINING: Mined for local use, and earlier considered viable as a fuel ^o source for Whitehorse.

REFERENCES: 25, 40, 41, 42

NTS QUADRANGLE 115

NTS MAP SHEET: 115G Kluane Lake

MAP. NO 40

LATITUDE: $61^{\circ}16'N$

LONGITUDE: $139^{\circ}06'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Niamodlaoc Mountain, 13 km southwest of Burwash Landing and south of Alaska Highway, at the headwaters of Halfbreed and Ptarmigan Creeks.

NAME: Amphitheatre Fm. Paleocene or Eocene.

NATURE OF SEAMS, STRATIGRAPHY: Gently folded sandstone, conglomerate and shale containing 3-4 seams, up to 1.5 m thick and an aggregate thickness of 3.1-3.9 m. Sequence is overlain by St. Clare Volcanics. Some 198 - 244 m stratigraphically below these seams is a 4.2 m seam intruded by an andesite sill

RANK: Lignite to sub-bituminous C

RESERVES:

HISTORY OF EXPLORATION OR MINING: In 1970 a mapping program was undertaken by Norman H. Ursel Assoc Ltd. in coal exploration licenses 14 and 18 (Niamodlaoc Mt. Coal Prospect).

REFERENCES: 42, 43

NTS QUADRANGLE 115

NTS MAP SHEET: 115H Aishihik Lake

MAP. NO 41

LATITUDE: $61^{\circ}21'N$

LONGITUDE: $136^{\circ}05'W$

TYPE OF LOCALITY: Outcrop and trench and subsurface.

LOCATION DESCRIPTION: Teslin Creek about a kilometre east of its junction with Nordenskiöld River.

NAME: LaBerge Group, Jurassic

NATURE OF SEAMS, STRATIGRAPHY: Numerous thick seams occur in the predominantly sandstone and shale sequence, cropping out along Teslin Creek and Red Ridge about 5 km to the northwest. In particular the Cairnes Seam is 9.2 m thick along Teslin Creek, but decreases down dip to 4-5 m. A second seam 7-8 m stratigraphically below the Cairnes is 2 m thick, while above the Cairnes in some bore holes are 27 additional seams ranging from 0.1-2.4 m

RANK: Bituminous. Calorific values about 9400 BTU/lb, and low in sulphur.

RESERVES: 2.8 million tons plus.

HISTORY OF EXPLORATION OR MINING: Exploration licenses obtained by Arjay Kirker Resources Ltd; reconnaissance mapping and trenching undertaken in 1970; an I.P. survey in Division Mountain area in 1971; and drilling of six holes in 1972, totalling 1048 m, plus trenching of the Cairnes seam.

REFERENCES: 8, 9, 26, 44

NTS QUADRANGLE 115

NTS MAP SHEET: 115H Aishihik Lake

MAP. NO 42

LATITUDE: $61^{\circ}53'N$

LONGITUDE: $136^{\circ}07'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Immediately west of Lone Pine Mountain,
ridge face.

NAME: Tantalus Fm. Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Some coal mapped by Tempelman-Kluit (44) within a mainly conglomerate sequence.

Two additional locations in this vicinity are Porter's Coal on Coal Creek, occurring in deformed seams adjacent a Syenite intrusion. Seams over one metre occur. Guder's Coal ($61^{\circ}52'N$) is about 1 km south of Porter's Coal.

RANK: Porter's Coal ~~is baked~~ has been ~~in~~ contact metamorphosed.

RESERVES:

HISTORY OF EXPLORATION OR MINING: Some trenching of Porter's Coal ^{and Guder's} in ~~REFERENCES: 44~~ in 1970 by Ursel and Associates.

REFERENCES: 25, 44.

NTS QUADRANGLE 115

NTS MAP SHEET: 115H Aishihik Lake

MAP. NO 43

LATITUDE: $61^{\circ}56'N$

LONGITUDE: $136^{\circ}10'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Coal mapped by Tempelman-Kluit (44) in Coal Creek, west of Andesite Mountain.

NAME: Laberge Group, Jurassic.

NATURE OF SEAMS, STRATIGRAPHY: Coal found in poorly indurated sandstone, shale and minor conglomerate.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 44

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP.NO 44

LATITUDE: $62^{\circ}05'N$ (general coordinates)

LONGITUDE: $136^{\circ}15'W$

TYPE OF LOCALITY: Subsurface

LOCATION DESCRIPTION: Immediately north and east of Carmacks,
east and south of Yukon River (license blocks).

NAME: Tantalus Fm. and Laberge Group.

NATURE OF SEAMS, STRATIGRAPHY: Exposure is poor. Coal seams and partings intersected in two holes; license #15 partings and lenses up to 0.1 m; intersection of the 'Teslin' seam at 3.2 m in #17. Five seams in ^{the} Laberge also intersected 1.6 km south of Tantalus Mine. Strata tightly folded along northwest axes.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING: Exploratory drilling undertaken by Teslin Exploitation Ltd. in ^{and 1977} 1971 in License blocks 15, 16, and 17. EM and IP surveys also conducted (45)

REFERENCES: 45

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP.NO 45

LATITUDE: $62^{\circ}04'N$

LONGITUDE: $136^{\circ}15'W$

TYPE OF LOCALITY: Mainly subsurface

LOCATION DESCRIPTION: 1.6 km southeast of Carmacks, south of
Yukon River

NAME: Laberge Group, Jurassic

NATURE OF SEAMS, STRATIGRAPHY: Coals are contained within sandstone
and minor shale and conglomerate.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING: Geophysical surveys delineated
an important seam, allowing the identification of drilling
targets, (1977, Cyprus Anvil Corp. and Teslin Exploration
held leases). As of 1981 all leases held by Cyprus Anvil.

REFERENCES: 8, 9, 46

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP.NO 46

LATITUDE: 62°08'N

LONGITUDE: 136°15'W

TYPE OF LOCALITY: ~~Mine~~ Tantalus Butte Mine

LOCATION DESCRIPTION: The mine and storage facilities are located 6.4 km north of Carmacks on the right bank of Yukon River, about 1 km from the Whitehorse-Mayo Road.

NAME: Tantalus Formation, Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: The sequence is dominated by conglomerate with subordinate amounts of sandstone, shale and coal. The main seam measures 3.1-4.3 m thick in the mine, dips 45-70° and is offset by as much as 12.2 m vertically by faults. Several tonsteins occur in ~~the~~ the main seam. (46, 48)

RANK: High volatile bituminous B. Calorific values range from 11,000-12700 BTU/lb. Typical analyses are :(as rec'd) moisture 4%, ash 13.5, volatiles 31.7, fixed carbon 50.8 sulphur 0.4, calorific value 11,445 BTU/lb, (47, 49).

RESERVES:

HISTORY OF EXPLORATION OR MINING: The mine began operation in 1923; supplying coal to Carmacks, Dawson and United Keno Hills Mine; supply to Cyprus Anvil Mine began in 1969 where it was used for drying Pb-Zn concentrates. Operations ceased 1978 because of underground fire, nor was it operated in 1982 because of sufficient ~~existing~~ stockpiles. All leases as of 1981 owned by Cyprus Anvil.

REFERENCES: 8, 9, 25, 46, 47, 48, 49.

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP. NO 47

LATITUDE: $62^{\circ}12'N$

LONGITUDE: $136^{\circ}19'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: 12.9 km north of Carmacks and south of the
old Five Fingers Mine (see map no. 48).

NAME: Laberge Group, Jurassic.

NATURE OF SEAMS, STRATIGRAPHY:

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING: Leases and lots obtained by
Cyprus Anvil Mining Corp. and Teslin Exploration Ltd. and
in 1977 had mapped the area on a scale of 1:50,000.

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP. NO 48

LATITUDE: $62^{\circ}12'N$

LONGITUDE: $136^{\circ}19'W$

TYPE OF LOCALITY: Five Fingers Mine

LOCATION DESCRIPTION: About 5 km north of Tantalus Butte Mine and the same distance above the Five Finger Rapids on Yukon River. A second mine site was established about a kilometre south in 1906.

NAME: Laberge Group, Jurassic

NATURE OF SEAMS, STRATIGRAPHY: The best seam is 1-1.2 m thick and dips east at 16° at both mine sites, with other minor seams present. At the first mine access to the seam was via a slope sunk about 107 m; in the second slope was sunk 239 m to a seam about 0.5 m thick. (49).

RANK: ^{Three} Early analyses give the following results: moisture 5.95, 5.29, 4.26; volatiles 40.46, 36.14, 40.26, fixed carbon 45.16, 40.12, 44.67, ash 8.43, 18.45, 10.81. (49, 50).

RESERVES:

HISTORY OF EXPLORATION OR MINING: The area around the mine was first staked in 1898, and mined in 1905, coal being shipped to Carmacks. Unstable ground led to closure in 1907, with the second mine opened up 1 km south, but this too closed in 1908.

REFERENCES: " 25, 49, 50

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP. NO 49

LATITUDE: 62°05'N

LONGITUDE: 136°05'W

TYPE OF LOCALITY: Tantalus Mine

LOCATION DESCRIPTION: Situated on the south side of Yukon (Lewes) River, 1.5 km upstream from Carmacks

NAME: Tantalus Formation, Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: Three main seams were opened up in the mine, averaging 2.3 m, 2.0 m, 0.9 m thick, and separated by less than 1-2 m of host rock. The two thickest seams were worked by adits.

RANK: Bituminous.

Analyses for each of the upper, middle and lower seams are as follows (as rec'd).

moisture 0.9, 0.7, 0.7

fixed carbon 58.0, 54.1, 56.0

volatiles 25.0, 26.7, 27.8

ash 17.0, 19.2, 16.2 ; sulphur 0.5, 0.5, 0.5

calorific value cal/gm. 6.70, 6.31, 6.79

RESERVES:

HISTORY OF EXPLORATION OR MINING: First staked in 1903, the mine was operated by Five Finger Coal Company from 1905-1922.

A maximum of 8500 tons per year were produced, mostly used by local river steamers.

REFERENCES: ~~25~~ 25, 50

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP. NO 50

LATITUDE: $62^{\circ}43'N$

LONGITUDE: $137^{\circ}18'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: 8 km upstream from Selkirk on the west
(left) bank of Yukon River.

NAME: Probably Laberge Group.

NATURE OF SEAMS, STRATIGRAPHY: Seams associated with conglomerate
and shale similar to the Laberge Fm, are now exposed (pporly)
in a shallow shaft.

RANK: Bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING: Only local excavations in
a shaft about 10 m deep.

REFERENCES: 50

NTS QUADRANGLE 115

NTS MAP SHEET: 115I Carmacks

MAP.NO 51

LATITUDE: $62^{\circ}43'N$

LONGITUDE: $136^{\circ}16'W$

TYPE OF LOCALITY: Subsurface (shaft): ~~13 km southeast of~~

LOCATION DESCRIPTION: Eastern branch of Mica Creek, 13 km south-east of Pelly Crossing.

NAME: Unnamed.

NATURE OF SEAMS, STRATIGRAPHY: Thin seams of coal were intersected in a shallow shaft sunk by Mica Creek Mines (51), probably while looking for gold (25). According to Bostock (52) much of the valley may be underlain by coal.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: %), 25, 51, 52

NTS QUADRANGLE 1 15

MAP. NO 52

NTS MAP SHEET: 115I Carmacks

LATITUDE: $62^{\circ}48'N$

LONGITUDE: $136^{\circ}12'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Near Needlerock Creek and Granite Canyon,
east of Pelly River.

NAME:

NATURE OF SEAMS, STRATIGRAPHY: Coal occurrences were noted by
McConnell(51).

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 51

NTS QUADRANGLE 115

MAP. NO 53

NTS MAP SHEET: 115N

LATITUDE: $63^{\circ}45'N$ (approximate)

LONGITUDE: $140^{\circ}10'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Along Sixty Mile Creek, 5-15 km south of
the junction with Fifty Mile Creek.

NAME: Unnamed,

NATURE OF SEAMS, STRATIGRAPHY: Mapped as sandstone and conglomerate
with minor, thin lignite seams, that underlie and inter-
finger with Carmacks Group volcanics. (44)
The rocks are probably correlative with non-marine clastic
and volcanic rocks along Indian River (53).

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 44, 53

NTS QUADRANGLE 115

MAP.NO 54

NTS MAP SHEET: 1150

LATITUDE: $63^{\circ}40'N$

LONGITUDE: $139^{\circ}10'W$

TYPE OF LOCALITY: Outcrop and subsurface.

LOCATION DESCRIPTION: Very limited exposure is found in a tributary of Ruby Creek, about 12 km due south of Indian River; also in a drill hole (hole No.1) about 8 km south of ~~the~~ Indian River.

NAME: Unnamed, probably Lower Tertiary

NATURE OF SEAMS, STRATIGRAPHY: Two seams, each 1.5 m thick, are found in ~~the exposure~~ outcrop and in drill hole #1 at 45 m depth. They appear to be associated with fining upwards sequences of conglomerate, sandstone and siltstone ~~with~~, probably as braided stream deposits (53). Lowey ^{with} suggests that the small sedimentary basins were coeval, but separated from the Tintina Trench basins during early Tertiary time.

RANK: Lignite - sub-bituminous.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 50, 53

NTS QUADRANGLE 115

NTS MAP SHEET: 1150

MAP.NO 55

LATITUDE: $63^{\circ}43'N$

LONGITUDE: $139^{\circ}14'W$

TYPE OF LOCALITY: Ruby Creek or Haystack Mine, outcrop

LOCATION DESCRIPTION: Ruby Creek, a tributary of Indian River,
about 22 km east of the confluence of Indian and Yukon
rivers.

NAME: Unnamed, probably Tertiary.

NATURE OF SEAMS, STRATIGRAPHY: A seam of coal 1.05 m thick crops
out at the tributary and can be traced 0.8 km laterally,
The seam has been cut by diabase dykes that locally have
metamorphosed the coal.

RANK: mainly Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING: The area was first staked in
1900, and tunneled in 1902, but abandoned soon after. The
tunnel has since collapsed.

REFERENCES: 25, 54, 52.

NTS QUADRANGLE 116

NTS MAP SHEET: 116B Dawson

MAP. NO 56

LATITUDE: $64^{\circ}08'N$

LONGITUDE: $138^{\circ}56'W$

TYPE OF LOCALITY: Rock Creek Mine (Gates Mine)

LOCATION DESCRIPTION: Located on Coal Creek, a tributary of Rock Creek, and about 13 km upstream from their junction.

NAME: Unnamed, Eocene.(22)

NATURE OF SEAMS, STRATIGRAPHY: Two main seams, an upper seam 0.9 m, and a lower seam 0.6-0.9 m separated by a shale parting 0.1 m thick. Seams are faulted and dip $3-25^{\circ}$ southeast. Later cuttings exposed a similar sequence with slight increase in the thickness of the inter-seam parting (55).

RANK: Lignite-subbituminous C. Range of six
Analyses from Bostock (55): as rec'd. moisture 25.1-33.6, ash 9.6-13.1, volatiles 25.4-28.8, fixed carbon 30.4-36.5, sulphur trace -0.6, calorific value 7220-8150 BTU/lb. A single analysis from Hughes and Long (22), as rec'd. moisture 24.9, ash 16.8, volatiles 31.5, fixed carbon 26.8, sulphur 0.55, calorific value 16.49 MJ/kg, Ro% 0.40 - the Ro rank is Sub-bituminous C.

RESERVES:

HISTORY OF EXPLORATION OR MINING: The Gates Mine was first staked in 1898 and operated by Alaska Exploration Co. from 1899-1903. The mine was reopened for a year in 1936. The original incline was more than 120 m long.

REFERENCES: "" 22, 25, 55, 56

NTS QUADRANGLE 116

MAP. NO 57

NTS MAP SHEET: 116B Dawson

LATITUDE: $64^{\circ}25'N$

LONGITUDE: $139^{\circ}50'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Slump scarp just east of Fifteen Mile River,
about 10 km north of its junction with Yukon River.

NAME: Unnamed, Eocene.

NATURE OF SEAMS, STRATIGRAPHY: Recessive intervals of siltstone,
mudstone and coal occur in a 200 m thick sequence of mainly
conglomerate and sandstone. Six seams noted by Hughes and
Long(22) range between 5-40 cm in thickness in the lower
125 m of the sequence.

RANK: Lignite - sub-bituminous C.

Coal quality is similar to other localities along Tintina
Trench. Three available analyses (22): as rec'd. moisture
26.7, 38.7, 36.2, ash 6.5, 11.2, 9.6, volatiles 34.5, 25.7,
27.2, fixed carbon 32.3, 24.4, 27.0, sulphur 0.26, 0.24,
0.29. calorific value (MJ/kg) 18.05, 12.0, 13.11.

Ro% 0.58, 0.42, 0.42. Rank determined from reflectance is
sub-bituminous A to C.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: ~~22~~ 22

NTS QUADRANGLE 116

NTS MAP SHEET: 116C Dawson

MAP. NO 58

LATITUDE: $64^{\circ}27'N$

LONGITUDE: $140^{\circ}07'W$

TYPE OF LOCALITY: Coal Creek Mine (Sourdough Mine).

LOCATION DESCRIPTION: Located on Coal Creek at the end of an (abandoned) narrow gauge railway, about 19 km from the junction with Yukon River.

NAME: Unnamed, Eocene

NATURE OF SEAMS, STRATIGRAPHY: According to McConnell(54) the worked seam dips southeast at 45° and varies in thickness from 1.2-3.3 m; it is overlain by 0.2 m of mudstone and 3.6 m of indurated sandstone. Additional seams are encountered 100-200 m upstream, up to 8.5 m thick, but generally less than a metre, with clay partings, and interbedded with pebbly sandstone and siltstone (22)

RANK: Sub-bituminous C to B. Ranks are slightly higher than for other areas along Tintina Trench, possibly as a result of deeper burial, or (more likely) local variations in geothermal gradient, sedimentary loading and strike slip faulting (22). Four analyses are available: as rec'd. moisture 16.8-20.2, ash 8.3-26.9, volatiles 35.8-26.1, fixed carbon 36.4-26.2, sulphur 0.48-1.47, calorific value (MJ/kg) 14.59-18.24, Ro% 0.46-0.54.

RESERVES: Possible resources associated with thicker seams

HISTORY OF EXPLORATION OR MINING: The mine was opened in 1903, and by 1907 was producing 10,000 tons/year; did not operate in 1909-10, but continued in 1911 to supply coal for a thermal power plant (transmission to Dawson). Most of the workings have collapsed. Discovered by W. Ogilvie in 1887.

REFERENCES: 22, 25, 54, 56

NTS QUADRANGLE 116

NTS MAP SHEET: 116C Dawson

MAP. NO 59

LATITUDE: $64^{\circ}33'N$

LONGITUDE: $140^{\circ}28'W$

TYPE OF LOCALITY: Cliff Creek Mine

LOCATION DESCRIPTION: Located on Cliff Creek, 2.8 km from its confluence with Yukon River, and about 88 km downstream from Dawson.

NAME: Unnamed, Eocene.

NATURE OF SEAMS, STRATIGRAPHY: The aggregate thickness of seams was 2-3.3 m with thin (usually less than a metre) partings of clay and carbonaceous shale at the mine. /Some 500 m downstream a 7.2 m thick seam contains a few thin partings. More recent tranching near the mine site (22) indicates up to 12.9 m of coal over a stratigraphic interval of about 19 m.

RANK: Sub-bituminous C.

Three analyses are available: as rec'd (22) moisture 27.5, 29.4, 31.4, ash 6.6, 3.6, 11.4, volatiles 31.7, 32.6, 31.4 fixed carbon 30.3, 34.4, 29.7, sulphur 1.13, 0.69, 0.65, calorific value (MJ/kg) 16.76, 18.27, 15.45, Ro% 0.38, 0.46, 0.36. Ranks based on Ro are Lignite - sub-bituminous B.

RESERVES:

HISTORY OF EXPLORATION OR MINING: The mine was staked in 1895, and mined from 1900-03, with rail transport to Yukon River. In 1900 work was conducted on two drifts on opposite sides of the river, tunneling about 850 m.

REFERENCES: 22, 25, 54, 56, 57

NTS QUADRANGLE 116

NTS MAP SHEET: 116C Dawson

MAP.NO 60

LATITUDE: $64^{\circ}35'N$

LONGITUDE: $140^{\circ}35'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Small tributary just north of Yukon River
and 13 km northwest of the Yukon Coal Creek junction.

NAME: Unnamed, Eocene

NATURE OF SEAMS, STRATIGRAPHY: A one metre seam with three caly
partings occurs in a 200 m thick sequence of conglomerate
and sandstone, dipping north at $13-40^{\circ}$ north.

RANK: Sub-bituminous B.
moisture as Rec'd, 19.0, ash 14.9, volatiles 30.7, fixed
carbon 35.4, sulphur 0.53, calorific value (MJ/kg) 17.91,
Ro% 0.74. Rank based on Ro is high volatile bituminous B.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 22

NTS QUADRANGLE 116

NTS MAP SHEET: 116C Dawson

MAP. NO 61

LATITUDE: $64^{\circ}38'N$

LONGITUDE: $140^{\circ}40'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Small tributary immediately north of the Yukon, and 23 km northwest of the Yukon - Coal creek junction.

NAME: Unnamed, Eocene

NATURE OF SEAMS, STRATIGRAPHY: A single 35 cm bed of coal and carbonaceous mudrock occurs in a sequence of sandstone and thin conglomerate, at the base of an approximately 300 m thick interval of strata. Exposure is generally poor. Lithologically similar to Map No. 60.

RANK: Probably lignite or sub-bituminous.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 22

NTS QUADRANGLE 116

NTS MAP SHEET: 116F Ogilvie

MAP.NO 62

LATITUDE: $65^{\circ}43'N$

LONGITUDE: $140^{\circ}27'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: A measured section at the headwaters of
Kandik River ; Section 116F14 of D.K.Norris.

NAME: Unnamed, Jurassic-Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: A sample of bright coal was
collected 389 m above the base of the section of interbedded
sandstone and shale.

RANK: Anthracitic.

The high rank may be due to local thermal metamorphism, in
the Kandik thrust belt.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 58, 59, 60

NTS QUADRANGLE 116N

NTS MAP SHEET: 116N Old Crow

MAP. NO 63

LATITUDE: $67^{\circ}02'N$ (approximate)

LONGITUDE: $140^{\circ}05'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Measured sections in the vicinity of the headwaters of Bluefish and Lord creeks

NAME: Lower Sandstone Division, Lower Cretaceous

NATURE OF SEAMS, STRATIGRAPHY: The lower part of this unit contains thinly bedded, cross-bedded and carbonaceous sandstone with a few 2-10 cm thick pods of impure coal.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 61

NTS QUADRANGLE 116

NTS MAP SHEET: 116P Bell River

MAP.NO 64

LATITUDE: 68°00'N

LONGITUDE: 137°20'W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Measured sections on a tributary of
Driftwood River.

NAME: Coaly Quartzite Division, Lower-middle Hauterivian.

NATURE OF SEAMS, STRATIGRAPHY: Includes sections #5 and 5a of
Jeletzky(62). Coaly siltstone and shale, and minor coal
seams 8-10 cm thick, are associated with quartz and lithic
arenites near the base of the division.

Map unit Kwc of Norris(63).

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 62, 63

NTS QUADRANGLE 116

NTS MAP SHEET: 116P Bell River

MAP. NO 65

LATITUDE: $67^{\circ}55'N$

LONGITUDE: $136^{\circ}57'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: The left bank of a tributary of Bell River.

NAME: Probably the Coaly Quartzite Division, Lower Cretaceous.

NATURE OF SEAMS, STRATIGRAPHY: Coal seams up to 30 cm are interbedded with dark grey sandstone, and tightly folded. The ratio of sandstone to recessive coal-bearing strata is about 10 or 12/1. (see figure 1, reference 64).

Map unit Kwc of Norris (63).

RANK: Anthracite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 63, 64

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP.NO 66

LATITUDE: 68° 'N

LONGITUDE: $139^{\circ}30'$ W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Along Porcupine River near Old Crow Mountains, for approximately 65 km.

NAME: Unnamed, Probably Tertiary.

NATURE OF SEAMS, STRATIGRAPHY: Poorly indurated sands, clays and conglomerates, and occasional lignite seams, overlie unconformably Cretaceous bedrock.

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

References; 26, 65

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP. NO 67

LATITUDE: $68^{\circ}06'N$

LONGITUDE: $138^{\circ}20'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Old Crow Plain, along Johnson Creek.

NAME: Unnamed, ?Oligocene (66)

NATURE OF SEAMS, STRATIGRAPHY: Lignites associated with possibly
tuffaceous sands.

RANK: Lignite

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 66

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP. NO 68

LATITUDE: $68^{\circ}38'N$ (approximate)

LONGITUDE: $138^{\circ}37'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Left bank Porcupine River, about 14 km
upstream from the junction with Driftwood River.

NAME: Unnamed, map unit Kdw (67).

NATURE OF SEAMS, STRATIGRAPHY: Coal reported by Gabrielse (68)
of possible Cretaceous age. On the Old Crow map (67) a
nearby sample gave an age of Cenomanian-Tertiary.

RANK:

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 67, 68

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP.NO 69

LATITUDE: $68^{\circ}36'N$ (general coordinates)

LONGITUDE: $137^{\circ}55'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Annett Creek and its tributaries.

NAME: Unnamed, map unit Kbr, Lower Cretaceous (67)

NATURE OF SEAMS, STRATIGRAPHY: Discovered by Lord and Anthony in 1931; in a sequence of sandstone, conglomerate and shale (67).

RANK: Available analyses indicate low volatile bituminous coal to semi-anthracite. (69)
moisture (as Rec'd) 2-2.1, volatiles 9.5, 14.0,
ash 2.0, 2.0, fixed carbon 82.0, 86.4 - on moisture and MM-free
basis fixed carbon is ~~85.4~~ 85.4, 90.1,
calorific value as rec'd 14,270 and 14380.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 67, 69

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP. NO 70

LATITUDE: 68°53'N

LONGITUDE: 13°02'W

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Headwaters of Conglomerate Creek and
Deep Creek.

NAME: Moose Channel Formation, Upper Cretaceous-Lower Tertiary

NATURE OF SEAMS, STRATIGRAPHY: ~~Seams~~ Thin seams of coal are
interbedded with sandstone, conglomerate and shale, and
deformed into doubly plunging syncline with a north-trending
axial plane. The folds are cut by numerous faults. (70)

RANK: High volatile bituminous.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 67, 70

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP.NO 71

LATITUDE: 68°42'N

LONGITUDE: 136°18'W

TYPE OF LOCALITY: Moose Channel Mine

LOCATION DESCRIPTION: The mine was located on the western bank of the Mackenzie Delta, on the southern shore of Coal Mine Lake; about 64 km due northwest of Aklavik.

NAME: Reindeer Formation, Aklak Member, Uppermost Cretaceous-Tertiary.

NATURE OF SEAMS, STRATIGRAPHY: Coal occurs in a Sandstone-mudstone-coal facies at the base of the Aklak Member (71), typically in the form of fining upwards sequences. Coal-coaly mudstone intervals reach 6 m in thickness. At the mine site, a seam 3.1 m thick was worked (dipping vertically). Upstream along Aklak Creek two additional seams crop out 7 m and 3.7 m thick but having 30% mudstone interbeds. The coal-bearing sequences probably developed in a meandering river system. Similar coals are encountered in subsurface boreholes.

RANK: High volatile bituminous A and B
Typical analyses (as rec'd): moisture 7.2, 6.2,
ash 11.6, 14.4, volatiles 38.9, 36.1,
fixed carbon 42.3, 43.3, sulphur 0.2, 0.7,
calorific value 10,875 11,035. Average Ro% 0.63. (71,72).
870/16.

RESERVES: Tentatively estimated at 100,000 tons in 1956 (73)

HISTORY OF EXPLORATION OR MINING: The mine was first opened in 1942, operating until 1956, and briefly in 1959-60. Coal was supplied by barge to Aklavik. Tonnages between 1942-52 were about 1100 tons. In 1956 it was about 200-300 tons. An adit was driven some 150 m into the seam.

REFERENCES: 67, 71, 72, 73

NTS QUADRANGLE 117

NTS MAP SHEET: 117A Blow River and Davidson Mts.

MAP. NO 72

LATITUDE: $68^{\circ}42'N$

LONGITUDE: $136^{\circ}32'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Exposures on the right bank of Eagle Creek
Section 8 of Young(71).

NAME: Reindeer Formation, Upper Cretaceous-Lower Tertiary

NATURE OF SEAMS, STRATIGRAPHY: A 0.3 m seam is sandwiched between sandstone beds 13.2 m above the base of the formation. Seams also occur in the Moose Channel Formation as thin seams within mudstone and shale units (units 59 & 43 & 23 - the lower seam is 0.6 m thick, banded and blocky fractured). A 1.2 m thick seam also occurs in unit 9 in the basal sandstone member. Coaly shales also are present in the Moose Channel along Eagle Creek at $68^{\circ}45'N$ and $136^{\circ}34'W$ (Section 7).

RANK: Bituminous

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 71

NTS QUADRANGLE 117

NTS MAP SHEET: 117A

MAP. NO 73

LATITUDE: $68^{\circ}34'N$

LONGITUDE: $138^{\circ}25'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: The headwaters of Anker Creek.

NAME: Kyak Formation, Lower Carboniferous

NATURE OF SEAMS, STRATIGRAPHY: Seams occur within a sequence of shale and limestone. Fragments of Lepidodendron are common

RANK: Anthracite.

Proximate analyses (as rec'd):

moisture 1.12, 1.62; ash 4.6, 16.2;

volatiles 9.7, 9.2; fixed carbon 84.6, 73.1

Ro % 2.57, 2.57.

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 67

NTS QUADRANGLE 117

NTS MAP SHEET: 117C Herschel Island & Demarcation Pt. MAP.NO 74

LATITUDE: $69^{\circ}20'N$

LONGITUDE: $140^{\circ}42'W$

TYPE OF LOCALITY: Outcrop

LOCATION DESCRIPTION: Four kilometres due north of Malcolm River.

NAME: Kyak Formation, Lower Carboniferous

NATURE OF SEAMS, STRATIGRAPHY: Seams occur in a sequence of
shale and limestone.

RANK: Anthracite.

A single proximate analysis (as rec'd):

moisture 1.8, ash 6.4,

volatiles 10.0, fixed carbon 81.9

Ro% 2.88

RESERVES:

HISTORY OF EXPLORATION OR MINING:

REFERENCES: 67