

ROTARY DRILL HOLE LOG

Hole No. CS-79-01

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
173.0-190.0	52.7- 57.9	2h ₂	Massive medium grey m.s.								
190.0-195.0	57.9- 59.4	†	Medium grey, gritty m.s.								
195.0-202.0	59.4- 61.6		Massive dark grey m.s.								
202.0-205.0	61.6- 62.5		Interbedded grey m.s. and coaly m.s.								
205.0-255.0	62.5- 77.7		Massive medium to dark grey m.s. @ 255', 6" coaly m.s.								
255.0-277.0	77.7- 84.4		Interbedded grey m.s. and black carbonaceous m.s.								
277.0-280.0	84.4- 85.3		<u>COAL.</u>								
280.0-285.0	85.3- 86.9		Very carbonaceous m.s.								
285.0-289.0	86.9- 88.1		<u>COAL.</u>	86.9-88.1	1.2	1.2	69.6		0.24		
289.0-293.0	88.1- 89.3		Coaly m.s.								
293.0-297.0	89.3- 90.5		<u>COAL.</u>	89.3-90.5	1.2	1.2	75.5		0.24		
297.0-305.0	90.5- 93.0		Dark grey m.s.								

END OF HOLE 93.0 m.

Estimated Average Dip: 0°

Total Estimated True Thickness of Coal in seams >1 m: 2h₂ - 2.4 m

DIAMOND DRILL HOLE LOG

Hole No. CS-79-02

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
431.0-435.0	131.4-132.6	2h ₁	<u>COAL.</u>	131.4-132.6	1.2	1.0					
435.0-439.0	132.6-133.8	†	Mudstone.								
439.0-440.0	133.8-134.1		Felsite.								
440.0-442.0	134.1-134.7		Black carbonaceous m.s.								
442.0-449.0	134.7-136.9		Very fine-grained, medium grey "salt and pepper" s.s.								
449.0-454.0	136.9-138.4		<u>COAL.</u>	136.8-138.4	1.5	1.3					
454.0-456.0	138.4-139.0		Fine-grained "salt and pepper" s.s.								
456.0-460.0	139.0-140.2		Interbedded coaly m.s., m.s., thin coal.								
460.0-473.0	140.2-144.2		Fine-grained, slightly "salt and pepper" s.s. Note: 473'+ - difficult to log, lots of cave, "blow-out" around casing.								
473.0-474.0	144.2-144.5		<u>COAL.</u>								
474.0-477.0	144.5-145.4		Porphyritic felsite.								
477.0-478.5	145.4-145.8		<u>COAL.</u>								
478.5-480.0	145.8-146.3		Sandstone and mudstone.								
480.0-484.0	146.3-147.5		Carbonaceous m.s.								
484.0-490.0	147.5-149.4		<u>COAL</u> , minor m.s.	147.5-149.4	1.9	1.6					

ROTARY DRILL HOLE LOG

Hole No. 79-CS-02

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
490.0-494.0	149.4-150.6	2h ₁	Fine-grained, slightly "salt and pepper" s.s.									
		↓										
494.0-500.0	150.6-152.4		Dark grey, fine-grained s.s.									

END OF HOLE 152.4 m.

Estimated Average Dip: 30°

Total Estimated True Thickness of Coal in seams >1 m: 2h₂ - 5.1 m
 2h₁ - 3.9 m

ROTARY DRILL HOLE LOG

Hole No. 79-CS-03

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
76.0- 82.0	23.2- 25.0	2h ₁	Brownish-grey, carbonaceous m.s.									
82.0- 88.0	25.0- 26.8	+	Interbedded m.s., dark grey s.s., thin coal.									
88.0- 89.0	26.8- 27.1		<u>COAL.</u>									
89.0- 94.0	27.1- 28.7		Black m.s.									
94.0-100.0	28.7- 30.5		<u>COAL.</u>	28.7-30.5	1.8	1.8	60.7			0.31		
100.0-104.0	30.5- 31.7		Mudstone.									
104.0-110.0	31.7- 33.5		<u>COAL.</u>	31.7-33.5	1.8	1.8	52.8			0.18		
110.0-118.0	33.5- 36.0		Sandstone.									
118.0-121.0	36.0- 36.9		<u>COAL.</u>	36.0-36.9	0.9	0.9	42.6	6.7	50.7	0.32	3,135	AN
121.0-124.0	36.9- 37.8		Medium grey, fine-grained s.s.									
124.0-131.0	37.8- 39.9		Interbedded m.s., s.s., minor thin coal.									
131.0-138.0	39.9- 42.1		Grey to black m.s.									
138.0-148.0	42.1- 45.1		Brownish grey, muddy s.s.									
148.0-150.0	45.1- 45.7		Mudstone.									
150.0-152.0	45.7- 46.3		<u>COAL.</u>									
152.0-154.0	46.3- 46.9		Mudstone.									
154.0-157.0	46.9- 47.9		<u>COAL.</u>	46.9-47.9	1.0	1.0	61.1			0.33		

ROTARY DRILL HOLE LOG

Hole No. CS-79-03

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
312.0-314.0	95.1- 95.7	2g	<u>COAL.</u>								
314.0-360.0	95.7-109.7	↓	Conglomerate.								
360.0-393.0	109.7-119.8		Fine-grained, medium grey, homogeneous "salt and pepper" s.s. Coarser grained with increasing depth.								
393.0-397.0	119.8-121.0		Dark grey-brown, slightly coaly m.s.								
397.0-500.0	121.0-152.4		Conglomerate.								

END OF HOLE 152.4 m.

Estimated Average Dip: 0°

Total Estimated True Thickness of Coal in seams >1 m: 2h₁ - 11.9 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-04

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
380.0-386.0	115.8-117.7	2g	Brown mudstone.									
386.0-409.0	117.7-124.7	↓	COAL, coaly m.s., black m.s. Difficult to log, only black sludge return.	-	-	?	61.7			0.22		
409.0-440.0	124.7-134.1		Brown to black m.s.									
440.0-500.0	134.1-152.4		Tantalus conglomerate.									

END OF HOLE 152.4 m.

Estimated Average Dip: 15°

Total Estimated True Thickness of Coal in seams >1 m: 2h₁ - 11.7 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-05

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
129.0-133.0	39.3- 40.5	2g	Coaly m.s.								
133.0-135.0	40.5- 41.1	‡	<u>COAL.</u>								
135.0-137.0	41.1- 41.8		Mudstone.								
137.0-322.0	41.1- 98.1		Tantalus conglomerate to coarse-grained quartzose s.s.								
322.0-334.0	98.1-101.8		Distinctive reddish-brown, gritty m.s.								
334.0-375.0	101.8-114.3		Conglomerate.								
375.0-380.0	114.3-115.8		Interbedded, coarse-grained s.s. and reddish, gritty m.s.								
380.0-404.0	115.8-121.3		Conglomerate and conglomeratic, coarse-grained quartzose s.s.								

END OF HOLE 121.3 m.

Estimated Average Dip: 38°

Total Estimated True Thickness of Coal in seams >1 m: 2g - 2.8 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-06

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
173.0-177.0	52.7- 53.9	2g	<u>COAL.</u>	52.7-53.9	1.2	.94	35.0	19.8	45.2	0.51	5,212	MVB
177.0-190.0	53.9- 57.9	↓	Mudstone.									
190.0-224.0	57.9- 68.3		Conglomerate and coarse-grained s.s.									

END OF HOLE 68.3 m.

Estimated Average Dip: 38⁰

Total Estimated True Thickness of Coal in seams >1 m: 1.9 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-07

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
300.0-303.0	91.4- 92.4	2e	Medium to coarse-grained quartzose s.s.								
303.0-314.0	92.4- 95.7	↓	Fine-grained, brownish-grey, muddy matrix s.s., slightly conglomeratic.								
314.0-410.0	95.7-125.0		Fine-grained, grey, slightly "salt and pepper" s.s., scattered thin conglomeratic beds and 365-385 conglomeratic.								
410.0-440.0	125.0-134.1		Interbedded, fine to coarse-grained quartzose s.s.								
440.0-444.0	134.1-135.3		Very fine-grained, dark grey s.s.								
444.0-456.0	135.3-139.0		Interbedded, fine to coarse-grained quartzose s.s.								
456.0-459.0	139.0-140.0		Coarse-grained, quartzose s.s.								
459.0-470.0	140.0-143.3		Interbedded fine to coarse-grained quartzose s.s., some slightly conglomeratic.								
470.0-478.0	143.3-145.7		Conglomeratic, coarse-grained, quartzose s.s.								
478.0-489.0	145.7-149.0		Interbedded, fine to coarse-grained quartzose s.s.								
489.0-500.0	149.0-152.4	2d?	Dark grey m.s., some sections gritty.								

END OF HOLE 152.4 m.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-08

Page 1 of 1

Coal Lease No.: 2965
 Grid Co-ordinates: 112+00S, 22+50E
 Bearing: -
 Dip: -90°
 Commenced: August 27, 1979
 Completed: August 27, 1979
 Ultimate Depth: 39.6 m
 Electrologged: No

INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 7.0	0.0- 2.1		Overburden.								
7.0- 31.0	2.1- 9.4	2g	Conglomerate.								
31.0- 32.0	9.4- 9.8	↓	Muddy matrix s.s.								
32.0-107.0	9.8- 32.6		Conglomerate.								
107.0-128.0	32.6- 39.0		Medium brown, massive, gritty m.s. to m.s.								
128.0-130.0	39.0- 39.6		Dark grey m.s.								

END OF HOLE 39.6 m.

ROTARY DRILL HOLE LOG

Hole No. CS-79-09

INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
295.0-308.0	89.9- 93.9	2e	Very fine-grained, brownish, muddy matrix s.s.									
308.0-374.0	93.9-114.0	2d	Dark greyish-brown m.s., massive to finely laminated. Same unit as bottom of Hole No. CS-79-07.									
374.0-443.0	114.0-135.0	2c +	Fine to coarse-grained, very light grey to white, very quartzose s.s., layer rounded quartz grains throughout; voluminous white dust; distinctive.									
443.0-444.0	135.0-135.3		Brown m.s.									
444.0-500.0	135.3-152.4		Fine to coarse-grained, very light grey to white, very quartzose s.s., layer rounded quartz grains throughout; voluminous white dust; distinctive.									

END OF HOLE 152.4 m.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Drill Hole No. CS-79-10

Coal Lease No.: 2965
 Grid Co-ordinates: 112+00S, 33+00E
 Bearing: -
 Dip: -90°
 Commenced: August 29, 1979
 Completed: August 30, 1979
 Ultimate Depth: 135.6 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 7.0	0.0- 2.1		Overburden.								
7.0- 31.0	2.1- 9.4	2d	Dark brown m.s.								
31.0- 45.0	9.4- 13.7	↓	Very dark, greyish-brown m.s.								
45.0- 62.0	13.7- 18.9		Brown, very gritty m.s. to muddy s.s.								
62.0-445.0	18.9-135.6	2c	Very clean, pure, light grey to white quartz s.s., voluminous white dust. 62.0- 64.0: fine-grained; 64.0-315.0: interbedded, fine-grained; medium-grained, coarse-grained; 315.0-445.0: coarse-grained predominates, thin beds fine-grained, medium-grained.								

END OF HOLE 135.6 m.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Drill Hole No. CS-79-11

Coal Lease No.: 2965
 Grid Co-ordinates: 112+00S, 38+50E
 Bearing: -
 Dip: -90°
 Commenced: August 30, 1979
 Completed: September 6, 1979
 Ultimate Depth: 178.0 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 6.0	0.0- 1.8		Overburden.								
6.0- 54.0	1.8- 16.5	2b	Typical Tantalus conglomerate.								
54.0- 66.0	16.5- 20.1	2a	Light grey, clean, medium to fine-grained quartzose s.s.								
66.0- 69.0	20.1- 21.0	↓	Fine-grained, brownish muddy matrix s.s.								
69.0- 72.0	21.0- 21.9		Clean, light grey, medium-grained s.s.								
72.0- 75.0	21.9- 22.9		Fine-grained, brownish muddy matrix s.s.								
75.0-186.0	22.9- 56.7		Clean, light grey, medium-grained quartzose s.s.								
186.0-188.0	56.7- 57.3		Dark grey-brown m.s.								
188.0-195.0	57.3- 59.4		Interbedded, fine-grained, light grey s.s., brownish, fine-grained s.s., and dark brown to grey m.s.								
195.0-219.0	59.4- 66.8		Fine-grained, medium to light grey s.s.								
219.0-221.0	66.8- 67.4		Dark brownish-grey, massive m.s.								

ROTARY DRILL HOLE LOG

Hole No. CS-79-11

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
221.0-225.0	67.4- 68.6	2a ↓	Medium, brownish-grey, finely laminated, gritty m.s.									
225.0-234.0	68.6- 71.3		Massive, gritty m.s.. to muddy, very fine-grained s.s.									
234.0-260.0	71.3- 79.2		Fine-grained, muddy matrix, crumbly s.s.									
260.0-278.0	79.2- 84.7		Interbedded, dark brown, slightly coaly m.s. and brown m.s.									
278.0-292.0	84.7- 89.0		Very fine-grained, brownish-grey s.s.									
292.0-330.0	89.0-100.6		Fine-grained, grey s.s.									
330.0-424.0	100.6-129.2		Light grey, medium-grained s.s.									
424.0-584.0	129.2-178.0		Medium-grained, grey, quartzose s.s., slightly conglomeratic. 454.0-464.0: conglomeratic s.s.									

END OF HOLE 178.0 m.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-12

Coal Lease No.: 2965
 Grid Co-ordinates: 112+00S, 9+50E
 Bearing: -
 Dip: -90°
 Commenced: September 6, 1979
 Completed: September 8, 1979
 Ultimate Depth: 167.0 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 20.0	0.0- 6.1		Overburden; some very coaly layers in overburden.								
20.0- 24.0	6.1- 7.3	3h ₁	Grey-brown, fine-grained, biotitic sill.								
24.0- 34.0	7.3- 10.4	↓	<u>COAL.</u>	7.3-10.4	3.1	3.1	49.1	8.7	42.2	0.32	3,222 SA
34.0- 43.0	10.4- 13.1		Carbonaceous m.s., thin voluminous, gritty m.s.								
43.0- 52.0	13.1- 15.8		Quartzite.								
52.0- 54.0	15.8- 16.5		Mudstone.								
54.0- 55.0	16.5- 16.8		<u>COAL.</u>								
55.0- 66.0	16.8- 20.1		Porphyritic felsite sill.								
66.0- 66.5	20.1- 20.3		<u>COAL.</u>								
66.5- 82.0	20.3- 25.0		Fine-grained, light grey, porphyritic biotitic sill.								
82.0- 99.0	25.0- 30.2		<u>COAL</u> , thin m.s.	25.0-30.2	5.2	5.2	38.1	7.1	54.8	0.49	4,926 AN

ROTARY DRILL HOLE LOG

Hole No. CS-79-12

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
504.0-514.0	153.6-156.7	2a	Dark brown m.s. and grey gritty m.s.								
514.0-520.0	156.7-158.5	↓	Gritty m.s.								
520.0-525.0	158.5-160.0		Dark brown m.s.								
525.0-535.0	160.0-163.1		Gritty m.s.								
535.0-545.0	163.1-166.1		Dark brown m.s. and grey gritty m.s.								
545.0-548.0	166.1-167.0		Conglomeratic s.s.								

END OF HOLE 167.0 m.

Estimated Average Dip: 0°

Total Estimated True Thickness of Coal in seams >1 m: 2h₁ - 12.6 m
2g - 3.9 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-13

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
190.0-265.0	57.9-80.8	2g	Conglomerate, minor coarse-grained conglomeratic s.s.								
		↓									
265.0-275.0	80.8-83.8		Medium-grained s.s. to conglomeratic s.s.								
275.0-291.0	83.8- 88.7		Conglomeratic s.s.								
291.0-424.0	88.7-129.2		Conglomerate.								

END OF HOLE 129.2 m.

ROTARY DRILL HOLE LOG

Hole No. CS-79-14

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
371.0-383.0	113.1-116.7	2g	Conglomerate.									

END OF HOLE 116.7 m.

Estimated Average Dip: 25⁰

Total Estimated True Thickness of Coal in seams >1m: 2h₂ - 5.7 m
2h₁ - 5.2 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-15

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
75.0- 81.0	22.9- 24.7	2h ₁	<u>COAL.</u>	22.9-24.7	1.8	1.5					
81.0- 86.0	24.7- 26.2	↓	Coaly m.s.								
86.0- 89.0	26.2- 27.1		<u>COAL.</u>								
89.0- 93.0	27.1- 28.3		Dark grey-brown, massive m.s.								
93.0-108.0	28.3- 32.9	2g ↓	Grey, gritty m.s. to fine-grained muddy matrix s.s., slightly "salt and pepper".								
108.0-135.0	32.9- 41.1		Fine to medium-grained, "salt and pepper" s.s.								
135.0-240.0	41.1- 73.2		Conglomerate.								
240.0-260.0	73.2- 79.2		Very fine-grained to fine-grained, slightly "salt and pepper", medium grey s.s.								
260.0-284.0	79.2- 86.6		Medium-grained conglomeratic s.s.								
284.0-403.0	86.6-122.8		Conglomerate, 313-316', thin coal seam interbedded.								

END OF HOLE 122.8 m.

Estimated Average Dip: 30°

Total Estimated True Thickness of Coal in seams >1m: 2h₁ - 1.5 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-16

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
265.0-286.0	80.8- 87.2	2h ₁	Brownish-grey, gritty m.s. to muddy s.s.								
286.0-297.0	87.2- 90.5	2g	Fine-grained, grey "salt and pepper" s.s.								
297.0-320.0	90.5- 97.5	+	Conglomeratic, medium-grained "salt and pepper" s.s.								
320.0-405.0	97.5-123.4		Conglomerate, some thin beds conglomeratic s.s.								

END OF HOLE 123.4 m.

Estimated Average Dip: 10°

Total Estimated True Thickness of Coal in seams >1 m: 2h₂ - 1.2 m
2h₁ - 4.4 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-17

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
244.7-268.0	74.6- 81.7	2g	Conglomeratic, medium-grained s.s.								
268.0-303.0	81.7- 92.4	†	Conglomerate.								

END OF HOLE 92.4 m.

Estimated Average Dip: 15⁰

Total Estimated True Thickness of Coal in seams >1 m: 2h₁ - 13.6 m??

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-18

Coal Lease No.: 2965
 Grid Co-ordinates: 100+00S, 14E
 Bearing: -
 Dip: -90°
 Commenced: September 15, 1979
 Completed: September 15, 1979
 Ultimate Depth: 37.5 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
0.0- 13.0	0.0- 4.0		Overburden.									
13.0- 27.0	4.0- 8.2	2h ₁ ↓	COAL; dirty, oxidized, brownish chert to 20'.	6.1- 8.2	2.1	1.7	44.9	6.8	48.3	0.36	3,427	AN
27.0- 45.0	8.2- 13.7		Medium brown m.s., some slightly coaly.									
45.0- 53.0	13.7- 16.2		Grey-brown, slightly gritty m.s.									
53.0- 74.0	16.2- 22.6	2g ↓	Fine to medium-grained, "salt and pepper" s.s.									
74.0- 93.0	22.6- 28.3		Conglomeratic s.s.									
93.0-123.0	28.3- 37.5		Conglomerate.									

END OF HOLE 37.5 m.

Estimated Average Dip: 35°

Total Estimated True Thickness of Coal in seams >1 m: 2h₁ - 1.7 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-19

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
80.0- 82.0	24.4- 25.0	2h ₁	<u>COAL.</u>								
82.0- 83.0	25.0- 25.3	†	Mudstone.								
83.0- 84.0	25.3- 25.6		<u>COAL.</u>								
84.0- 96.0	25.6- 29.3		Dark brownish-grey m.s.								
96.0-103.0	29.3- 31.4	2g	Slightly "salt and pepper", gritty m.s.								
103.0-125.0	31.4- 38.1	†	Fine to medium-grained "salt and pepper" s.s.								
125.0-137.0	38.1- 41.8		Conglomeratic, medium-grained "salt and pepper" s.s.								
137.0-155.0	41.8- 47.2		Conglomerate.								

END OF HOLE 47.2 m.

Estimated Average Dip: 35°

Total Estimated True Thickness of Coal in seams > 1 m: 2h₁ - 4.6 m

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-20

Coal Lease No.: 2965
 Grid Co-ordinates: 101+00S, 1+00E
 Bearing: -
 Dip: -90°
 Commenced: September 16, 1979
 Completed: September 17, 1979
 Ultimate Depth: 165.8 m
 Electrologged: 0 - 119.5 m

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 6.0	0.0- 1.8		Overburden.								
6.0- 65.6	1.8- 20.0	2i	Very coarse, some rusty weathered, Tantalus conglomerate.								
65.6- 66.6	20.0- 20.3	2h ₂	<u>COAL</u> .								
66.6 - 81.0	20.3- 24.7	†	Dark brown m.s.								
81.0- 82.0	24.7- 25.0		<u>COAL</u> or coaly m.s.								
82.0- 88.6	25.0- 27.0		Dark brown m.s.								
88.6- 95.1	27.0- 29.0		Dark grey, laminated, gritty m.s.								
95.1-101.7	29.0- 31.0		Brown to black m.s., a few thin (<1') coaly beds.								
101.7-108.3	31.0- 33.0		Medium grey-brown massive m.s.								
108.3-113.2	33.0- 34.5		Grey, gritty m.s.								
113.2-123.0	34.5- 37.5		Dark grey-brown m.s.								
123.0-128.0	37.5- 39.0		Medium grey-brown, gritty m.s., scattered chocolate-brown m.s. and coaly beds.								

ROTARY DRILL HOLE LOG

Hole No. CS-79-20

Page 5 of 5

INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
513.0-523.0	156.4-159.4	2g	Conglomeratic s.s.								
523.0-544.0	159.4-165.8	†	Conglomerate.								

END OF HOLE 165.8 m.

Estimated Average Dip: 10°

Total Estimated True Thickness of Coal in seams >1 m: $2h_2 - 2.5$ m
 $2h_1 - 7.8$ m

ROTARY DRILL HOLE LOG

Hole No. CS-79-21

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
226.0-230.0	68.9- 70.1	2h ₁	<u>COAL.</u>	68.9-70.1	1.2	1.1					
230.0-238.0	70.1- 72.5	↓	Interbedded thin coal, coaly m.s., m.s.??								
238.0-246.0	72.5- 75.0		Dark grey m.s.								
246.0-251.0	75.0- 76.5		?								
251.0-253.0	76.5- 77.1		Coaly m.s.								
253.0-256.0	77.1- 78.0		Medium-grained, slightly conglomeratic s.s.								
256.0-266.0	78.0- 81.1		Black m.s., some coaly, some gritty.								
266.0-283.0	81.1- 86.3		Medium to coarse-grained, quartzose s.s., thin m.s. beds and thin "salt and pepper" s.s. beds.								
283.0-285.0	86.3- 86.9		<u>COAL.</u>								
285.0-292.0	86.9- 89.0		Fine-grained, light grey sill.								
292.0-294.0	89.0- 89.6		<u>COAL.</u>								
294.0-296.0	89.6- 90.2		Coaly m.s.								
296.0-301.0	90.2- 91.7		<u>COAL</u> , minor dirty coal, coaly m.s.	90.2-91.7	1.5	1.4					
301.0-308.0	91.7- 93.9		Fine-grained, medium grey, porphyritic intrusive sill.								
308.0-312.0	93.9- 95.1		<u>COAL</u> , appears very dirty.	93.9-95.1	1.2	1.1					

ROTARY DRILL HOLE LOG

Hole No. CS-79-21

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)														
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank						
312.0-337.0	95.1-102.7	2h ₁ ↓	Fine-grained, light to medium grey, slightly porphyritic (feld. lath.) intrusive sill.															
337.0-339.0	102.7-103.3		<u>COAL.</u>															
339.0-343.0	103.3-104.5		Interbedded thin coal, m.s., s.s.															
343.0-349.0	104.5-106.4		Light grey s.s.???															
349.0-352.0	106.4-107.3		Mudstone.															
352.0-371.0	107.3-113.1	2g ↓	Fine to medium-grained "salt and pepper" s.s.															
371.0-397.0	113.1-121.0		Conglomeratic, medium-grained "salt and pepper" s.s.															
397.0-405.0	121.0-123.4		Conglomerate.															

END OF HOLE 123.4 m.

Estimated Average Dip: 25⁰

Total Estimated True Thickness of Coal in seams >1 m: 2h₂ - 3.9 m
2h₁ - 3.6 m

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-22

Coal Lease No.: 2965
 Grid Co-ordinates: 112S, 9+50W
 Bearing: -
 Dip: -90°
 Commenced: September 20, 1979
 Completed: September 20, 1979
 Ultimate Depth: 98.5 m
 Electrologged: 0 - 94.5 m

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)									
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank	
0.0-	11.0		Overburden.										
11.0-	16.4	3h ₁	Mudstone, coaly m.s.										
16.4-	22.3	↓	<u>COAL</u> , very soft, rotten, ashy.	5.0-	6.8	1.8	1.6						
22.3-	42.7		Mudstone, gritty m.s., some slightly coaly.										
42.7-	52.5		Fine-grained, muddy matrix, light grey s.s.										
52.5-	55.8		Gritty m.s.										
55.8-	56.8		Felsite sill??										
56.8-	59.1		Gritty m.s.										
59.1-	62.3		Mudstone.										
62.3-	64.3		<u>COAL</u> .										
64.3-	66.3		Brown m.s.										
66.3-	69.5		<u>COAL</u> .	20.2-	21.2	1.0	0.9	34.7	19.4	45.9	0.51	5,303	MvB

ROTARY DRILL HOLE LOG

Hole No. CS-79-22

Page 4 of 4

INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
275.6-282.2	84.0- 86.0	2g	Medium grey, medium-grained, slightly conglomeratic s.s.									
		+										
282.2-295.3	86.0- 90.0		Conglomeratic s.s.									
295.3-323.2	90.0- 98.5		Conglomerate.									

END OF HOLE 98.5 m.

Estimated Average Dip: 25⁰

Total Estimated True Thickness of Coal in seams >1 m: 3h₁ - 6.5 m

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-23

Coal Lease No.: 2965
 Grid Co-ordinates: 112+00S, 14+00W
 Bearing: -
 Dip: -90°
 Commenced: September 20, 1979
 Completed: September 21, 1979
 Ultimate Depth: 104.5 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 6.0	0.0- 1.8		Overburden.								
6.0- 49.0	1.8- 14.9	2g	Coarse-grained Tantalus conglomerate.								
49.0- 51.0	14.9- 15.5	†	Mudstone to muddy s.s.								
51.0- 55.0	15.5- 16.8		Conglomerate.								
55.0- 59.0	16.8- 18.0		Coarse-grained, conglomeratic s.s.								
59.0- 64.0	18.0- 19.5		Fine-grained "salt and pepper" s.s.								
64.0- 65.0	19.5- 19.8		Dark brown m.s.								
65.0- 70.0	19.8- 21.3		Medium-grained, conglomeratic s.s.								
70.0- 76.0	21.3- 23.2		Dark grey m.s. to gritty m.s.								
76.0- 86.0	23.2- 26.2		Coarse-grained, quartzose s.s.								
86.0- 87.0	26.2- 26.5		Mudstone.								
87.0- 94.0	26.5- 28.7		Fine-grained "salt and pepper" s.s., minor m.s.								

ROTARY DRILL HOLE LOG

Hole No. CS-79-23

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
281.0-283.0	85.6- 86.3	2g	Fine-grained, medium grey, slightly "salt and pepper" s.s.									
		↓										
283.0-291.0	86.3- 88.7		Interbedded, dark m.s. and fine-grained s.s.									
291.0-320.0	88.7- 97.5		Conglomeratic, medium-grained "salt and pepper" s.s.									
320.0-340.0	97.5-103.6		Conglomerate.									
340.0-343.0	103.6-104.5		Conglomeratic, medium-grained "salt and pepper" s.s.									

END OF HOLE 104.5 m.

ROTARY DRILL HOLE LOG

Hole No. CS-79-24

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<u>INTERVAL</u>		<u>UNIT</u>	<u>DESCRIPTION</u>	<u>ANALYSES (db)</u>							
<u>Feet</u>	<u>Metres</u>			<u>Interval</u>	<u>Thick.</u>	<u>Est. T.T.</u>	<u>Ash %</u>	<u>Vol.%</u>	<u>F.C.%</u>	<u>S%</u>	<u>Cal/GM.</u>
419.0-432.0	127.7-131.7	2g	Conglomerate.								
432.0-444.0	131.7-135.3	↓	Conglomeratic, dark grey s.s.								

END OF HOLE 135.3 m.

Estimated Average Dip: 65⁰

Total Estimated True Thickness of Coal in seams >1 m: 2g - 4.3 m

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Drill Hole No. CS-79-25

Coal Lease No.: 2965
 Grid Co-ordinates: 112+00S, 17+60W
 Bearing: -
 Dip: -90°
 Commenced: September 21, 1979
 Completed: September 22, 1979
 Ultimate Depth: 36.9 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 6.0	0.0- 1.8		Overburden.								
6.0- 23.0	1.8- 7.0	2g	Coarse-grained, Tantalus conglomerate, orange dust.								
		+									
23.0- 32.0	7.0- 9.8		Conglomeratic, medium-grained s.s.								
32.0-105.0	9.8- 32.0		Conglomerate.								
105.0-114.0	32.0- 34.7		Coaly m.s., very abrupt upper contact.								
114.0-117.0	34.7- 35.7		Grey gritty m.s.								
117.0-121.0	35.7- 36.9		Coarse-grained conglomerate.								

END OF HOLE 36.9 m.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-26

Coal Lease No.: 2978
 Grid Co-ordinates: 112+00S, 24+00W
 Bearing: -
 Dip: -90°
 Commenced: September 22, 1979
 Completed: September 22, 1979
 Ultimate Depth: 32.0 m
 Electrologged: No

Page 1 of 1

INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 18.0	0.0- 5.5		Overburden.								
18.0-105.0	5.5- 32.0	2c	Very clean, white quartzose s.s.; coarse- to medium to fine-grained, slightly yellowish near surface, very clean white with depth, voluminous white dust; re- cessive; poorly cemented; same unit as intersected in lower Hole CS-79-10.								

END OF HOLE 32.0 m.

ROTARY DRILL HOLE LOG

Hole No. CS-79-27

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
145.0-154.0	44.2- 46.9	2e	Medium-grained s.s. with coarse-grained quartzose sand grain to 10%, slightly conglomeratic.									
		↓										
154.0-160.0	46.9- 48.8		Coarse sand size quartzose grain to 50% in medium-grained, "salt and pepper" s.s. matrix.									
160.0-180.0	48.8- 54.9		Fine to medium-grained, medium grey, slightly "salt and pepper" s.s., minor interbeds black m.s., gritty m.s.									
180.0-207.0	54.9- 63.1		Coarse to medium-grained, quartzose s.s., massive to slightly "salt and pepper".									
207.0-220.0	63.1- 67.1		Very fine-grained, medium grey s.s.									
220.0-227.0	67.1- 69.2	2d	Grey m.s., some gritty.									
227.0-232.0	69.2- 70.7	↓	Dark grey-brown, massive m.s., not gritty.									
232.0-234.0	70.7- 71.3		Dark grey, gritty m.s.									

END OF HOLE 71.3 m.

ROTARY DRILL HOLE LOG

Hole No. CS-79-28

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
397.0-403.5	121.0-123.0	2h ₁	Dark brown m.s.									
403.5-413.4	123.0-126.0	↓	Dark grey, gritty m.s.									
413.4-429.8	126.0-131.0	2g	Medium grey, fine-grained, "salt and pepper" s.s.									
429.8-438.0	131.0-133.5	↓	Conglomeratic, medium-grained, "salt and pepper" s.s.									

END OF HOLE 133.5 m.

Estimated Average Dip: 10°

Total Estimated True Thickness of Coal in seams > 1 m: 2h₂ - 2.2 m
2h₁ - 10.9 m

ROTARY DRILL HOLE LOG

Hole No. CS-79-29

Page 2 of 5

INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
111.5-144.4	34.0- 44.0	2h ↓	Fine-grained, muddy matrix s.s. to gritty m.s., finely laminated m.s., minor coaly m.s.								
144.4-150.9	44.0- 46.0		Light grey, muddy matrix s.s.								
150.9-152.2	46.0- 46.4		Mudstone.								
152.2-156.2	46.4- 47.6		Very dirty <u>COAL</u> .								
156.2-160.8	47.6- 49.0		Mudstone.								
160.8-165.7	49.0- 50.5		<u>COAL</u> .	49.0-50.5	1.5	1.1					
165.7-167.3	50.5- 51.0		Coaly m.s.								
167.3-170.1	51.0- 52.0		Gritty grey m.s.								
170.1-177.2	52.0- 54.0		Fine-grained s.s., muddy.								
177.2-178.8	54.0- 54.5		Coaly m.s.								
178.8-183.7	54.5- 56.0		<u>COAL</u> .	54.5-56.0	1.5	1.1	49.4	9.5	41.1	0.18	3,009 SA
183.7-185.4	56.0- 56.5		Black m.s.								
185.4-189.6	56.5- 57.8		Fine-grained, dark grey trap rock, may be sill.								
189.6-191.9	57.8- 58.5		Light grey s.s.								
191.9-195.2	58.5- 59.5		Dark m.s.								
195.2-204.7	59.5- 62.4		<u>COAL</u> .	59.5-62.4	2.9	2.2					

ROTARY DRILL HOLE LOG

Hole No. CS-79-29

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
313.0-314.0	95.4- 95.7	2h +	<u>COAL.</u>								
314.0-317.0	95.7- 96.6		Light grey, fine-grained, siliceous, quartzose feldspar porphyry, pyritic.								
317.0-320.0	96.6- 97.5		Mudstone.								
320.0-326.0	97.5- 99.4		Light grey, fine-grained, siliceous quartzose feldspar porphyry, pyritic.								
326.0-334.0	99.4-101.8		<u>COAL.</u>	99.4-101.8	2.4	1.8					
334.0-335.0	101.8-102.1		Mudstone.								
335.0-348.0	102.1-106.1		Dirty coal, minor m.s.								
348.0-359.0	106.1-109.4		Dark grey to black m.s.								
359.0-368.0	109.4-112.2		Fine-grained, medium grey, quartz eye porphyry.								
368.0-370.0	112.2-112.8		Mudstone.								
370.0-373.0	112.8-113.7		<u>COAL.</u>								
373.0-377.0	113.7-114.9		Dark grey m.s.								
377.0-387.0	114.9-118.0		Dark grey, very fine-grained s.s. or siliceous m.s.								
387.0-415.0	118.0-126.5	2g +	Fine-grained, medium grey, slightly "salt and pepper" s.s.								
415.0-431.0	126.5-131.4		Conglomeratic, fine to medium-grained "salt and pepper" s.s.								

ROTARY DRILL HOLE LOG

Hole No. CS-79-29

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<u>INTERVAL</u>		<u>UNIT</u>	<u>DESCRIPTION</u>	<u>ANALYSES (db)</u>							
<u>Feet</u>	<u>Metres</u>			<u>Interval</u>	<u>Thick.</u>	<u>Est. T.T.</u>	<u>Ash %</u>	<u>Vol.%</u>	<u>F.C.%</u>	<u>S%</u>	<u>Cal/GM.</u>
431.0-434.0	131.4-132.3	2g	Conglomerate.								

END OF HOLE 132.3 m.

Estimated Average Dip: 40⁰????

Total Estimated True Thickness of Coal in seams >1 m: 2h - 13.1 m

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-30

Coal Lease No.: 2949
 Grid Co-ordinates:
 Bearing: -
 Dip: -90°
 Commenced: September 25, 1979
 Completed: September 25, 1979
 Ultimate Depth: 19.5 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0-	8.0		Overburden.								
8.0-	16.0	2.4- 4.9	2e								
16.0-	30.0	4.9- 9.1	†								
30.0-	58.0	9.1- 17.7									
58.0-	60.0	17.7- 18.3									
60.0-	64.0	18.3- 19.5									

END OF HOLE 19.5 m.

NOTE: All Tantalus lithologies. Appear to be the varied quartz sand unit which overlies the coarse-grained, very pure white sandstone unit which was intersected in holes CS-79-10 and 20.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-31

Coal Lease No.: 2949
 Grid Co-ordinates:
 Bearing: -
 Dip: -90°
 Commenced: September 25, 1979
 Completed: September 25, 1979
 Ultimate Depth: 19.8 m
 Electrologged: No

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0-	12.0		Overburden.								
12.0-	65.0	2g	Conglomeratic, medium grey, muddy matrix, slightly "salt and pepper" s.s.; conglomeratic pebbles are white and clear quartz; minor grey chert.								

END OF HOLE 19.8 m.

ROTARY DRILL HOLE LOG

Carmacks South Project 1979

Hole No. CS-79-32

Coal Lease No.: 2954
 Grid Co-ordinates:
 Bearing: -
 Dip: -90°
 Commenced: September 25, 1979
 Completed: September 25, 1979
 Ultimate Depth: 56.4 m
 Electrologged: 0 - 53.8 m

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)							
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.
0.0- 12.1	0.0- 3.7		Overburden.								
12.1- 13.8	3.7- 4.2	2h	<u>COAL</u> , very weathered, soft.								
13.8- 15.1	4.2- 4.6	†	Mudstone.								
15.1- 17.1	4.6- 5.2		<u>COAL</u> , very weathered, soft.								
17.1- 32.8	5.2- 10.0		Fine-grained, very muddy matrix s.s., minor m.s., coaly m.s.								
32.8- 34.4	10.0- 10.5		<u>COAL</u> .								
34.4- 35.8	10.5- 10.9		Mudstone.								
35.8- 37.1	10.9- 11.3		<u>COAL</u> .								
37.1- 38.1	11.3- 11.6		Dark grey m.s.								
38.1- 46.3	11.6- 14.1		Dark grey-brown, massive m.s.								
46.3- 47.6	14.1- 14.5		<u>COAL</u> .								
47.6- 61.0	14.5- 18.6		Fine-grained, very gritty m.s., medium grey to brown.								

ROTARY DRILL HOLE LOG

Hole No. CS-79-32

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INTERVAL		UNIT	DESCRIPTION	ANALYSES (db)								
Feet	Metres			Interval	Thick.	Est. T.T.	Ash %	Vol.%	F.C.%	S%	Cal/GM.	Rank
129.6-139.4	39.5- 42.5	2h ₁	Medium-grained, muddy matrix "salt and pepper" s.s.									
		+										
139.4-185.0	42.5- 56.4		Medium-grained, conglomeratic "salt and pepper" s.s.									

END OF HOLE 56.4 m.

Estimated Average Dip: 45⁰???

Total Estimated True Thickness of Coal in seams >1 m: