K-SHELL-HORSESHOE RIDGE 79(1)A

TEXT

"HORSESHOE RIDGE COAL PROJECT"

APRIL 30, 1980.

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GEOLOGICAL BRANCH
ASSESSMENT REPORT

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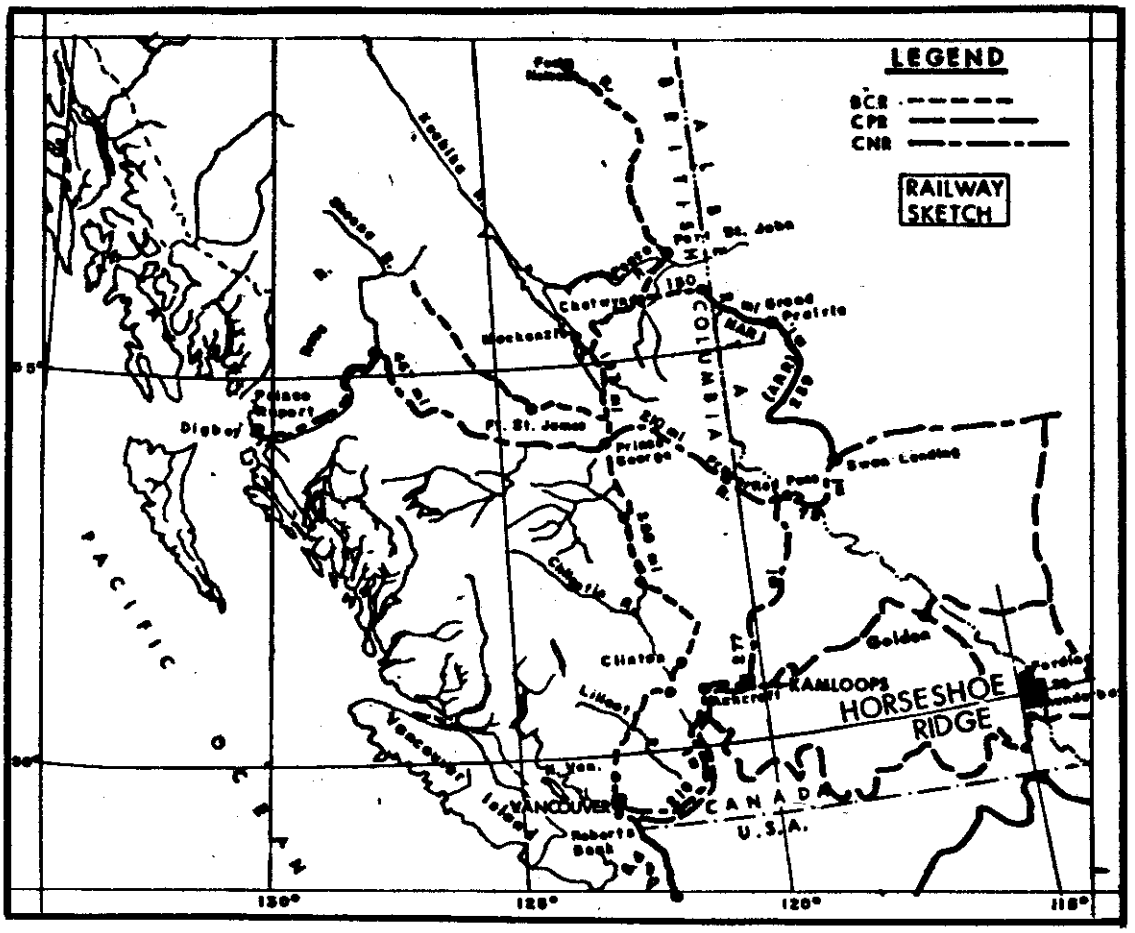
K - SHELL HORSESHOE RIDGE 79(1)A

HORSESHOE RIDGE COAL PROJECT



Report on Coal Licences 295, 296, 299, 300, 302, 303, 368, 369, 370, 373 GROUP # 263
Kootenay Land District, British Columbia
work done from Feb. 1, 1979 to Jan. 30, 1980

Held by: SHELL CANADA RESOURCES LIMITED
Operated by: CROWS NEST RESOURCES LIMITED

Lat. 49° 57' N, Long. 114° 45' W N.T.S. 82 G/15

April 30, 1980

Author
Jeff Schlender
Crows Nest Resources Ltd.

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1.0 INTRODUCTION

1.1 General Introduction

Horseshoe Ridge is centered at latitude 49° 57' N and longitude 114° 45' W, 25 km northeast of Sparwood, British Columbia in the Upper Elk Coal Field. It is within 9.5 km of the Canadian Pacific Railroad in the Elk Valley. (Enclosures 1 & 2) The licences lie about midway between two major operating metallurgical coking coal properties, Kaiser Resources Harmer Ridge 16 km to the south and Fording River Coal's open pit operations to the north.

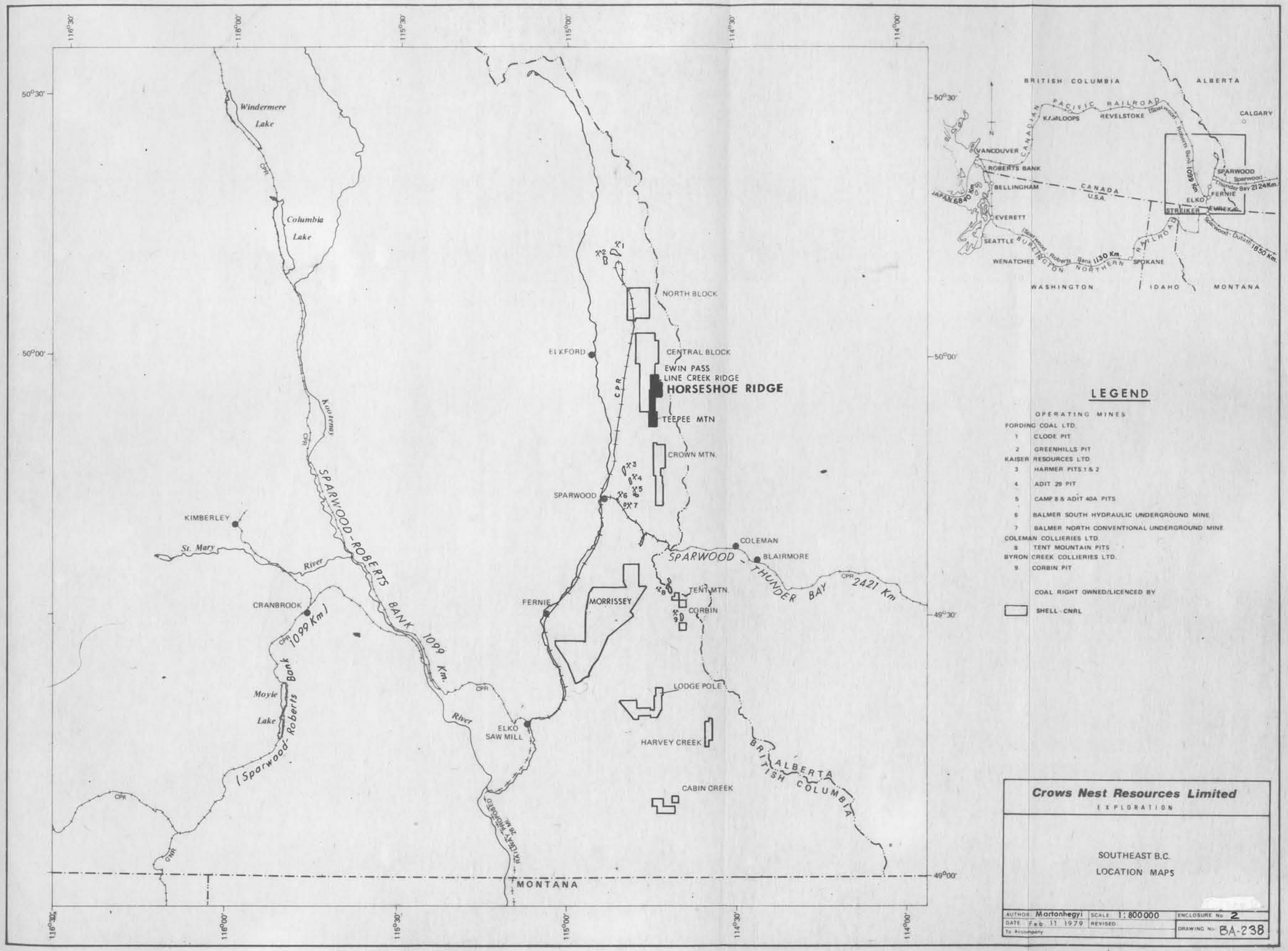
Vehicular access into the area is via an all-weather, gravel base road presently used by CNI logging operations in the area.

A "Central Block" area consists of several explored units, principal ones being Line Creek Ridge, Horseshoe Ridge, and Ewin Pass. This report covers primarily Horseshoe Ridge and only briefly mentions its southern extension (Teepee Mt.)

Topographically, Horseshoe Ridge is of rugged relief, with elevation differentials of up to 730 metres from the narrow ridge crest to valley floor. One major drainage, Line Creek, drains most of the reserve area from the west flank; south Line Creek receives drainage from the east slope and flows into Line Creek, which, in turn, is tributary to the Fording River some 9.5 km west.

1.2 Summary

Ten B.C. Coal Licences, Group # 263 covering 2,203 ha. are held by Shell Canada Resources Limited operated by Crows Nest Resources Limited, a wholly owned subsidiary of the former. Table 1 lists these licences and all pertinent land information, Enclosure 2 shows the location of the licences. Of this total 4,452 ha. are underlain by Kootenay Formation coal bearing sequences.



LEGEND

OPERATING MINES

FORDING COAL LTD.
1 CLODE PIT
2 GREENHILLS PIT

KAISER RESOURCES LTD.
3 HARMER PITS 1 & 2
4 ADIT 29 PIT
5 CAMP 8 & ADIT 40A PITS
6 BALMER SOUTH HYDRAULIC UNDERGROUND MINE
7 BALMER NORTH CONVENTIONAL UNDERGROUND MINE

COLEMAN COLLIERIES LTD.
8 TENT MOUNTAIN PITS

BYRON CREEK COLLIERIES LTD.
9 CORBIN PIT

COAL RIGHT OWNED/LICENCED BY

SHELL - CNRL

Crows Nest Resources Limited
EXPLORATION

SOUTHEAST B.C.
LOCATION MAPS

AUTHOR Martonhegyi	SCALE 1:800000	ENCLOSURE No. 2
DATE Feb 11 1979	REVISED	DRAWING No. BA-238
To Accompany		

CROWS NEST RESOURCES LIMITED
EXPLORATION

B. C. COAL LICENCES
TENURE STANDING

BLOCK: CENTRAL BLOCK PROJECT: YEAR: 1979-80
GROUP: # 263 HORSESHOE RIDGE DATE: JAN. 31'80
KOOTENAY LAND DISTRICT

PROJECT NAME	PROJECT LICS. TOTAL NO.	PROJECT AREA TOTAL HECTARES	BLOCK NAME	BLOCK LICS. TOTAL NO.	BLOCK AREA TOTAL HECTARES	GROUP NO.	GROUP LICS. TOTAL NO.	GROUP AREA TOTAL HECTARES	GROUP YEAR	LICENCE NO.	LICENCE LEGAL DESCRIPTION	LICENCE AREA TOTAL HECTARES	ACQUISITN FEES YEAR	ACQUISITN FEES $10³	RENTALS ANNUAL $	RENTALS TOTAL TO NEXT ANN. $10³	REQUIREMENT WORK EXPIRED $10³	REQUIREMENT WORK CURRENT YEAR $10³	REQUIREMENT WORK CREDIT YEAR	REQUIREMENT WORK CREDIT $	REQUIREMENT WORK ANNIVERSARY DATE	BUDGET CURRENT YEAR AFE	BUDGET CURRENT YEAR $10³	EXP TOTAL $10³	POTL SHELL CLASS.	COMMITMENTS, J. V. OTHER CNPL DESCRIPTION	REMARKS
HORSESHOE	10	2203	CENTRAL BLOCK	36	7554	263	10	2,203	80				74 75	3,565.6	11,015	45.7	195.6 398.2	5&6	27200	10	244800 110,150		455K(79) 405K(80)	450	4561.0	Y		ONE LAND MAP SHEET
										295	LOT 6768	259	75				593.8	5			354950							WORK REQMNT FULFILLED
										296	LOT 6770	259	75					5										TO JAN. 31'89
										299	LOT 6773	259	75					5										UNDER COAL ACT '74 &
										300	LOT 6775	259	75					5										TO JAN. 31'90
										302	LOT 6777	259	75					5										UNDER COAL ACT '78
										303	LOT 6778	130	75					5										
										368	W1/2 6764	130	74					6										
										369	LOT 6769	259	74					6										
										370	S1/2 6778	130	74					6										
										373	S.OF 6764	259	74					6										
																WORK DONE	PRIOR TO '78		1978		1979							
						263		2203HA 5440AC								$	172994		139853		508320							

GENERAL REMARKS: FILL NECESSARY LINES AND COLUMNS ON "Y" SHELL'S DEVELOPMENT POTENTIAL CLASSIFICATION IS "Y" (PRIME) UNLESS OTHERWISE STATED. SHELL CANADA RESOURCES LIMITED IS THE HOLDER, CROWS NEST RESOURCES LIMITED IS THE OPERATOR OF ALL LICENCES UNLESS OTHERWISE STATED. THIS TABULATION SHOWS CROWN COAL LICENCES ONLY. FREEHOLD LANDS ARE TABULATED SEPARATELY. IF SUMMARY OF EXPENDITURES SINCE THE LAST ANNIVERSARY IS AVAILABLE, IT IS ENTERED IN BRACKETS ( ) UNDER REQUIREMENT WORK-CURRENT YEAR AND IS INCLUDED IN THE TOTAL EXPENDITURES. OTHERWISE THE WORK REQUIREMENT IS SHOWN IN THIS COLUMN, WHICH IS NOT INCLUDED IN THE TOTAL EXPENDITURES. SHELL-CNPL EXPENDITURES ARE ENTERED ACCORDING TO ACCOUNTING AND TIME SHEETS ($125 PER MAN-DAY). THE ACQUISITION COST OF CNI'S COAL HOLDINGS IS ENTERED ACCORDING TO SHELL'S COAL PREMIUM ALLOCATION, CNI'S $800,000 INITIAL ACQUISITION COST OF CROWN MTN., CENTRAL BLOCK (EXCEPT CL.1299-1302 INC.) AND NORTH BLOCK LICENCES IS DISTRIBUTED ON AREA BASIS: $62.51 PER HECTARE. OTHER CNPOG/CNI EXPENDITURES PRIOR TO FEBRUARY 24,1978 (FIRA APPROVAL OF CNI'S TAKEOVER BY SHELL) ARE INCLUDED AS REPORTED TO THE B.C. GOVERNMENT. IF LICENCES WERE RE-ISSUED THE ORIGINAL ACQUISITION YEAR IS SHOWN IN BRACKETS ( )

Table 1

3

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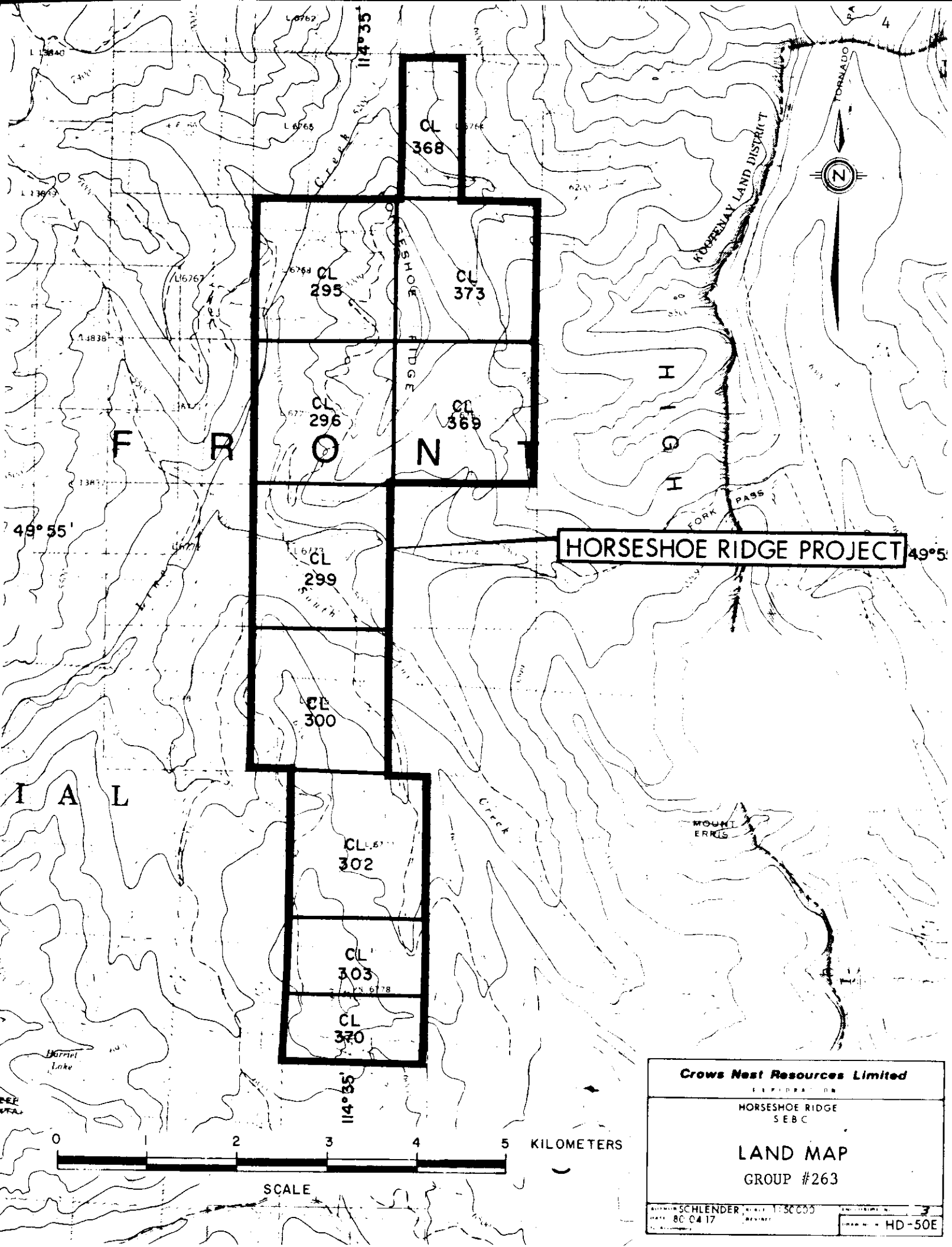
CA-023



114°35'
CL 368
CL 295
CL 373
CL 296
CL 369
CL 299
CL 300
CL 302
CL 303
CL 370
HORSESHOE RIDGE
F R O N T
I A L
H I G H
49°55'
HORSESHOE RIDGE PROJECT
KOOTENAY LAND DISTRICT
TORNADO
FORK PASS
MOUNT ERRIS
Harriet Lake
0 1 2 3 4 5 KILOMETERS
SCALE
Crows Nest Resources Limited
HORSESHOE RIDGE
S.E.B.C.
LAND MAP
GROUP #263
SCHLENDER
80 04 17
1:50000
HD-50E

The Horseshoe Ridge Project (S.E. Central Block) which encompasses some 2,203 hectares is located near the south end of the Upper Elk Coalfield (Crowsnest Coalfield). Coal licences are held by Shell Canada Resources Limited and operated by it wholly owned subsidiary, Crows Nest Resources Limited.

The licences are located: 28 logging-road kilometers northeast of Sparwood, British Columbia: 9.5 kilometers, from the existing CP railline and CNRL's proposed coal preparation plant at Line Creek. An open pit mine development at Horseshoe Ridge would form a logical extension to CNRL's Line Creek Ridge mine, now under construction.

To date, exploration has included road building, detailed field mapping, backhoe trenching, adit driving/sampling and drilling of 25 holes (5885 metres). Surface mineable reserves of raw recoverable coal have been calculated to be 39 million tonnes at an average overburden ratio of 7.8:1. "Underground/hydraulic" reserves have not been considered to date/because of lack of sufficient data.

The lower Coal Bearing Member of the Kootenay Formation is present on Horseshoe Ridge and contains some 10 seams containing an aggregate thickness of 45 metres. These seams have been correlated in accordance to seam designations at Line Creek Ridge.

An open pit development at Horseshoe Ridge would be located on the eastern limb of the Fording River Syncline. The overall dip of coal measures is 55° to the west. Mineability of Horseshoe Ridge is somewhat complicated, due to steep dips and structural disturbances.

A southern extension of the Horseshoe Ridge Project, Teepee Mountain, has had minimal exploration, although outcroppings of the Basal

Sandstone and coal bloom have been observed. This area could include some of the lowermost seams of the Coal Bearing Member.

The Horseshoe Ridge Project may contain further coal reserves in its unexplored western flank.

Further exploration of Horseshoe Ridge should include:

- drilling of five holes in the existing reserve area to bring it to a prefeasibility stage.
- Driving/sampling of two old and one new adits to enhance coal quality data
- Detailed geological mapping of the lower western flank
- Drilling of six diamond core holes for control in the unexplored area.

1.3 Summary of Previous Work

Work has been conducted on Horseshoe Ridge by Crows Nest Industries Limited/Shell Canada Resources Limited and has consisted of:

- road construction
- adit drivage/sampling
- rotary/diamond drilling
- Topographic mapping
- field geologic mapping.

1.3.1 1968

Spartan Air Services photographed the licence area and provided air photos at scales of:

- 1:24 000
- 1:36 000

Based on information obtained during geological mapping, cross-sections were drawn at a 1:4 800 scale.

Four adits totalling 176.6 metres were driven into the #8 Seam

ADIT NO.	SEAM DESIGN	DRIVEAGE (m)
1	8 Lower	33.5
2	8 Upper	66.4
13	8 Upper	31.6
14	8 Lower	45.1

Adits were bulk sampled for the purpose of coal testing.

1.3.2 1970

Twelve rotary holes (3,079 metres) were drilled on the west face; 9 of which were concentrated in the southern half of the ridge. Main seams intersected were: #6, #7 and #8.

Holes were TD'd in the #9 Sandstone; and where recovered, coal was sampled and analyzed. Geophysical logs, utilizing gamma ray and neutron tools were run in the holes.

1.3.3 1978

Three diamond core holes (totalling 619.51 metres) were drilled on the west face of the ridge. These holes cored #7 and #8 Seams through to the #9 Sandstone. One drill hole (HSR-D-101) drilled through to the seams mentioned above, and was not TD'd until the Basal Sandstone was encountered. Coal was sampled. BPB ran a geophysical log suite on each hole which included the following:

- gamma ray
- density
- neturon-neutron
- caliper

Updated aerial photographs, flown by Northwest Survey Limted, resulted in:

- 1:20 000 air photos
- 1:40 000 air photos
- 1:2 000 topographic maps

Surveying was conducted by Shell personal.

1.4 Summary of 1979 Work

Field operations were carried out by Jeff Schlender and Jack Livingstone of Crows Nest Resources Limited (CNRL).

Exploration included:

- detailed field mapping (1:5 000)
- geological mapping of existing road cuts
- backhoe trenches
- diamond drilling
- rotary drilling
- adit rehabilitiation

The field mapping program concentrated on delineating and designating prominent sandstone units.

Three diamond core holes (835 metres) and seven rotary air holes (1352 metres) provided subsurface data in 1979. Coal seams encountered were sampled and sent to CNRL lab in Fernie, British Columbia, for analyses.

Two adits, (#13 Upper 8 Seam, #14 Lower 8 Seam) were cleaned and retimbered for future sampling.

Report on the reclamation work has been filed with the B.C. Ministry of Energy, Mines and Petroleum Resources (Inspection Branch) in Annual Reclamation Report, 1979, Crows Nest Resources Limited.

List of Licences On Which 1979 Work was Actually Performed

	Licence Nos.
Geological Mapping	295, 296
Surveys: Geodetic	295, 296, 299, 369
Road Construction and Upgrading	295, 296
Surface Work	295, 296
Underground Work	296
Drilling	295, 296
Logging, Sampling	295, 296
Reclamation	295, 296
Other Work; Geological Report	295, 296

2.0 GEOLOGY

2.1 Regional Stratigraphy

The Kootenay Formation of Upper Jurassic - Lower Cretaceous age is the coal-bearing succession of south-eastern B.C. It is a thick sequence of clastic sediments representing delta progradation over marine shales, siltstones and sandstones of the Jurassic Fernie Formation.

Deposition was initiated by an epeirogenic uplift of the source area in early phases of the Columbia Orogeny in Late Jurassic time. The Kootenay section thickens from east to west; the source of sediments being southwest and the shoreline east and northeast. Its thickness within the Upper Elk Coal Field ranges up to 1100 m.

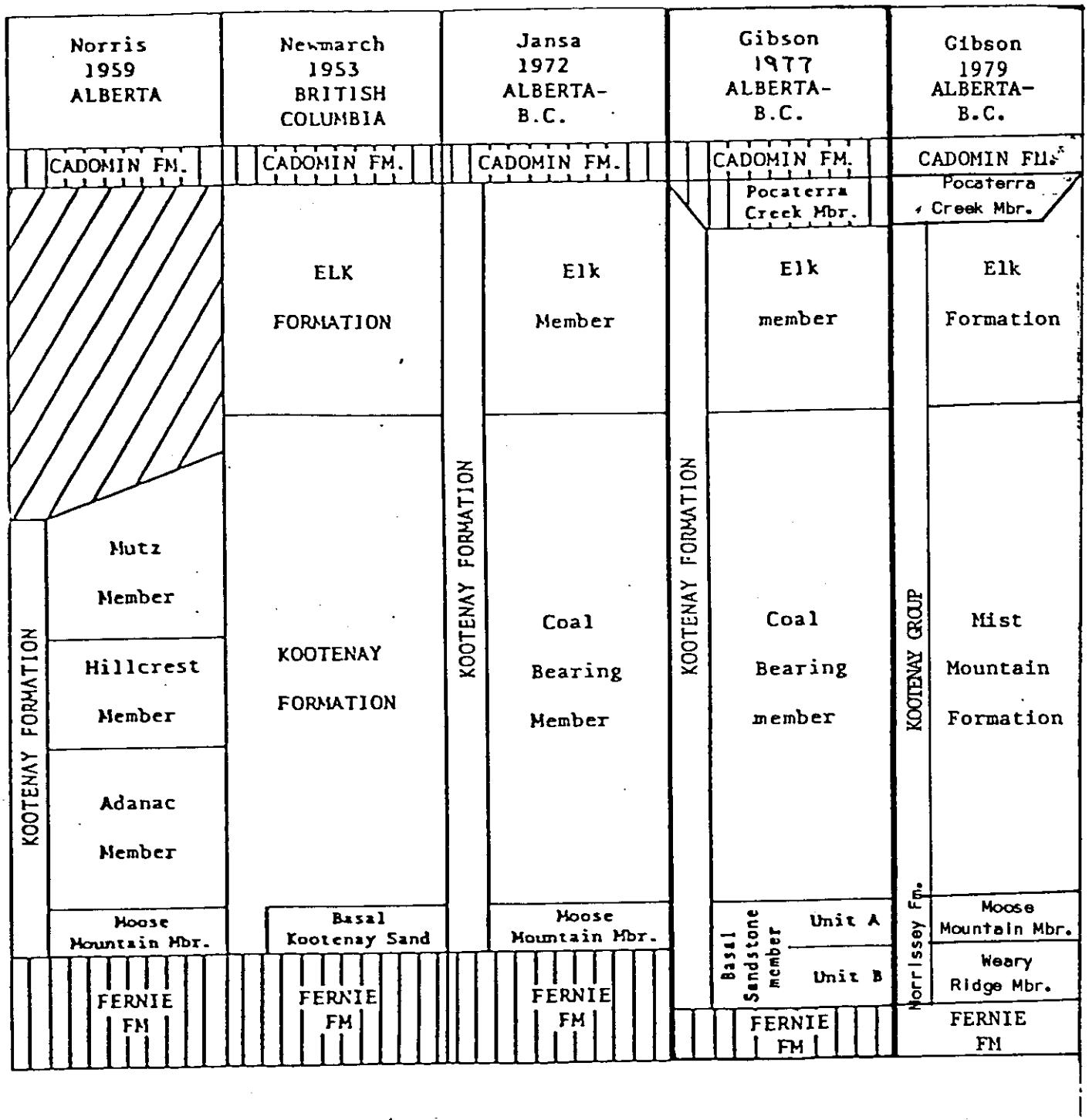
This report follows the stratigraphic nomenclaure of Gibson, 1977. The Kootenay Fm. can be subdivided into three main units (Table 2). A basal, cliff-forming "Basal Sandstone" is composed predominently of sandstones with minor siltstones and shales. It is a prograding sequence of delta front sheet sands, barrier bars and tidal channel deposits.

The middle, "Coal-Bearing Member" is generally in sharp contact with the underlying Basal Sandstone (sandstone-coal, or sandstone - bioturbated silty shale). It consists of alternating beds of sandstone, shale, siltstone and coal representing prograding delta plain environments. The Coal-Bearing Member is 245 m - 860 m thick, including 6 m to 61 m of coal in the south contained within 2 to 8 seams, and up to 90 m of coal in 23 seams on the north.

The upper portion of the Kootenay Fm., the "Elk Member", consists of alternating sandstone, siltstone, shale and conglomerate with minor lenticular coal beds. It represents progradation of the alluvial plain over deltaic coal-forming environments.

Table 2

TABLE OF FORMATIONS



The upper contact of the Kootenay is an erosional surface. It is overlain by the Cretaceous Blairmore Group, beginning with rejuvenated piedmont-plain deposits of the Cadomin Formation (Cadomin Conglomerate).

2.2 Regional Structure

Coal-Bearing Kootenay Formation occurrences in the front ranges of south-eastern B.C. are preserved in north-south trending synclines referred to as the East Kootenay Coalfields. High structural relief of Paleozoic rocks surrounding the Coalfields fades out in relatively incompetent rocks of the Fernie and Kootenay Formations. The structure within the synclines is complicated to varying degrees by thrust faults and their associated folds, and also by normal faults. This structural complexity increases towards the thinner, east side of the Coalfields where they have been thrust against underlying Paleozoics.

The East Kootenay Coalfields can be subdivided into three coal-bearing areas. From south to north they are the Flathead Coalfield, the Fernie Coalfield and the Upper Elk Coalfield. Since they are all part of the same depositional complex, the subdivision is based on erosional and structural boundaries.

2.2.1 Upper Elk Coalfield

The Upper Elk Coalfield is an elongate basin composed of two major synclines (Greenhills and Fording) separated by an anticline and the northern extension of the Erickson normal fault. The eastern, Fording syncline, can be traced northward from Alexander Creek to the Kananaskis Lakes. On its south end, it is symmetric with moderate to steep dips on both limbs. To the north it becomes more asymmetric with a west dipping axial plane, vertical strata on the west limb and moderately dipping strata on the east limb.

On the west side of Erickson Fault, the Greenhills syncline has been downthrown approximately 900 m. It can be traced northerly up to the Elk River valley from Fording Mountain to where it is cut off by the Elk River Thrust. The Greenhills Syncline is slightly asymmetric with a west dipping axial plane.

Only erosional remnants of the Kootenay Formation are preserved in the south of the Fording Syncline. A 10° north plunge on the syncline preserves an increasing thickness of Kootenay section to the north. Faulting and folding has caused some repetitions of the section and thickening of the coal seams.

2.3 Stratigraphy

2.3.1 General

The Kootenay Formation outcrops along the entire length of Horseshoe Ridge. The base of the Kootenay Formation is identified by a distinct sandstone unit, the Basal Sandstone. The recessive Fernie shales underlie the Basal Sandstone and form the lower slope and valley east of the ridge. Stratigraphically higher, the Elk Member of the Kootenay Formation and the overlying Blairmore Formation have been eroded leaving the Coal measures of the Kootenay Formation exposed along the west face of the ridge. (Enclosure 5, 6)

2.3.2 Coal Bearing Member

The Coal Bearing member is approximately 360 metres thick with 45 metres of coal contained in this succession. Some 10 seams have been identified and correlated* in accordance with the designation of seams at Line Creek Ridge. (Enclosure 7)

* Correlations of and within the Coal-Bearing member differ substantially from the '78 geological report; in '79 tighter mapping control and additional drill data were significant factors in initiating changes as presented in this report.

Number 10 Seam lies three metres above the Basal Sandstone, its thickness varies from 6 metres in the south to 2 metres in the north.

Interbedded sandstone and shale separate #10 Seam and #9 Seam. Number 9 Seam, where present, averages 2 metres in thickness.

The stratigraphy between #9 and #8 Seams consists of 100 metres of interbedded sandstones, siltstones, and shales. A major sandstone (#9 Sandstone) averging 40 metres in thickness is located in mid-section. On surface, this resistant #9 Sandstone forms the ridge top, in subsurface, it could be used as the footwall for mineable reserves.

Number 8 Seam is divided into Upper and Lower Units totalling 17 metres of coal in 25 metres of section. The top of 8 Upper Seam has been designated as the datum line for correlation on Horseshoe Ridge.

Interbedded sandstones, siltstones, and shales separate #8 Seam from #7 Seam. A major sandstone unit (#7 Sandstone) is located at mid-section; it is 15-25 metres thick.

Number 7 Seam is divided into
- 7 Upper Seam ... 6 m thick
- 7 Lower Seam ... 3 m thick

Interbedded siltstones and shales separate the 7 Upper and 7 Lower seams. The #7 Seam totals 9 metres of coal in 20 metres of section.

Number 6 Seam is separated from #7 Seam by 40 metres of interbedded sandstones, siltstones, and shales; number 6 Seam has an average thickness of 4 metres.

Above #6 Seam, four seams greater than 1 metre thick have been encountered but correlation is hindered by structural complexity.

2.4 Horseshoe Ridge - Structure

Horseshoe Ridge forms part of the east limb of the Fording River Syncline.

Locally, the ridge is structurally complicated by folding and faulting within an asymmetrical syncline. The west limb is nearly vertical and the east limb dips 25 - 70° west forming a dip-slope situation.

On the east limb, coal bearing strata contain high angle thrust faults trending N 10° W. Over the extent of the property, these thrusts increase in frequency from south to north. The thrusts sub-parallel beddings resulting in structurally thickened sections of:

- Basal Sandstone
- #10 Seam
- #9 Sandstone

Coal seams contained in the west limb of the syncline are complexly folded and faulted. A zone of multitude faults extends the full length of the ridge. Due to this deformation geologic correlations are difficult.

2.5 Surface Mineable Reserves

On Horseshoe Ridge some 38 million tonnes of raw recoverable coal[1] have been identified with an average overburden ratio is 7.8:1.

Coal reserves were calculated from eighteen 1:2000 geologic cross-sections. (Enclosures 10-27) Sections every 200 metres were drawn perpendicular to strike. In one instance a section was drawn near mid-point (5533120 N) due to structural disturbances.

Considering only those seams having thickness exceeding 0.50 metres, coal reserves were calculated using the following parameters[2]:

1 Reserve estimates have been classified as probable
2 Due to steeper dips and a greater fault density, "higher mining loss" and "dilution" factors were assumed for the northern reserve area

a)	In place coal seam density (t/m^3)	1.46 (undiluted)
b)	Waste density (t/m^3)	2.60
c)	Geologic loss (GL)	10% (by Vol.)
d)	Mining loss (ML)	
	• North[3]	15% (by Vol.)
	• South[4]	10% (by Vol.)
e)	Out of seam dilution (SD)[5]	5% (by Vol.)

(1) a) BCM (ROM) North = BCM (in situ) x (1-GL) x (1-ML) x (SD by Vol)
= BCM (in situ) x (0.90 x0.85 x 1.05)

b) BCM (ROM) South = BCM (in situ) x (1-GL) x (1-ML)
= BCM (in situ) x (0.90 x 0.90)

(2) density diluted coal = $\frac{(1.46 \times .095) + (2.60 \times .05)}{1} = 1.5717\ t/m^3$

(3) tonnes (ROM) North = BCM (ROM) x density diluted coal
= BCM (ROM) x 1.5717

tonnes (ROM) South = BCM (ROM) x 1.46

Reserves have been calculated using three alternate pits; each has been sub-divided into three reserve areas. Details are presented in Table 3, 4, and 5.

2.5.1 North Area

Eleven drill holes have been drilled in this area. Relative to the Central area, dips are steeper and thrust faults are greater in number. Raw recoverable reserves total some twenty million tonnes with an overburden ratio of 8.33:1.

3 North (section 553440 northward)
4 South (section 5534200 southward)
5 Out of seam dilution applies to north only
(BCM) - bank cubic metres - (as determined by planimeter x thickness)
(ROM) - run of mine

HORSESHOE RIDGE RESERVES

TABLE 3

PIT # 1

RESERVE AREA	SECTION NUMBER	DRILL HOLE CONTROL	PIT FLOOR ELEVATION (METRES)	WASTE ROCK (BCM) x 1000		RAW TONNES (TONNES COAL) x1000		PIT RATIO	
NORTH	5535000	2	1600	* 163,853 164,117	* 20,928 21,042	* 29035 19,697	* 3446 3274	* 8.18 8.33	* 6.07 6.43
	5534800	2	1600		16,489		2,141		7.70
	5534600	0	1600		21,692		2440		8.89
	5534400	2	1600		29,550		3717		7.95
	5534200	3	1600		28,399		3035		9.36
	5534000	1	1600		* 21,189 21,298		* 2141 1975		* 10.00 10.78
	5533800	2	1590		* 25,606 25,647		* 3177 3315		* 8.06 8.23
CENTRAL	5533600	3	1600	* 106,731 107,360	* 27,784 27,856	* 17274 16338	* 4,423 4269	* 6.18 6.57	* 6.28 6.53
	5533400	3	1480		* 42,381 42,423		* 5793 5426		* 7.28 7.82
	5533200	1	1540		* 12,536 12,745		* 1543 1641		* 6.79 8.27
	5533120	3	1560		* 4705 4781		* 1015 904		4.64 5.29
	5533000	1	1500		9386		1481		6.34
	5532800	1	1550		6496		1612		4.03
	5532600	2	1580		3643		1105		3.30
SOUTH	5532400	0	1490	28 688	12,567	2499	924	11.48	13.60
	5532200	1	1620		9275		766		12.11
	5532000	0	1590		6520		701		9.30
	5531800	0	1550		326		108		3.02
TOTAL					300,165		38,534		7.79
DELETING SOUTH AREA					271,477		36,035		7.53
TOTAL POSSIBLE & PROBABLE					299,272		39,808		7.52
DELETING SOUTH AREA					270,584		37,309		7.25

* INDICATES POSSIBLE & PROBABLE RESERVES

HORSESHOE RIDGE RESERVES
PIT #2

TABLE 4

RESERVE AREA	SECTION NUMBER	DRILL HOLE CONTROL	PIT FLOOR ELEVATION (METRES)	WASTE ROCK (BCM) x 1000		RAW TONNES (TONNES COAL) x1000		PIT RATIO	
	5535000	2	1700		* 8335 8395		* 1768 1677		* 4.71 5.01
	5534800	2	1720		5953		982		6.06
	5534600	0	1720		9092		1378		6.60
NORTH	5534400	2	1720	*80,864 80,924	16,422	*12497 12,406	2546	* 6.47 6.52	6.45
	5534200	3	1720		14,586		1842		7.92
	5534000	1	1720		8138		1308		6.22
	5533800	2	1590		18,338		2673		6.86
	5533600	3	1720		* 13,188 13,198		* 2749 2735		* 4.80 4.82
	5533400	3	1620		* 24,298 24,412		* 3644 3471		* 6.67 7.14
	5533200	1	1640		6429		1264		5.09
CENTRAL	5533120	3	1640	* 56,707 56,831	2856	*10,589 10,400	648	* 5.36 5.46	4.41
	5533000	1	1600		3720		701		5.31
	5532800	1	1600		3896		881		4.42
	5532600	2	1620		2320		700		3.31
	5532400	0	1600		7095		446		15.91
SOUTH	5532200	1	1700	17,981	5928	1310	397	13.73	14.93
	5532000	0	1620		4710		391		12.05
	5531800	0	1550		248		76		3.26

TOTAL	155,736	24,116	6.46
DELETING SOUTH AREA	137,755	22,806	6.04
TOTAL POSSIBLE & PROBABLE	155,552	24,394	6.38
DELETING SOUTH AREA	137,571	23,084	5.96

* INDICATES POSSIBLE & PROBABLE RESERVES

HORSESHOE RIDGE RESERVES

TABLE 5

PIT # 3

RESERVE AREA	SECTION NUMBER	DRILL HOLE CONTROL	PIT FLOOR ELEVATION (METRES)	WASTE ROCK (BCM) x 1000		RAW TONNES (TONNES COAL) x 1000		PIT RATIO	
	5535000	2	1800		4683		1239		3.78
	5534800	2	1840		935		251		3.73
	5534600	0	1840		3321		424		7.83
NORTH	5534400	2	1840	34,283	7810	5639	1198	6.08	6.52
	5534200	3	1880		2643		541		4.89
	5534000	1	1840		2829		412		6.87
	5533800	2	1720		12,062		1574		7.66
	5533600	3	1880		5594		1223		4.57
	5533400	3	1820		8558		1429		5.99
	5533200	1	1760		2758		499		5.53
CENTRAL	5533120	3	1720	22,848	1264	4,702	345	4.86	3.66
	5533000	1	1680		1749		367		4.77
	5532800	1	1660		1741		524		3.32
	5532600	2	1680		1184		315		3.76
	5532400	0	1660		4448		221		20.13
SOUTH	5532200	1	1740	10,131	3819	634	214	15.98	18.00
	5532000	0	1680		1864		199		9.37
TOTAL					67,262		10,975		6.13
DELETING SOUTH AREA					57,131		10,341		5.52

2.5.2 Central Area

Development potential is highest in this area. With an average overburden ratio of 6.6:1, some 16 million tonnes of raw coal are considered recoverable. Fifteen drill holes and two adits, are located within the central area.

Reserve estimates could be conservative due to possible seam thickening along the synclinal axis. Significant coal reserves may also occur in the shear zone west of the synclinal axis. Due to lack of subsurface control points, reserves in the shear zone are classified as "possible" and/or have not been considered for this report.

2.5.3 Southern Area

Subsurface information in this area is limited to one drill hole. With an average overburden ratio of 11.5:1, the #9 and #10 Seams contain some two and one-half million raw recoverable tonnes.

2.5.4 Surface Mineability

The mineability of Horseshoe Ridge is complicated somewhat by the steep dips. These dips range from:

North	50 - 55°
Central	50 - 70°
South	40 - 45°

In most instances, the #9 Sandstone has been designated as the footwall of mineable reserves. The two seams below, #9 and #10 Seams, vary in thickness and continuity. To surface-mine these two seams an average overburden ratio would be 20:1.

2.6 Underground Reserves/Mineability

Possible underground reserves are present on Horseshoe Ridge but have not been considered at this stage.

3.0 Coal Quality

At the time of compilation, the 1979 drill hole analyses have not yet been received.

Prior analytical data indicates Horseshoe Ridge coal to be low to medium volatile bituminous in rank and of metallurgical grade. The sulfur content is low (less than 0.5%).

Based on previous analyses the average coal quality for the #7 and #8 Seams is listed in the following table.

TABLE 6

COAL ANALYSES

(WEIGHTED AVERAGES)

SEAM #	MOISTURE	VOLATILES a.d.b.	ASH d.b.	FSI
7 Upper	1.5	25.5	7.6	7 1/2
7 Lower	1.2	24.6	9.5	6 1/2
8 Upper	1.4	22.4	8.0	5.0
8 Lower	1.4	21.9	7.7	5.0
	1.2	21.9	10.5	6 1/2

CNI drill holes @ 1.45 s.g.

* SHELL drill holes 101, 102, 103 @ 1.5 s.g.

BIBLIOGRAPHY

CNI - 1971, Toronado Mountain Project - Vol. 1

Jansa, L., 1972, Depositional History of Coal-Bearing Upper Jurassic , Lower Cretaceous Kootenay Foramtion, Southern Rocky Mountains, Canada, G.S.A. Bull. Vol. 83, pp. 3199-3222

Gibson, D.W., 1977, Sedimentary Facies in the Jura-Cretaceous Kootenay Formation, Crows Nest Pass Area, Southwestern Alberta and Southeastern British Columbia - Bull. C.S.P.G., Vol. 25, No. 4, pp. 767-791.

Hannah, T., 1978, Geological Report - Line Creek Coal Project - Kootenay Land District, B.C.

Gilmar, P.C., 1978, Geological Report, Horseshoe Ridge, Kootenay Land District, B.C.

Gibson, D.W., 1979, "The Morrissey and Mist Mountain Formations; Newly Defined Lithostratigraphic Units of the Jura-Cretaceous Kootenay Group, Alberta and British Columbia"; Bull. Canadain Petroleum Geol. V. 27, No. 2, pp. 183-208

PROFESSIONAL VERIFICATION OF REPORT

Entitled: Horseshoe Ridge Coal Project
Kootenay Land District, B.C., 1979
B.C. Coal Licences
Nos. 295, 296, 299, 300, 302, 303,
370, 368, 369, 373
Group # 263

Mr. Jeffrey L. Schlender planned and carried out the 1979 geological field program on Horseshoe Ridge B.C. Coal Licences held by Shell Canada Resources Ltd. and operated by Crows Nest Resources Ltd. He also prepared this report. Mr. Frank Martonhegyi supervised the activity of this program under the general direction of the undersigned.

Jeff Schlender, received a diploma in Coal Resources Technology, from the Northern Alberta Institute of Technology in 1978. Prior to his graduation Mr. Schlender worked for a number of major mining companies in British Columbia and Alberta.

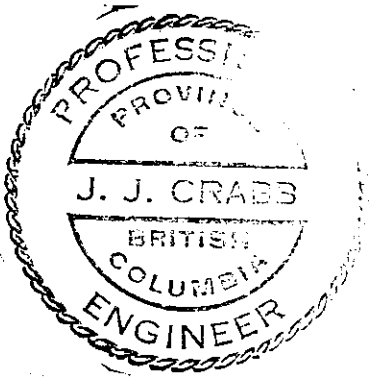
Frank Martonhegyi, M.E., graduated in Mining Geological Enigneering from the University of the Heavy Industry, Hungary, in 1962; and received post-graduate training at the University of Saskatchewan, Saskatoon, in 1969-1971. His experience in Western Canadain coal exploration since 1971 includes positons with:

- CanPac Minerals Ltd., Calgary, Alberta
- Shell Canada Resources Ltd., Calgary, Alberta
- Crows Nest Resources Ltd., Calgary, Alberta

His prior work experience includes underground coal mining geology, geotechnical engineering and geochemistry in Hungary, Austria and Canada.

He currently holds the position of Staff Geologist for Crows Nest Resources Ltd., supervising coal exploration in British Columbia.

I consider both the aforementioned geologists to be well qualified to undertake the responsibilities they were assigned on this project. I am satisfied that the attached report dated April 30, 1980 has been competently prepared and justly represents the information obtained from this project.



J. J. Crabb, P.Eng.

April 30, 1980

DEPARTMENT OF MINES AND PETROLEUM RESOURCES

Coal Act (Sec. 19)

APPLICATION TO EXTEND TERM OF LICENCE

1. I, BOLTON AGNEW (Name) agent for CROWS NEST RESOURCES LIMITED (Name)

P.O. BOX 2699 Stn. "M" (Address)

CALGARY ALBERTA T2P 2M7 (Address)

Valid FMC No. 187621

hereby apply to the Minister to extend the term of Coal Licences No(s). 295, 296, 299, 300, 302, 303, 370, 368, 369, 373 called Horseshoe Ridge Coal Prospect for a further period of one year.

2. I have performed, or caused to be performed, during the period February 1, 1979 to January 31, 19 80, work to the value of at least $ 508,320 on the location of coal licences as follows:

CATEGORY OF WORK	Licence No(s).	Apportioned Cost
Geological mapping	295-296	37,837
Surveys: Geophysical		
Geochemical		
Other Geodetic	295-296	17,750
Road construction	295-296	40,400
Surface work	295-296	10,929
Underground work	- 296	42,755
Drilling	295-296	274,556
Logging, sampling, and testing	295-296	64,275
Reclamation	295-296	2,538
Other work (specify) Geol. Report	295-296	20,440

3. I wish to apply $ 508,320 of this value of work on Coal Licence(s)* 295, 296, 299, 300, 302, 303, 307, 368, 369, 373

N.A. 4. I wish to pay cash in lieu of work in the amount of $ on Coal Licence(s) No(s).

N.A. 5. I wish to apply $ of this value of work to claim a refund of cash in lieu of work in the amount of $ which was paid to extend the term of Coal Licence(s) No(s). from to , 19 . Mining Receipt No. for prior payment of cash in lieu of work *is attached* for adjustment.

6. The work performed on the location(s) is detailed in the attached report entitled
   - Annual Reclamation Report, 1979
   - Geological Report on work done in 1979 - will be submitted in ninety days

January 22, 1980 (Date)

(Signature and position)

* Applications to group licences may be filed to apportion costs on a maximum of 10 licences.

(FORMS TO BE SUBMITTED IN DUPLICATE)

FOR DEPARTMENTAL USE ONLY

Value of work reported $ Value of work applied on licences $

Value of work approved $ Value of credit remaining $

Work performed. Yes [X] No [ ]

The program of operations detailed hereunder was carried out during the period from February 1, 1979 to January 31, 1980. Total costs are $508,320, an average of $230.73 per HECTARES

GEOLOGICAL MAPPING Yes [X] No [ ] Cost $37,837

	Area (Acres)	Scale	Time
Reconnaissance			
Detail: Surface		1:5000	120 days
Underground			
Other (specify)			

GEOPHYSICAL OR GEOCHEMICAL SURVEYS Yes [ ] No [X] Cost $

Method Line miles

OTHER SURVEYS Yes [X] No [ ] Cost $17,750

Geodetic Grid Topographic location Other Ground control

ROAD CONSTRUCTION (includes upgrading) Yes [X] No [ ] Cost $40,400

Length: On Licences 3 km Access (off licences)

SURFACE WORK Yes [X] No [ ] Cost $10,929

	Length	Licence Number(s)
Trenching	18 Backhoe trenches	
Seam tracing		
Crosscutting		
Other	Hand trenching	

UNDERGROUND WORK Yes [X] No [ ] Cost $42,755

2 Adits: opened, cleaned & retimbered

Test adits: Number Average length Total footage

Other workings: Area Total footage

DRILLING Yes [X] No [ ] Cost $274,556

	Hole Size	Number of Holes	Total Footage
Core: Diamond [ ] Wireline [X]	HQ	3	835 m
Rotary: Conventional [X]		3	463 m
Reverse circulation [X]		4	889 m
Other			

Contractor Garritty & Baker, Tonto, SDS Drilling Companies Where core stored Fernie, B.C.

LOGGING, SAMPLING, AND TESTING (check) Yes [X] No [ ] Cost $64,275

Lithology: Drill samples [X] Core samples [X] Bulk samples [ ]

Logs: Gamma-Neutron [X] Density [X] Other [X]

Testing: Prox. analysis [X] FSI [X] Washability [ ]

Carbonization [ ] Petrographic [ ] Plasticity [ ] Other [ ]

OTHER WORK (specify details) Cost $

REPORTS:

Reclamation work (Permit No. C-54) Detail of work* Re-seeding of disturbed areas; Preparation of Geological Report: Photogeology, drafting & reproduction $2,538 + $20,440 espectively Cost $22,978

OPERATIONS: Jeff Schlender Geol. Technologist

Work was supervised by Frank Martonhegyi Position Sr. Staff Geologist

Is this person a registered or licensed Professional Engineer in British Columbia? Yes [ ] No [X]

NOTE—Where the licensee intends to perform, during the extended term of his licence, work not set out in the plan of operations filed under section 15 (2) (c), a supplemental plan of operations is to be attached.

* If reclamation work reported in separate report give details of report identification.

VALUATION OF WORK: COST STATEMENT
(Sec. 27, B.C. Reg. 436/75)

ON-PROPERTY COSTS: For period from June 15 to November 1, 19 79

1. OPERATOR'S FEES, SALARIES, AND WAGES:

	Average Number of Employees	Average Rate	Average Number of Days	Amount
Professional and technical	2	$125/day	140	$35,000
Machine operators and support				
Miners				
Other				

Total operator's costs $ 35,000

2. CONTRACTORS AND CONSULTANTS:

Name	Service	Contract Amount
Tonto Drilling Company	Rotary Drilling (reverse circulation conventional)	82,703
SDS Drilling Company		50,569
~~Garritty & Baker Drlg. Company~~		~~38,908~~
Drain Bros. Construction Ltd.	Hand & backhoe trenches, Road construction	46,486
SCRL Surveying Dept., and its subcontractor, Midwest Survey	Geodetic Survey	17,750
Target Tunnelling Ltd.	Adit Rehabilitation	32,857
SAL Enterprises B & R Drilling Co. Ltd. Jamieson Geoloigcal consultants D. Bell	Geological Consultants	11,547
Gallant Trucking Ltd.	Water hauling	17,270
Davies Exploration Logging Ltd.	Geophysical logging	52,204
BPB Instruments (Canada) Ltd.		

Total equipment and instrument rentals $ 350,294
Total contractor & consultant costs:

4. FIELD CAMP COSTS:

		Amount
Food	Black Nugget Inn and Anco Motel	
Accommodation	Contractors only	57,292
Fuel	Drills & helicopter fuels	10,399
Other		

Total field camp costs $ 67,691

5. SAMPLING, ANALYSIS, AND TESTING:

Service	Performed by	Amount
Samples taken and sent, analysis will be done in the subsequent term.		

Totals, samplings, analysis, and testing $

6. SUPPLIES AND MATERIALS COSTS:

	Amount
Process supplies	
Operating and maintenance supplies	
Office and technical supplies	
Other supplies and materials: General materials	3,113

Total, supplies and materials $ 3,113

7. TRANSPORTATION COSTS (Ground transportation details):

Vehicles	Owner	Rental Rate	Amount
one to two 4 x 4 trucks	Rent Rite	$1500/m, 61/2 months	9,750

Air support details:

Aircraft Type	Owner	Charter
Helicopter	Kenting Helicopters Ltd.	10,795

Total transportation costs $ 20,545

8. RECLAMATION WORK:

Reclaimed and seeded drill and adit sites and roads $ 2,538

9. TRAVEL EXPENDITURES (operator's costs only):

Number of Personnel	Number of Trips	Amount
2	N.A.	6,199

Total travel expenditures $ 6,199

Total costs $ 485,380

(Secs. 28 and 29, B.C. Reg. 436/75)

OFF-PROPERTY COSTS: Period from February 1, 1979 to January 31, 19 80

		Amount
(a) Logistics and field support		$
(b) Technical and feasibility studies	Sproule Associates Ltd. 138 man days	490 17,250
(c) Preparation of reports	Geological survey drafting @ $125	2,700
(d) Supplies and services		
(e) Mobilization and demobilization of equipment		2,500
(f) Travelling expenses (Itemize)		

Supporting Cost Statements Attached

Total $ 22,940

Amount

Total supporting costs $

SUMMARY

On-property costs	$ 485,380
Off-property costs	$ 22,940
Total costs	$ 508,320

Statement of costs verified by W. S. Kowalski

Jan 29/80 (Date)

W.S. Kowalski (Signature and position)

2M-675-8196

=K-SHELL - HORSESHOE R 79(2)A=

Maps
{ENCL. 4 to 27}
{APPEN. A + D}

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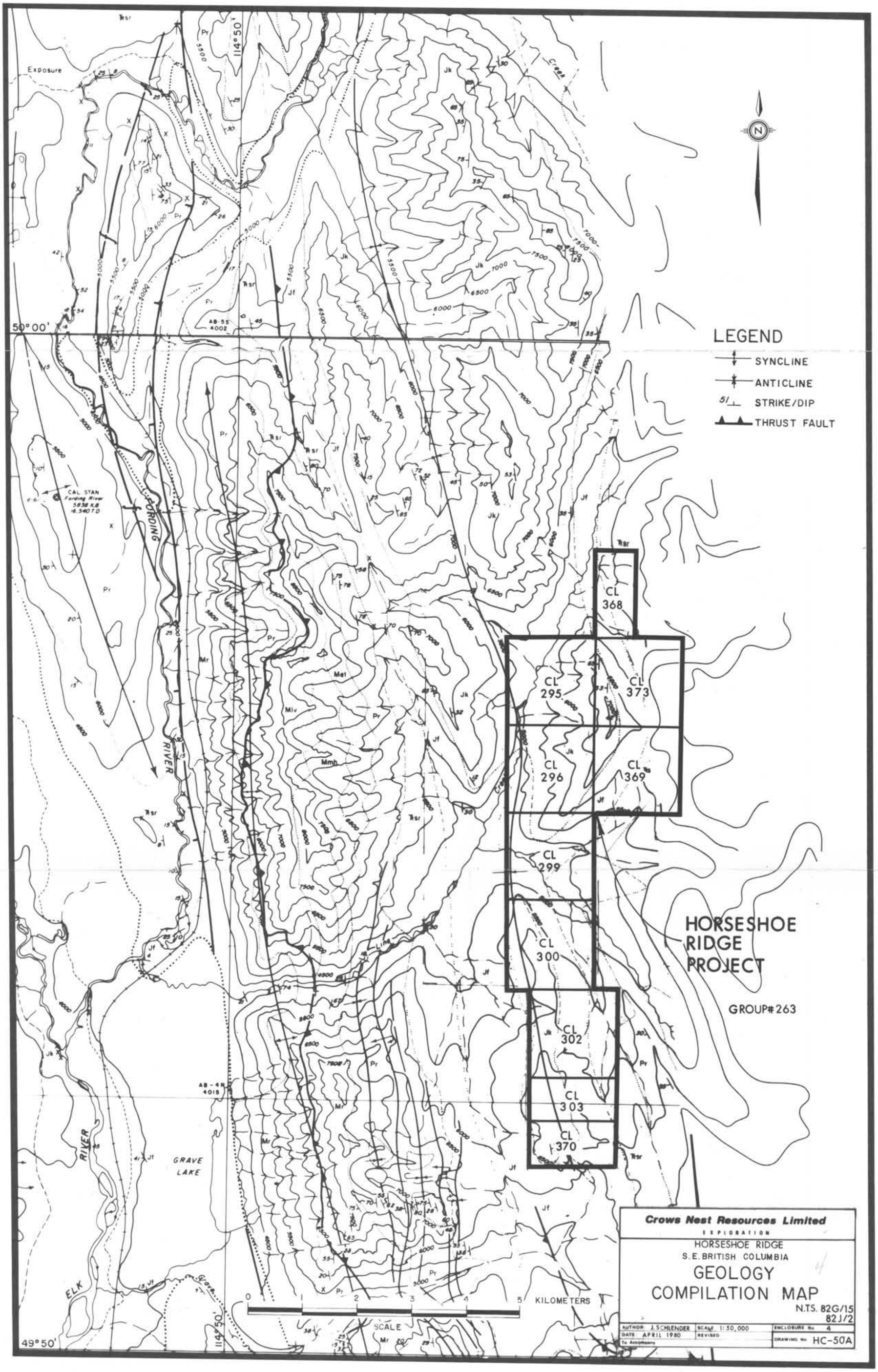
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Creek
LEGEND
SYNCLINE
ANTICLINE
STRIKE/DIP
THRUST FAULT
CAL. STAN
Fording River
5838 K.B.
16,540 T.D.
FORDING
RIVER
ELK
RIVER
GRAVE
LAKE
CL
368
CL
295
CL
373
CL
296
CL
369
CL
299
CL
300
CL
302
CL
303
CL
370
HORSESHOE
RIDGE
PROJECT
GROUP# 263
AB-55
4002
AB-4N
4018
0 1 2 3 4 5 KILOMETERS
SCALE
Crows Nest Resources Limited
EXPLORATION
HORSESHOE RIDGE
S.E. BRITISH COLUMBIA
GEOLOGY
COMPILATION MAP
N.T.S. 82G/15
82J/2
AUTHOR J.S.CHLENDER
DATE APRIL 1980
SCALE 1:50,000
REVISED
ENCLOSURE No. 4
DRAWING No. HC-50A

403

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STRATIGRAPHIC SECTION

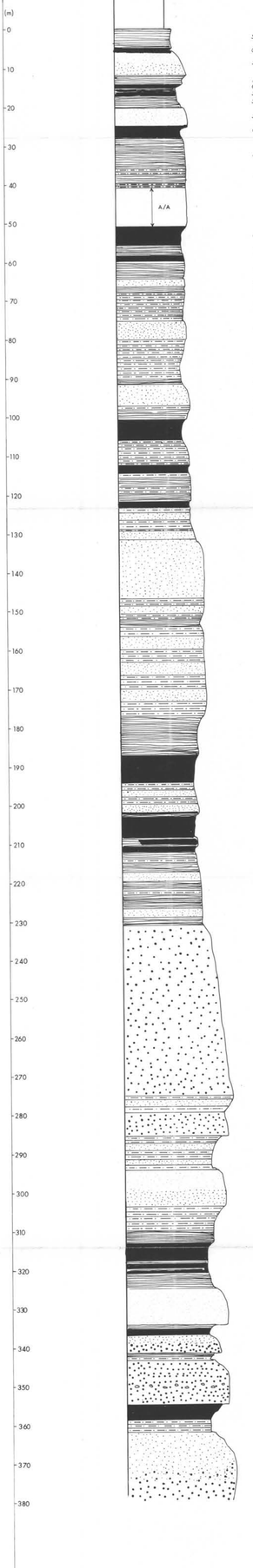
DESIGNATION: ENCLOSED # 5 | PART ___ OF ___

PROJECT: HORSESHOE RIDGE | AUTHOR: J. LIVINGSTON | DATE: 19 80

AREA: | SOURCE OF DATA:

LOCATION: GENERALIZED TYPE SECTION

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE



Shale

Coal (#2 seam)

Sandstone very fine grain

Sandstone fine to medium grain

Shale carbonaceous

Coal (#3 seam)

Shale & Coal

Shale carbonaceous

Sandstone fine grain

Coal (#4 seam)
(#5 seam ?)

Shale

Shale & Siltstone

Coal (#6 upper)

Shale carbonaceous

Coal (#6 lower)

Shale

Sandstone fine to medium grain

Shale

Siltstone

Sandstone medium grain

Siltstone

Shale

Sandstone silty at base

Shale

Coal (#7 upper)

Siltstone

Coal (#7 lower)

Siltstone & Shale

Coal

Sandstone & Siltstone

Sandstone medium grain

Sandstone & Siltstone

Shale

Sandstone & Siltstone

Shale

Coal (#8 upper seam)

Sandstone & Siltstone

Coal

Shale

Coal (#8 lower)

Shale & Coal

Coal

Shale & Siltstone with minor Sandstone

Sandstone medium to coarse grain

Sandstone & Siltstone

Sandstone coarse grain

Sandstone & Siltstone with minor Shale beds

Sandstone fine to medium grain

Siltstone

Shale

Coal (#9 seam)

Coal & Shale

Shale

Sandstone fine grained

Shale

Coal (#10 b. seam)

Sandstone medium to coarse grain

Siltstone & Shale with minor Coal

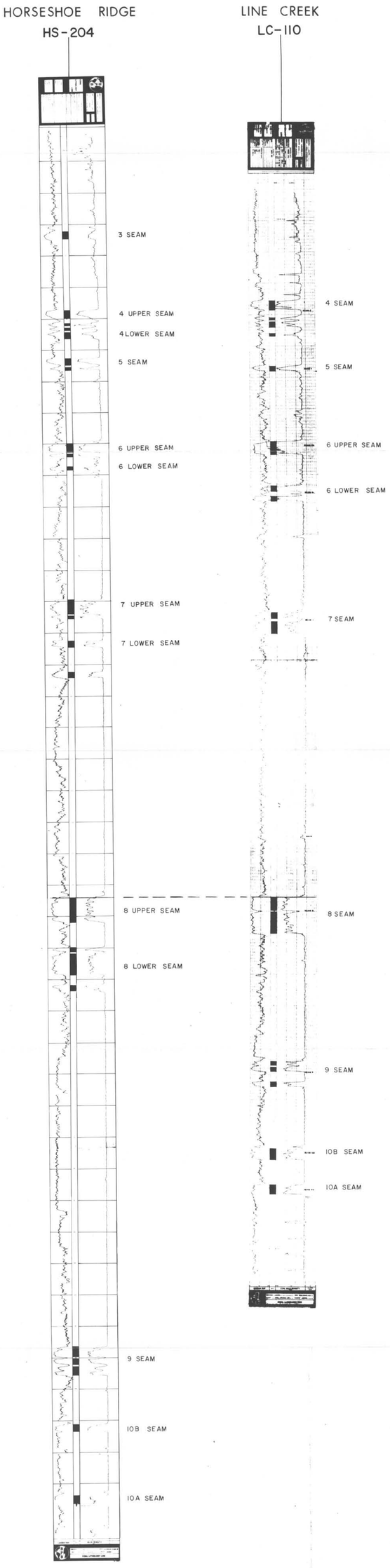
Sandstone, coarse grained with thin conglomerate lenses

Coal (#10 seam)

Siltstone

Sandstone medium to coarse grain
(Basal Sandstone)

ENLOSURE #5
HJ-49ZA



0
5
10
20
SCALE

403

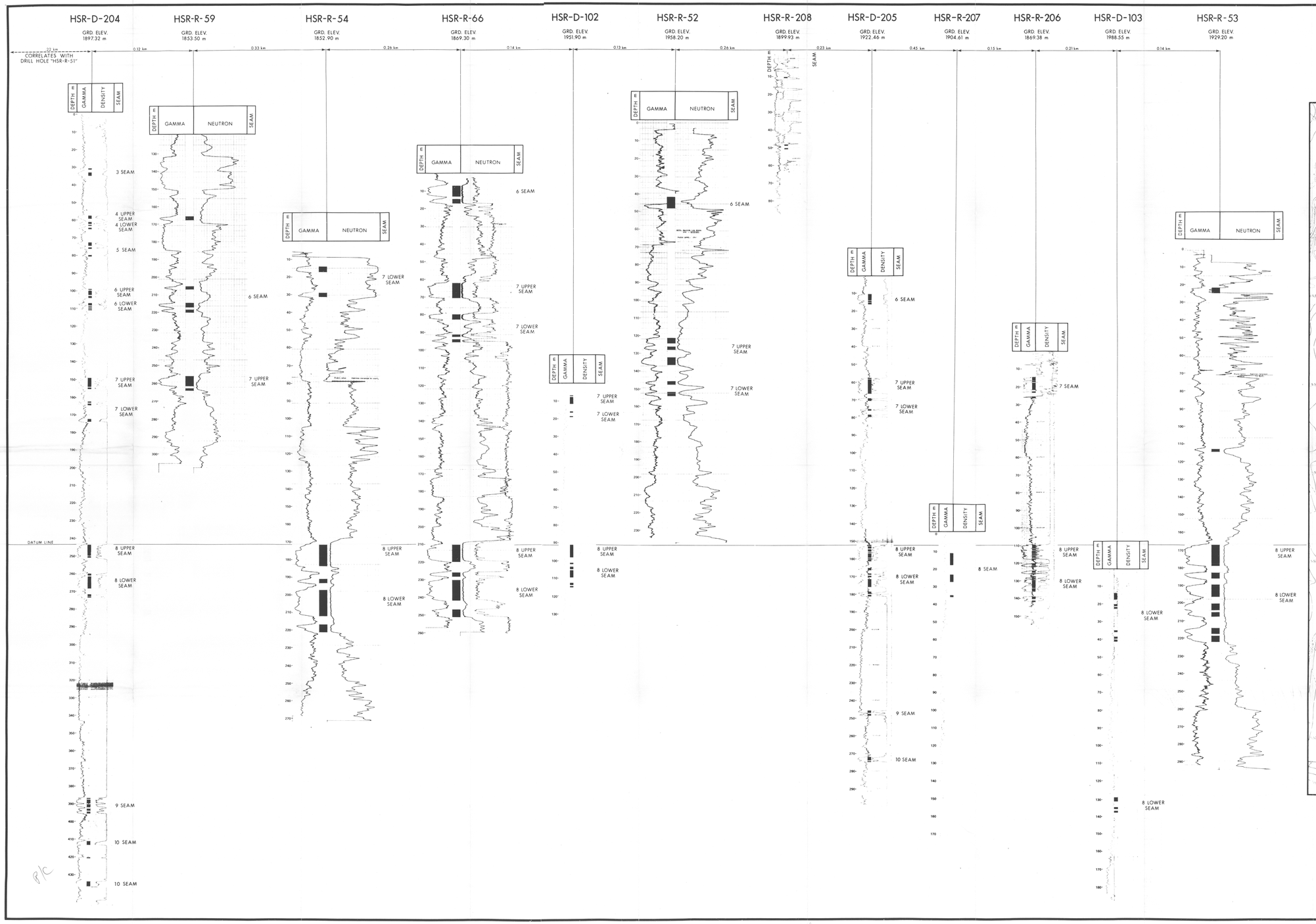
E-SHELL - HORSESHOE RIDGE 77 (2") A *REFER TO (1)

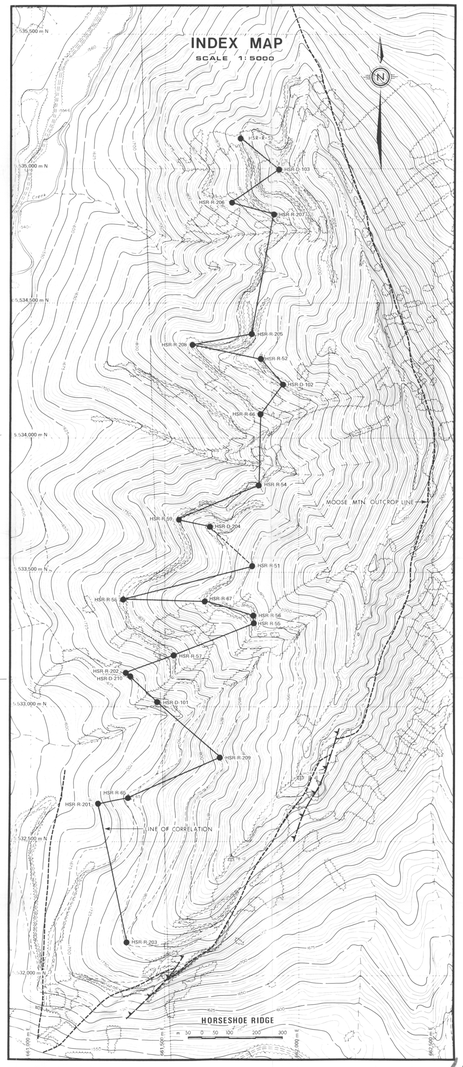
Crows Nest Resources Limited
EXPLORATION

S.E. BRITISH COLUMBIA

HORSESHOE RIDGE – LINE CREEK
SEAM CORRELATION

AUTHOR: D. HANDY	SCALE: 1:500	ENCLOSURE No: 7
DATE: 80 03 27	REVISED:	DRAWING No: HD-50G
To Accompany		





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LEGEND

COAL

Crows Nest Resources Limited
EXPLORATION

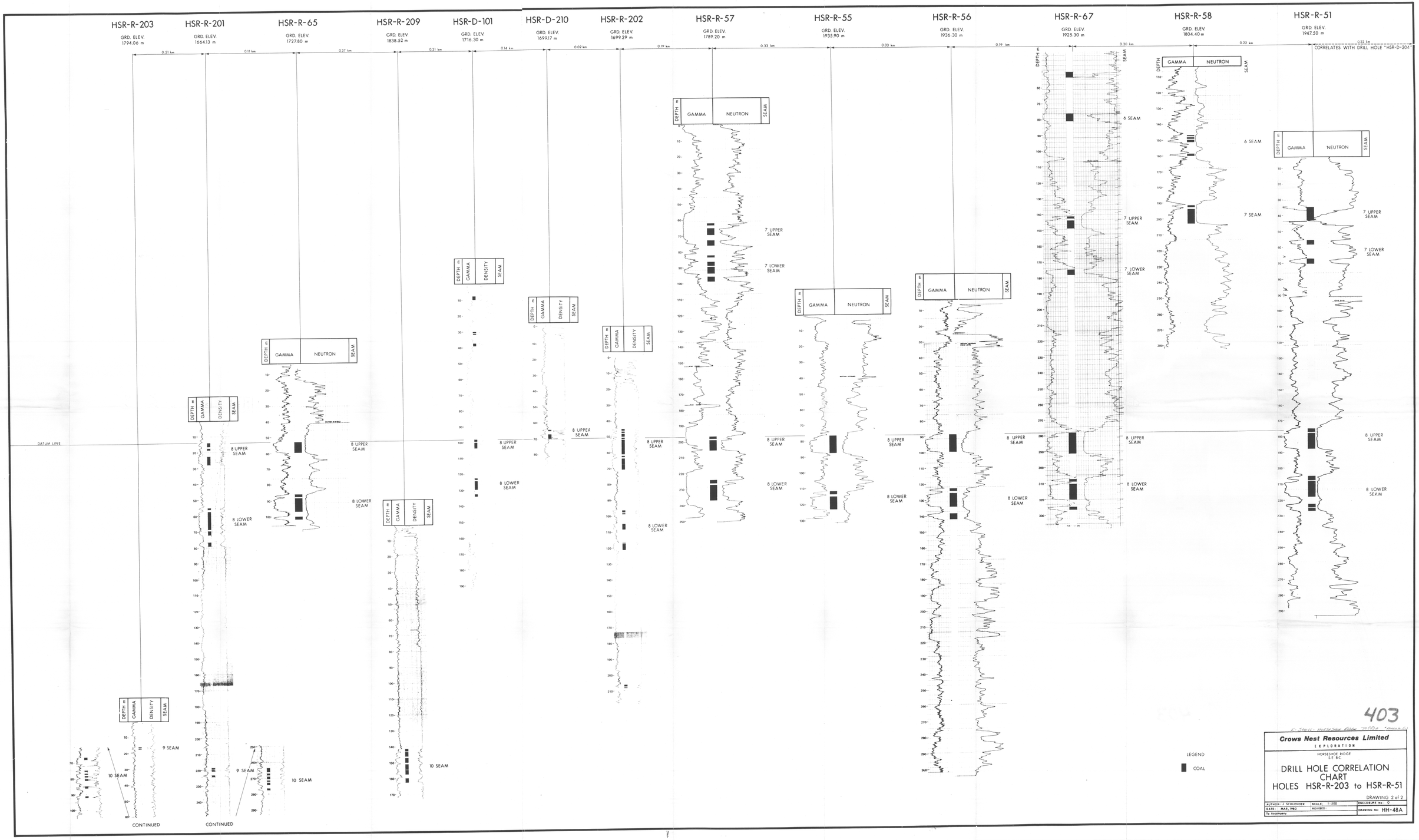
HORSESHOE RIDGE
S.E.B.C.

P/C

DRILL HOLE CORRELATION CHART
HOLES HSR-D-204 to HSR-R-53

DRAWING 1 of 2

AUTHOR: J. SCHLENDER	VERTICAL SCALE: 1:500	ENCLOSURE No.: 8
DATE: MAR., 1980	REVISED:	DRAWING No.: HH-48
To Accompany:		


HSR-R-203
GRD. ELEV. 1794.06 m
HSR-R-201
GRD. ELEV. 1664.13 m
HSR-R-65
GRD. ELEV. 1727.80 m
HSR-R-209
GRD. ELEV. 1838.52 m
HSR-D-101
GRD. ELEV. 1716.30 m
HSR-D-210
GRD. ELEV. 1699.17 m
HSR-R-202
GRD. ELEV. 1699.29 m
HSR-R-57
GRD. ELEV. 1789.20 m
HSR-R-55
GRD. ELEV. 1935.90 m
HSR-R-56
GRD. ELEV. 1936.30 m
HSR-R-67
GRD. ELEV. 1925.30 m
HSR-R-58
GRD. ELEV. 1804.40 m
HSR-R-51
GRD. ELEV. 1947.50 m
CORRELATES WITH DRILL HOLE "HSR-D-204"
DATUM LINE
DEPTH m
GAMMA
DENSITY
NEUTRON
SEAM
8 UPPER SEAM
8 LOWER SEAM
7 UPPER SEAM
7 LOWER SEAM
6 SEAM
7 SEAM
9 SEAM
10 SEAM
CONTINUED
LEGEND
COAL
403
Crows Nest Resources Limited
EXPLORATION
HORSESHOE RIDGE
S.E. B.C.
DRILL HOLE CORRELATION CHART
HOLES HSR-R-203 to HSR-R-51
DRAWING 2 of 2
AUTHOR: J. SCHLENDER
SCALE: 1:500
ENCLOSURE No.: 9
DATE: MAR. 1980
REVISED:
DRAWING No. HH-48A
To Accompany

E-SHELL - H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B1 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Coal	with carbonaceous shale splits (30%) shale, dark gray; carbonaceous at base	
					- Coal	mainly bright, clean	
					- Shale	prominent iron staining; crumbly; numerous coal bands ≤5mm	
					- Coal	mainly bright	
5					- Shale	dark gray; blockly; weathered orange-yellow	
				N040°E/50°W			
10							
15							

HJ-4

K-SHELL - H.R. 79(3)A-

403

STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-1A | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Shale	carbonaceous in places; with coal (15%)	
					- Coal/Shale	40%	
					- Coal	bog iron shale seen to pinch out at base	
				N040°E/30°W	- Shale	covered at base	
5							
10							
15							

HJ -

K-SHELL - H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B2 | PART _____ OF _____

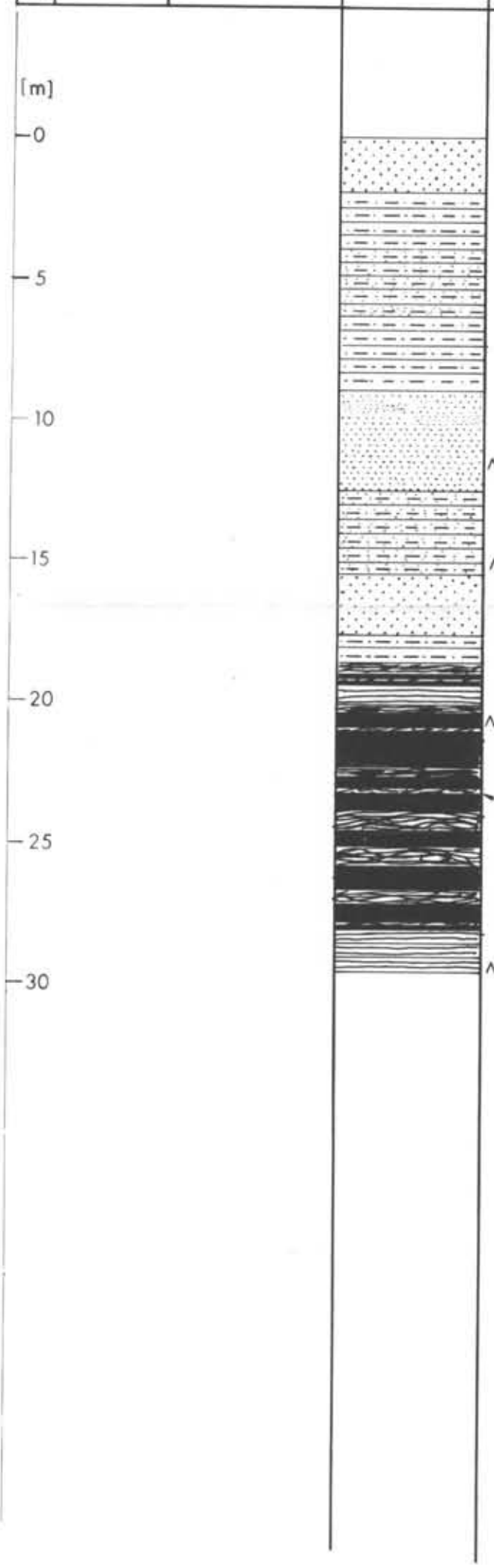
PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 19

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:



SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
					- Sandstone	covered; medium; massive	
					- Siltstone	with very fine sandstone	
				N020°E/50°W	- Sandstone	fine with some interbedding, very fine sandstone near top	
				N027°E/60°W	- Siltstone	medium gray; blockly; grading to very fine sandstone	
				N045°E/55°W	- Shale	slightly carbonaceous; silting upwards	
					- Coal		
					- Shale	carbonaceous	
					- Coal	clean	
					- Shale	dark gray; fissile	
					- Shale	carbonaceous with coal bands <5mm	
					- Coal	clean	
					- Shale	carbonaceous	
					- Coal	clean	
					- Coal	carbonaceous shale interbeds	
					- Shale	carbonaceous with some coal, hard	
					- Coal	clean	
					- Shale	carbonaceous with 4cm coal in middle; hard	
					- Coal	clean. seam with few shale splits	
					- Shale	carbonaceous	
					- Coal	somewhat shaly	
					- Shale	dark gray, coaly and carbonaceous band throughout	
				N05°E/60°W	- Shale	silty; dark gray; blocky	

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-3 | PART _____ OF _____

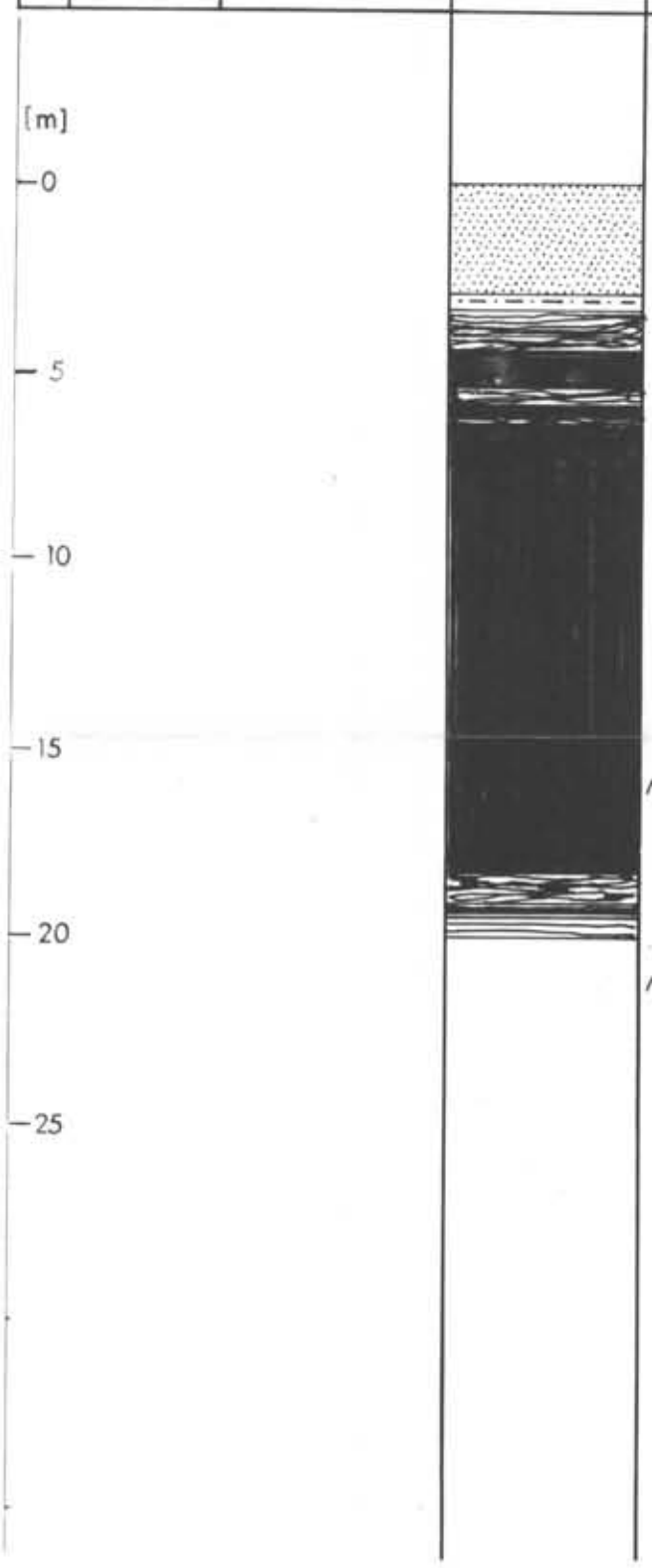
PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C

SOURCE OF DATA: FIELD WORK

LOCATION:



SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
					- Sandstone	fine to very fine	
					- Shale	dark gray; carbonaceous at base; silty at top	
					- Shale	carbonaceous and coaly; small scale deformations	
					- Coal		
					- Shale	carbonaceous	
					- Coal		
					- Shale	carbonaceous	
					- Coal	clean	
					- Coal		
					- Coal	clean; here the coal shows various attitudes; mainly vertical; highly sheared	
				N020°E	- Coal	clean; this coal maintains a constant attitude	
					- Shale	carbonaceous with interbedded coal (20%)	
					- Shale	dark gray; some carbonaceous coal	
					- Coal		
					- Shale	carbonaceous	
					- Coal		
				N020°E/60°W	- Shale	numerous wood casts	

HJ

K-SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-4 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m] 0 – 5 – 10 – 15							

- Shale — medium gray; silting upwards
- Shale — carbonaceous
- Coal — numerous shaly bands
- Shale — dark gray; hard; carbonaceous
- Coal
- Coal — shaly
- Shale — carbonaceous bands; dark gray; hard

H.

K- SHELL - H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-5 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Sandstone	medium; massive	
					- Sandstone	fine to medium; broken; partially carbonaceous	
					- Coal		
				N030°E/45°W	- Shale	carbonaceous; probably sheared	
5					- Coal		
10							
15							

HJ

K-SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-6 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

LOCATION:

SOURCE OF DATA: FIELD WORK

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Siltstone	with sandstone; partially covered; small interbedded shale beds	
5					- Shale - Shale - Coal - Shale - Shale - Shale - Coal - Shale - Coal - Shale - Coal - Shale - Coal - Shale - Coal - Shale - Shale - Sandstone	dark gray; blocky dark gray; carbonaceous shaly dark gray; hard; blocky carbonaceous; some coal lamina; medium hard to soft with coal interbeds; carbonaceous; soft with some carbonaceous shale bands carbonaceous; soft; coaly dark gray; blocky with some carbonaceous shale bands near base (<1cm) dark gray; hard; with carbonaceous coal lamina with small shale bands carbonaceous; coaly with several blocky shale (<2cm) dark gray; blocky; carbonaceous at base and top dark gray with carbonaceous shale and coal lamina dark gray with some siltstone interbeds, and carbonaceous lamina fining upwards very fine; some siltstone interbeds and carbonaceous lamina	
10				N025°E/58°W			
15							
20							

HJ-4

K- SHELL H.R. 79(3)A

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-7 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Sandstone	very fine to fine with carbonaceous partings; sheet like weathering at base	
				N025°E/50°W			
5					- Shale	carbonaceous	
					- Coal	highly weathered; appears shaly	
					- Coal	clean	
					- Shale	carbonaceous with minor coal bands	
					- Coal	bog iron at roughly 2m from base (.15); mainly clean with several small shale bands near top (< 5cm)	
10					- Shale	carbonaceous with coal	
					- Coal		
					- Shale	partially carbonaceous with several small coal bands	
					- Shale	carbonaceous; flakey	
				N031°E/47°W			
15					- Coal	clean	
					- Shale	dark gray; hard; partially carbonaceous; top highly carbonaceous; flackey	
				N028°E/50°W	- Shale	carbonaceous; broken	
					- Coal	highly weathered; appears somewhat shaly	
					- Shale	dark gray; silty at base; partially carbonaceous at top	
					- Sandstone	fine to very fine; blocky; light to medium gray; silty at top	
				N030°E/45°W			
20							

K- SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-8 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE
[m]							
0					- Covered	fine Sandstone suboutcrop; coal bloom at top	
				N005°E/55°W	- Sandstone	very fine and siltstone interbeds	
5							
				N012°E/57°W	- Sandstone	fine	
10							
					- Siltstone	and shale interbedded, mainly siltstone	
20							
					- Shale	silty	
25					- Siltstone	with very fine sandstone	
					- Shale	slightly silty; undulating dip; type of disturbance uncertain	
30					- Shale	dark gray; bottom partially carbonaceous, minor small coal bands	
					- Coal	with several small shale splits (<5cm)	
35					- Shale	carbonaceous	
					- Coal	clean	
					- Shale	dark gray; slightly silty	
40				N020°E/52°W			

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-9 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Sandstone	carbonaceous; with coal stringers	
					- Shale		
					- Coal		
					- Shale - Coal	carbonaceous	
05					- Shale	carbonaceous	
					- Shale	dark gray	
10					Siltstone	medium gray; weathered yellow	
				N347°/81°W			
20							

HJ-4

E-SHELL. H.R. 79(3)A

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-10 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m] 0					- Siltstone		
					- Shale	dark gray interbedded with coal and carbonaceous shale	
					- Coal		
5					- Shale	dark gray interbedded with coal and carbonaceous shale	
					- Shale	carbonaceous	
					- Coal		
					- Shale	carbonaceous	
					- Coal		
					- Shale	dark gray	
10					- Coal		
					- Shale	dark gray; slightly silty; hard	
					- Coal		
					- Shale	carbonaceous	
					- Coal		
				N010°E/62°W			
15							
20							

HJ

K-SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-11 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C. | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Siltstone	with large nodules of very fine sandstone and siltstone	
					- Shale	silting upwards; very silty at top	
5					- Coal - Shale - Coal	with carbonaceous shale (30%) mostly carbonaceous; yellow bands; weathered at top shaly at top	
					- Covered - Coal - Shale	carbonaceous and coaly	
10					- Coal	high iron shale pod at 1.0 m; several small blocky shale splits; highly sheared	
					- Shale	carbonaceous with coal bands; extremely sheared; becoming blocky; hard towards top	
15					- Coal	with several shale splits	
20							

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-12 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C. | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m] 0					- Shale	dark gray; hard; blocky; several carbonaceous bands and two small coal bands	
5					- Coal	sheared; clean	
					- Siltstone - Shale - Siltstone - Shale - Shale - Coal - Shale	with some minor coal stringers carbonaceous and fissile medium gray dark gray; silty upwards black; yellow weathering black; yellow weathering	
10							
15							
20							

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-13 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

LOCATION:

SOURCE OF DATA: FIELD WORK

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Shale	dark gray; silty upwards	
					- Coal	suboutcrop	
5					- Siltstone	with very fine sandstone lamina	
10					- Sandstone	fine to very fine; thinly bedded; small fault at base	
15							
20							

HJ

K-SHELL-H.R. 79(3)A

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STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-14 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C. | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE
[m]							
0				N001°W/72°W	- Sandstone	fine to medium; massive	
5					- Siltstone	dark gray;	
					- Shale	dark gray; fissile; sightly silty; several coal lamina	
10					- Coal	.05 shale at .5 from base; several others throughout	
					- Siltstone	sandy near base; several small coal lamina <5cm in top half	
15					- Sandstone	very fine, fining upwards	
					- Shale	medium gray; top half silty and highly weathered; small coal stringers at top	
					- Coal	bog iron in bottom half	
					- Shale	dark gray; with carbonaceous and coaly bands; small coal interbeds (<10cm)	
20					- Coal	two small shale splits	
					- Sandstone	very fine; blocky, medium gray	
				N005°W/74°W			
25							

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K-SHELF-H.R. 79(3)A.

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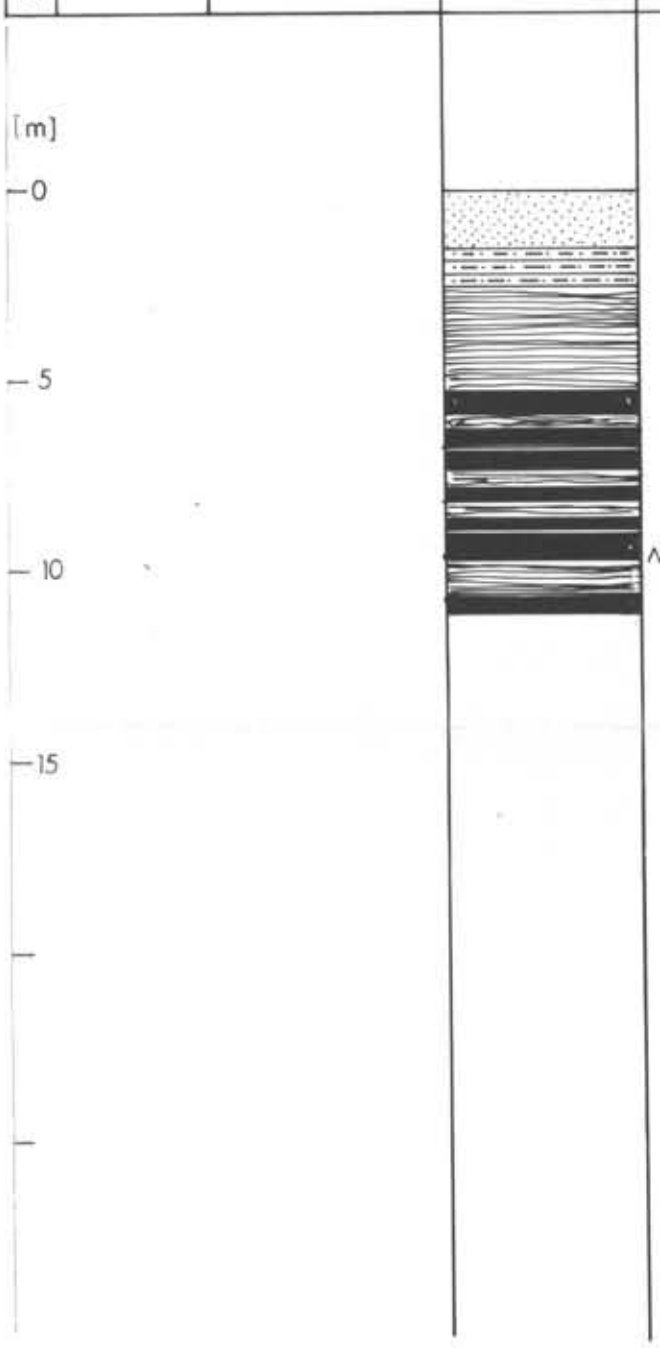
STRATIGRAPHIC SECTION

DESIGNATION: TRENCH B-15 | PART ____ OF ____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C. | SOURCE OF DATA: FIELD WORK

LOCATION:



SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
					- Sandstone	very fine with siltstone interbeds; fine lamina; brown	
					- Siltstone	brown with very large nodules (40 cm)	
					- Shale	dark gray	
					- Shale	carbonaceous and coaly	
					- Coal	and shaly coal	
					- Shale	carbonaceous and coaly lamina; fissile	
					- Coal		
					- Shale	blocky	
					- Coal	several small shale splits	
					- Shale	high iron lense	
				N017°E/45°W	- Coal		
					- Shale	dark grey; blocky	
					- Coal	very hard	

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-16 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

LOCATION:

SOURCE OF DATA: FIELD WORK

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0					- Shale	with coal bloom; suboutcrop and covered	
5					- Shale	dark gray; suboutcrop	
10					- Shale	dark gray; blocky	
				N0 15°E/57°W			
15					- Coal		
					- Shale	dark gray; blocky	
					- Coal	.1 carbonaceous shale split near top	
				N0 25°E/55°W	- Shale	dark gray; carbonaceous at base	
					- Coal	and shale suboutcrop	
20					- Shale	carbonaceous	
25					- Siltstone/Shale	gray and brown	
					- Sandstone	very fine	
					- Shale	brown silting upwards	
30				N015°E/70°W	- Coal		
					- Shale	dark gray; fissile	
					- Coal	sheared	
					- Shale	carbonaceous	
					- Coal		
35							
40							
45							
50							

HJ-49C

K - SHELL H.R. 79(31A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION - B17 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

LOCATION:

SOURCE OF DATA: FIELD WORK

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE
[m]							
0					- Coal	shaley; 2 thin iron stained shale partings oolitic coal	
					- Shale	carbonaceous	
					- Coal	badly weathered	
5					-Shale	silty; plant fragments througout; coaly at top; fissile	
					- Coal	shaly	
10					- Cover	appears to be shale as above	
					- Shale	as above; slightly coaly	
					- Coal	shaly; badly weathered; some interbeddeded coaly shaly	
15				15°/45° W	-Shale	silty; plant fragments throughout; coaly at top; fissile	
					-Siltstone	very fine grain sandstone; massive; medium gray	
					-Shale	silty plant debris throughout	
					-Sandstone	lens	
					-Shale		
				000°/41° W	-Shale	coaly fissile	
20					-Sandstone	fine grain; finely laminate shale; splits near base, dark gray some iron weathering	
					- Cover	broken rubble; slightly sheared	
25					-Shale	silty black	
					-Sandstone	fine grain with siltstone interbeds; concretion lenses througout	
					-Shale	black; carbonaceous; coaly wisps; very fissile	
					-Sandstone	fine grain; finely laminated; small scale cross-bedding	
					-Shale	dark gray; slightly silty; fissile	
30					-Sandstone	massive; fine grain; dark gray; weathering orange	
					-Shale	black; grading to siltstone at top; trace carbonaceous material throughout	
					-Sandstone	fine; massive; trace carbonaceous material	
					- Sandstone	fine grain; massive; dark gray to black with some silty interbeds; with concretion band near top	
				175°/45° W	-Sandstone	fine; finely laminated; light and dark gray; small scale crossbedding; weathers orangy-red	
35					-Sandstone	interbedded with shale; fine grain; generally massive; shale shows fissility	
					-Siltstone	dark gray	
					-Shale	weathered orange; with concretion	
					-Shale	silty; dark gray	
40							
45							

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-18 | PART _____ OF _____

PROJECT: HORSESHOE PASS

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE
[m]							
0				N166°/68°W	- Sandstone	with minor, heavy iron and pyrite stains; "fault?"	
5				176°/71°W	- Shale	silty at top, medium to dark gray; heavy iron stains	
					- Coal	dull; shaly; sheared	
					- Shale	black, slightly carbonaceous	
					- Coal		
10					- Shale	black, carbonaceous, generally massive	
					- Coal	sheared at base	
15				005°/62°W	- Shale	fissil; abundant carbonaceous material; abrupt contact with coal above	
					- Sandstone	fine grained, finely laminated; light to dark grey; small scale cross bedding; weathers orange-red	
					- Siltstone	concretion band; orange-yellow weathering	
					- Sandstone	fine grained; finely laminated; light to dark gray, small scale cross bedding; weathers orange-red; some fissility	
					- Shale	black; carbonaceous, weathers orange-yellow	
					- Coal		
20					- Shale	black; carbonaceous; weathers orange-yellow	

K-SHELL H.A. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B 19 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE
[m]							
0					- Shale - Coal - Shale - Coal - Shale	dark gray to black; weathered orange-red dark gray to black; weathered orange-red dark gray to black; weathered orange-red; showing some slickensides	
5					- Coal	powdery	
10					- Cover - Sandstone - Shale	could not dig with backhoe fine grain; badly weathered fissile; dark gray	
				003°/61°W	- Sandstone	fine grain; badly weathered	
15					- Shale - Coal - Shale - Coal - Shale - Coal - Shale - Coal - Shale	silty in part, fissile; dark gray to black; iron stains carbonaceous; coaly wisps throughout badly weathered impregnated with mud or soil from above	
20					- Sandstone - Cover - Sandstone - Shale - Cover - Shale - Shale	fine grain; cross-bedded; weathered rust appears finely laminated; some carbonaceous material finely laminated; abundant carbonaceous material; rust weathered black; carbonaceous; some rust weathered appears to be sandstone or siltstone silty; light gray; fissile; tree plant fragments black; carbonaceous	
25					- Shale - Coal - Shale	light gray; trace of plant fragments; fissile; some rust weathered badly weathered black; generally massive, carbonaceous	
				012°/86°W	- Cover		
30				001°/55°W	- Sandstone	generally massive; carbonaceous material throughout; fine grain appears to be small scale cross-bedding	
					- Coal - Coal - Coal - Coal - Shale	powder shaly shaly coaly appears to be sandstone/Siltstone	
35							

HJ-491

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-20 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C. | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0				000°/70° W	-Sandstone	massive; fine grain; medium brown	
05							
10							
				N43°W	-Coal		
20							
30					-Shale	dark gray	
					-Coal	soft	
					-Shale	dark gray; interbedded carbonaceous shale	
					-Shale/Coal	carbonaceous; interbedded	
					-Shale	dark gray; blocky	
					-Coal	clean	
					-Shale	carbonaceous	
					-Shale	dark gray; blocky	
40					-Shale	dark gray; interbedded carbonaceous shale	
					-Coal/Shale	carbonaceous; interbedded	
					-Coal	clean	
50					-Shale	blocky; silty in part	
					-Coal	shaly	
					-Shale	dark gray; blocky	
					-Shale/Coal		
					-Coal	clean	
					-Shale	dark gray; blocky; carbonaceous at base	
60					-Coal	clean	
					-Shale	dark gray; blocky	
					-Shale	carbonaceous	
					-Shale	blocky with carbonaceous shale interbedded	
					-Shale	carbonaceous	
					-Coal	shaly	
					-Coal	clean	
					-Shale	dark gray; carbonaceous shale; with coal stringers	
70					-Coal	clean	
					-Shale	carbonaceous	
					-Coal	clean	
					-Shale	dark gray; sheared; carbonaceous; shale and coal stringers	
80					-Coal	clean	
					-Coal	shaly	
					-Shale	carbonaceous; minor coal stringers	
				175°/65° W	-Shale	dark gray with carbonaceous lamina	
90							

K- SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-21 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0				170°/66°W	-Shale	carbonaceous, minor coaly stringers, minor silty stringers	
5					-Coal	shaly in places	
10				176°/70°W	-Shale	silty at top, carbonaceous, minor coal stringers	
					-Siltstone	shaly	
20					-Coal	clean, minor shale partings at top	
30					-Shale	highly broken	
40				179°/70°W	-Coal	shale splits at top; rolled disturbed	
					-Siltstone	carbonaceous and shaly; horizontal lamina becoming shaly at base; lots of plant debris; few slickensides	
50							
60							

HJ-49V

K- SHELL - H.R. 79(31A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-23 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C. | SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
0				175°/82°E	-Shale	with carbonaceous plant fragments	
					-Coal	with shaly partings (< 10 cm)	
					-Shale	carbongceous	
					-Coal	sheared	
					-Shale	silty; light gray; blocky	
					-Coal	sheared; shaly partings	
					-Shale		
					-Coal		
5					-Shale		
					-Coal	covered at base	
10							
					-Cover	"distance measured is road length" (27.5 m)	
15							
30							
35				009°/72°E	-Siltstone	with one coaly parting in middle (1 cm) minor rolling	
					-Coal	shaly and minor roll	
					-Shale	and 1 cm coal band in middle and minor rolls and slickensides throughout	
40					-Coal	shaly with shale splits	
					-Shale	carbonaceous with 1 cm coal band in the middle	
					-Coal	shaly at base	
45					-Shale	cover at base	
						FAULT AT BASE	
50							
55							

K. SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-26 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE

AREA: S.E. B.C.

LOCATION:

AUTHOR: J. SCHLENDER | DATE: 1980

SOURCE OF DATA: FIELD WORK

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0				177°/63°W	-Sandstone	medium grain; generally massive; few coal partings	
					-Coal	dirty	
					-Siltstone	dark gray	
5					-Coal -Shale -Coal		
					-Sandstone	fine grain; massive	
					-Coal	shaly	
					-Sandstone	fine grain massive	
					-Shale	carbonaceous	
					-Coal -Shale		
10					-Sandstone	fine grain; generally massive with concretion bands at base	
					-Shale	blocky; slightly silty	
					-Cover		
15							
20							
				160°/61°W	-Sandstone	coarse grain; large scale cross-bedding; minor rolls throughout	
25							
30							
35							

HJ

K. SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-27 | PART _____ OF _____

PROJECT: HORSESHOE RIDGE

AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

SOURCE OF DATA: FIELD WORK

LOCATION:

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION: MAIN	DESCRIPTION: AMPLIFIED	SAMPLE
[m]							
0				147°/29°E	-Cover	.5 sandstone concretion	
10					-Shale	black; carbonaceous	
20							
30					-Cover		
40					-Sandstone	fine grain; finely laminated	
					-Cover	appears to be shale	
50					-Shale	blocky	
					-Shale	fissile	
					-Shale	weathered orange - blocky	
					-Shale	coaly	
60				008°/68°E	Coal -Shale	carbonaceous	
70							
80							

K- SHELL H.R. 79(3)A.

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STRATIGRAPHIC SECTION

DESIGNATION: SECTION B-28 | PART _____ OF _____

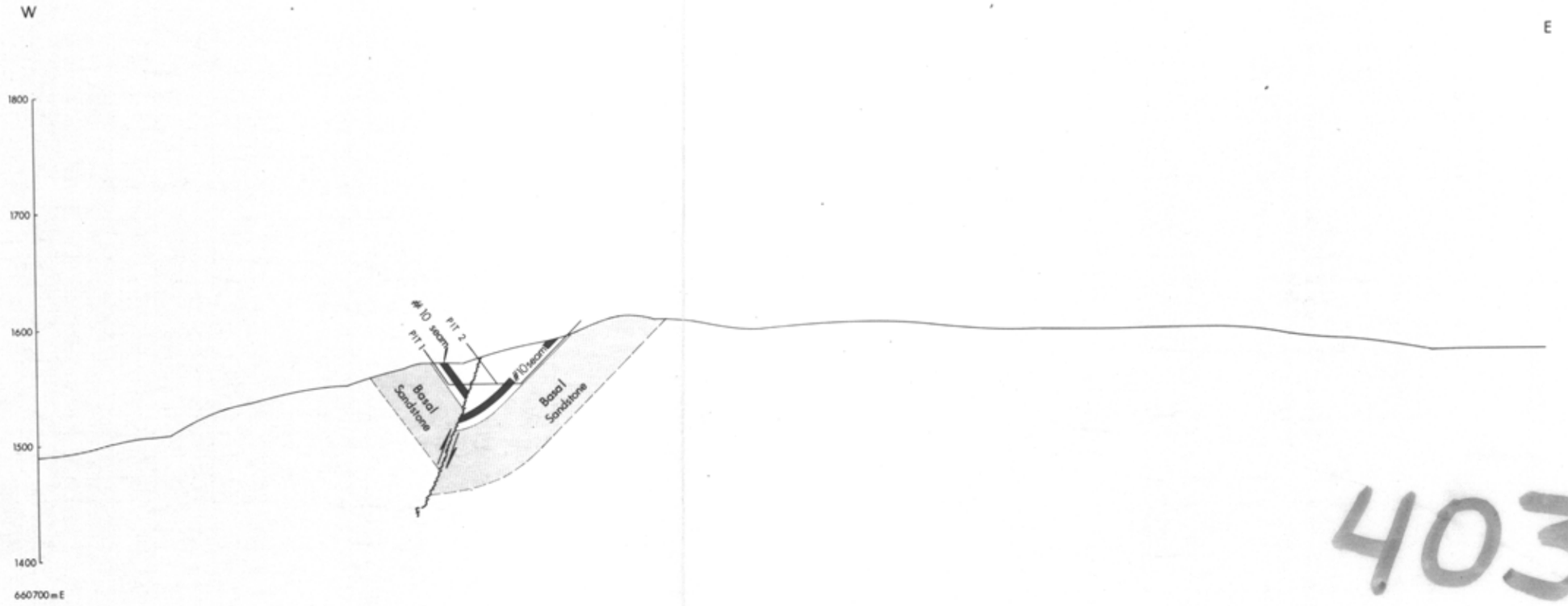
PROJECT: HORSESHOE RIDGE | AUTHOR: J. SCHLENDER | DATE: 1980

AREA: S.E. B.C.

LOCATION:

SOURCE OF DATA: FIELD WORK

SCALE	CONTROL POINT	INTERVAL	LITHOLOGY	STRIKE & DIP	DESCRIPTION MAIN	DESCRIPTION AMPLIFIED	SAMPLE
[m]							
0				048°/16° W	- Sandstone	fine grain; massive	
					- Coal		
					- Shale	carbonaceous	
					- Coal	dirty	
					- Shale		
					- Coal	dirty	
5					- Shale	carbonaceous	
					- Coal	sheared	
					- Siltstone		
					- Shale	numerous coal partings	
					- Sandstone	fine grain; broken	
10					- Shale	broken; carbonaceous	
					- Coal		
					- Sandstone	medium grain; massive; slickensides minor rolls at top; "faulted"	
				008°/34° W			
15					- Coal	sheared	
20							
25					- Cover	measured along road	
30							
					- Coal	measured along road	
35					- Cover	measured along road	
40							



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K-SHELL - H.R. 79(2)A.

Crows Nest Resources Limited
EXPLORATION

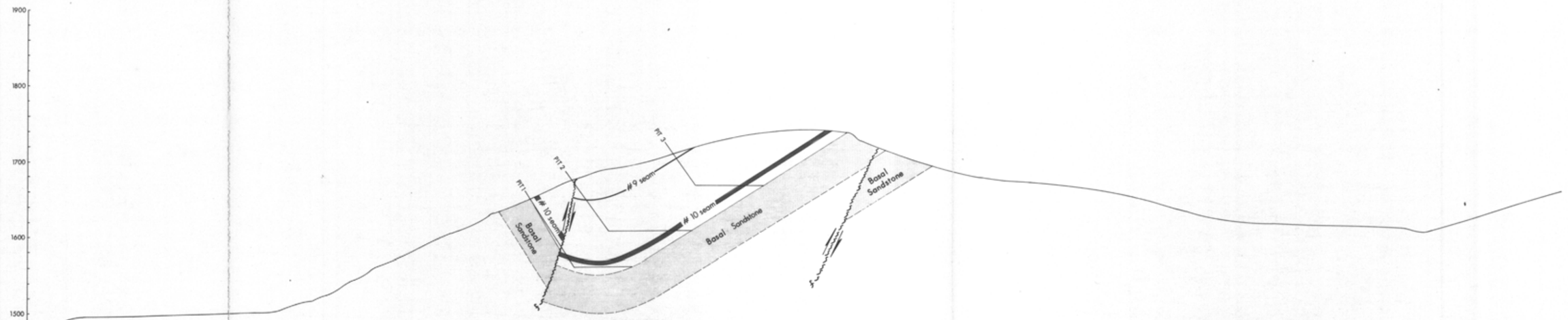
HORSESHOE RIDGE
S.E.B.C.

CROSS SECTION
HSR 5531800mN

AUTHOR: J.SCHLENDER	SCALE: 1:1000	ENCLOSURE No: 10
DATE: APRIL, 1980	REVISED:	DRAWING No: HF - 50 C
To Accompany		

W

E



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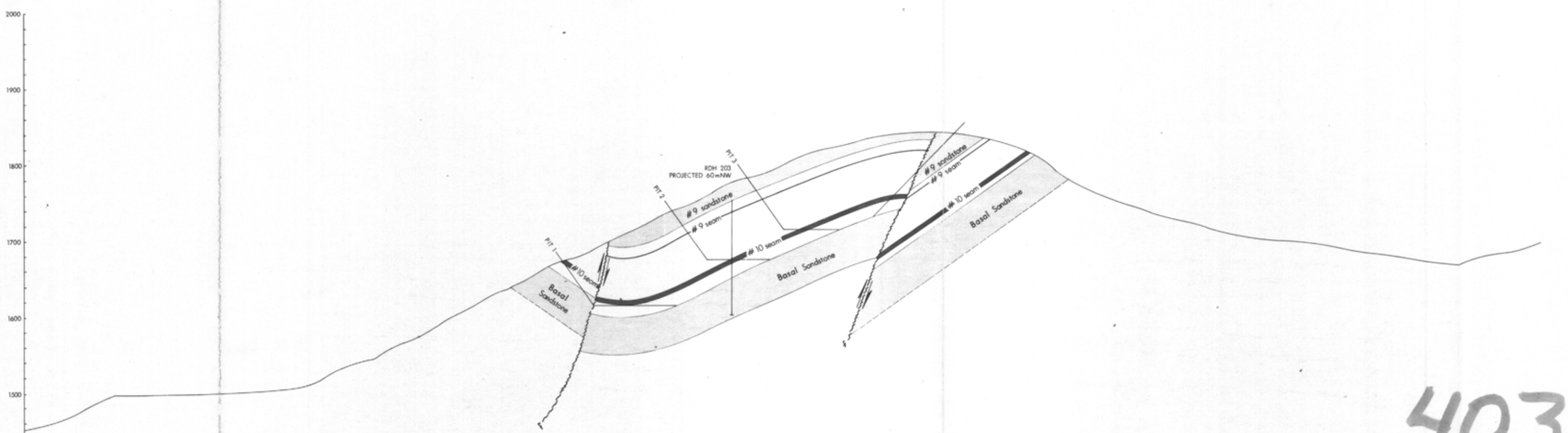
K-SHELL - H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5532000mN

AUTHOR: J. SCHLENDER	SCALE: 1:1000	ENCLOSURE No.: 11
DATE: APRIL 1980	REVISED:	DRAWING No: HG-50 B
To Accompany		



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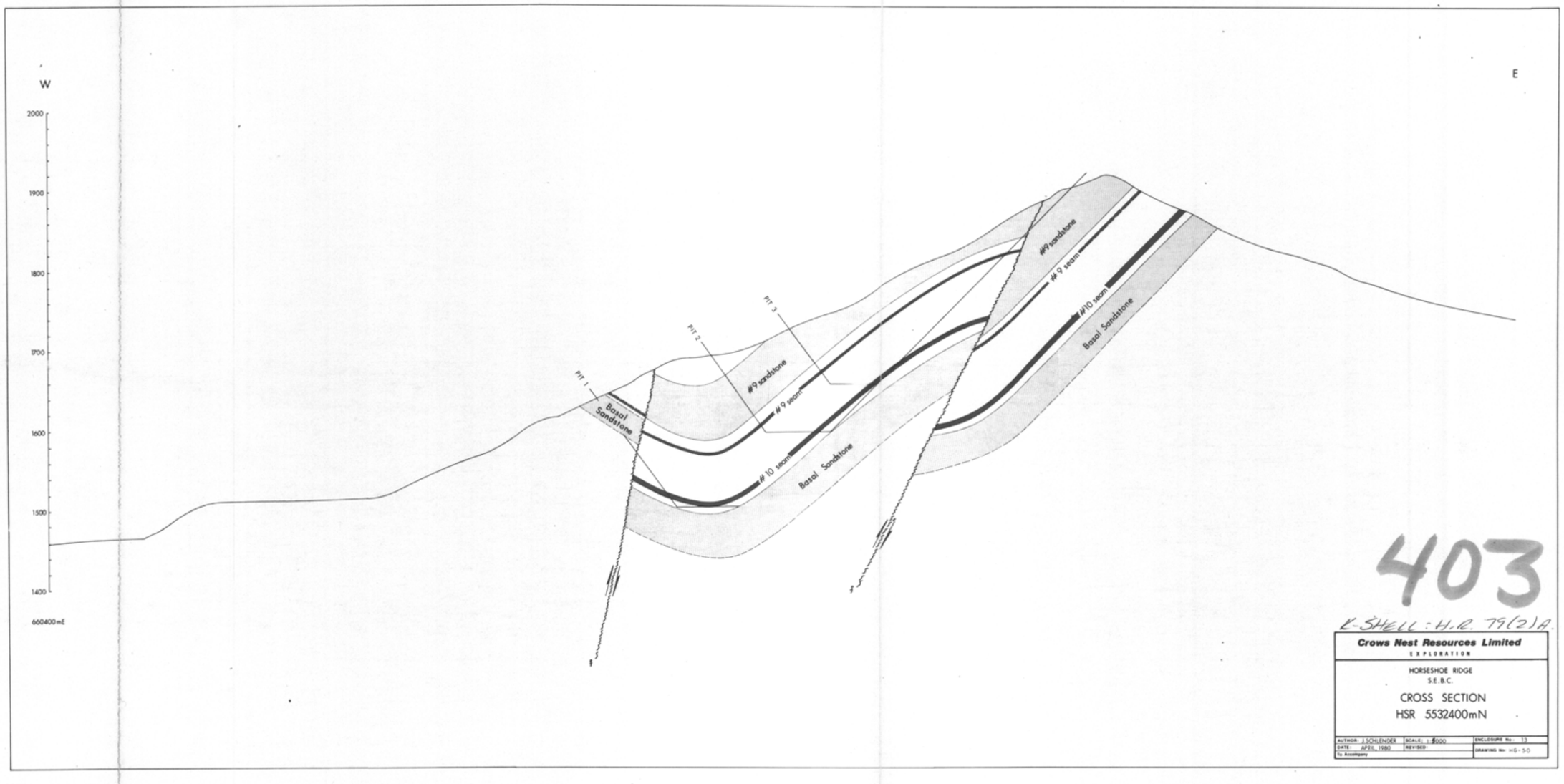
K-SHELL-H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E.B.C.

CROSS SECTION
HSR 5532200 mN

AUTHOR: J.SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 12
DATE: APRIL,1980	REVISED:	DRAWING No: HF-504
To Accompany		



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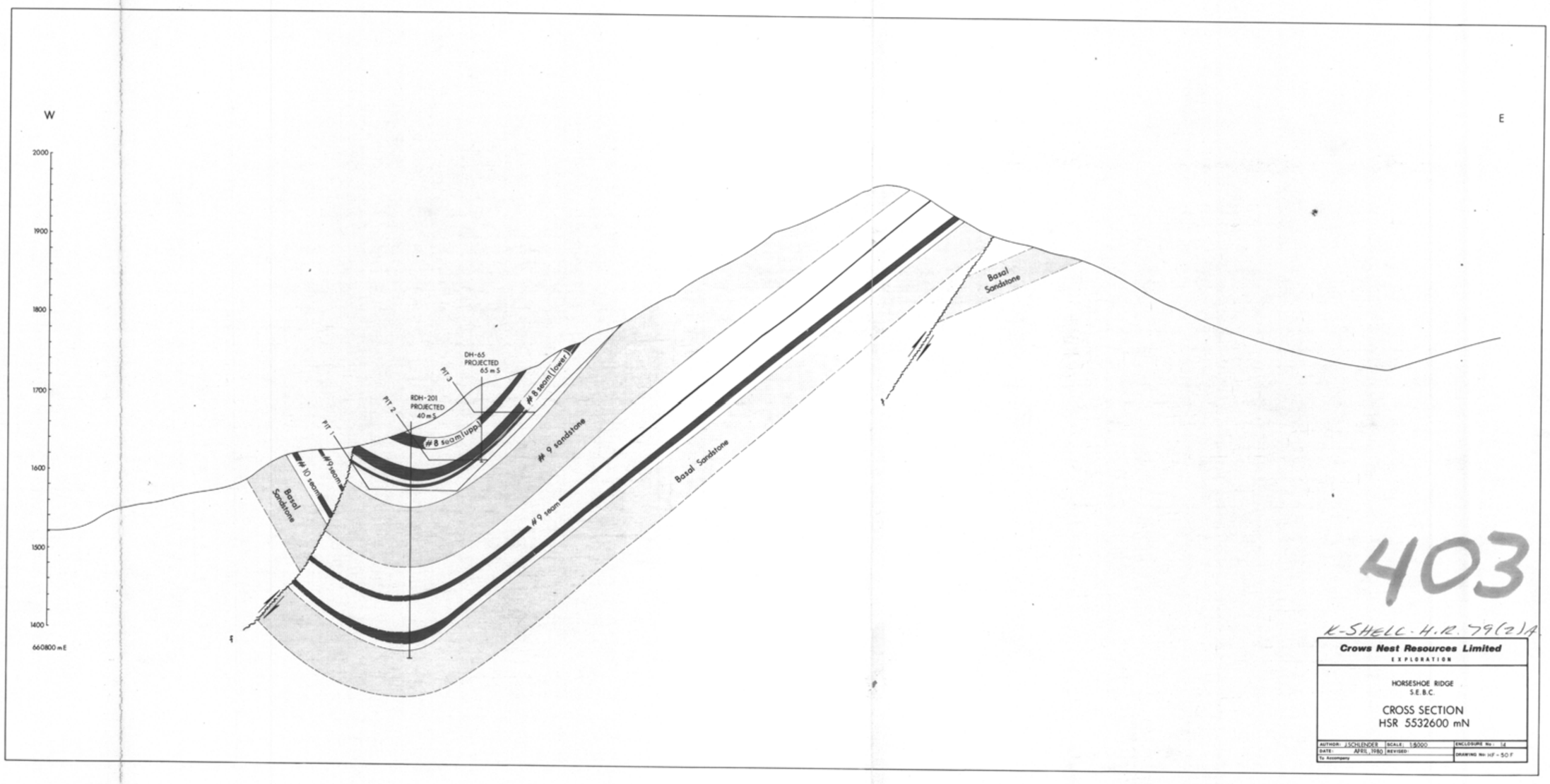
K-SHELL: H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E.B.C.

CROSS SECTION
HSR 5532400mN

AUTHOR: J.SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 13
DATE: APRIL 1980	REVISED:	DRAWING No: HG-50
To Accompany		



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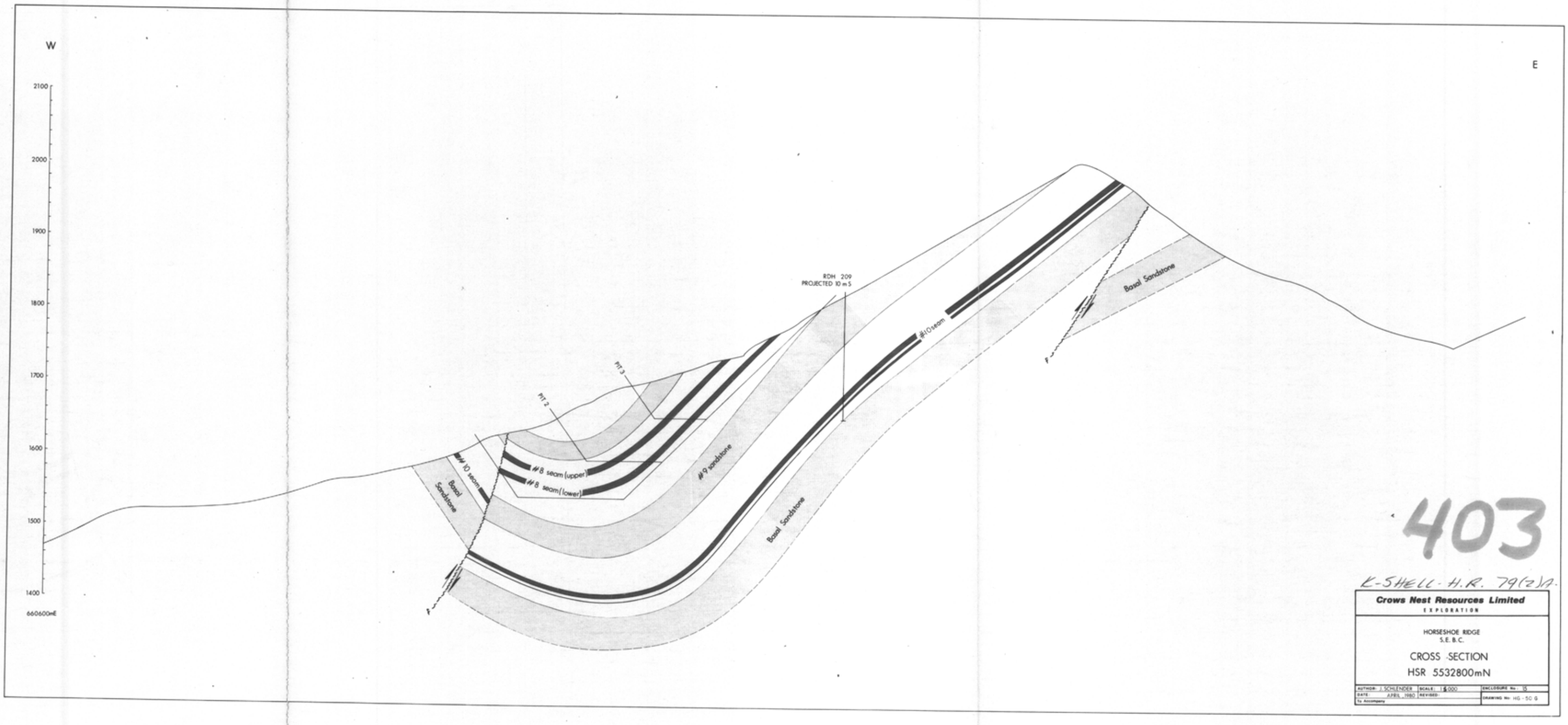
E-SHELC-H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E.B.C.

CROSS SECTION
HSR 5532600 mN

AUTHOR: J.SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 14
DATE: APRIL, 1980	REVISED:	DRAWING No: HF - 50 F
To Accompany		



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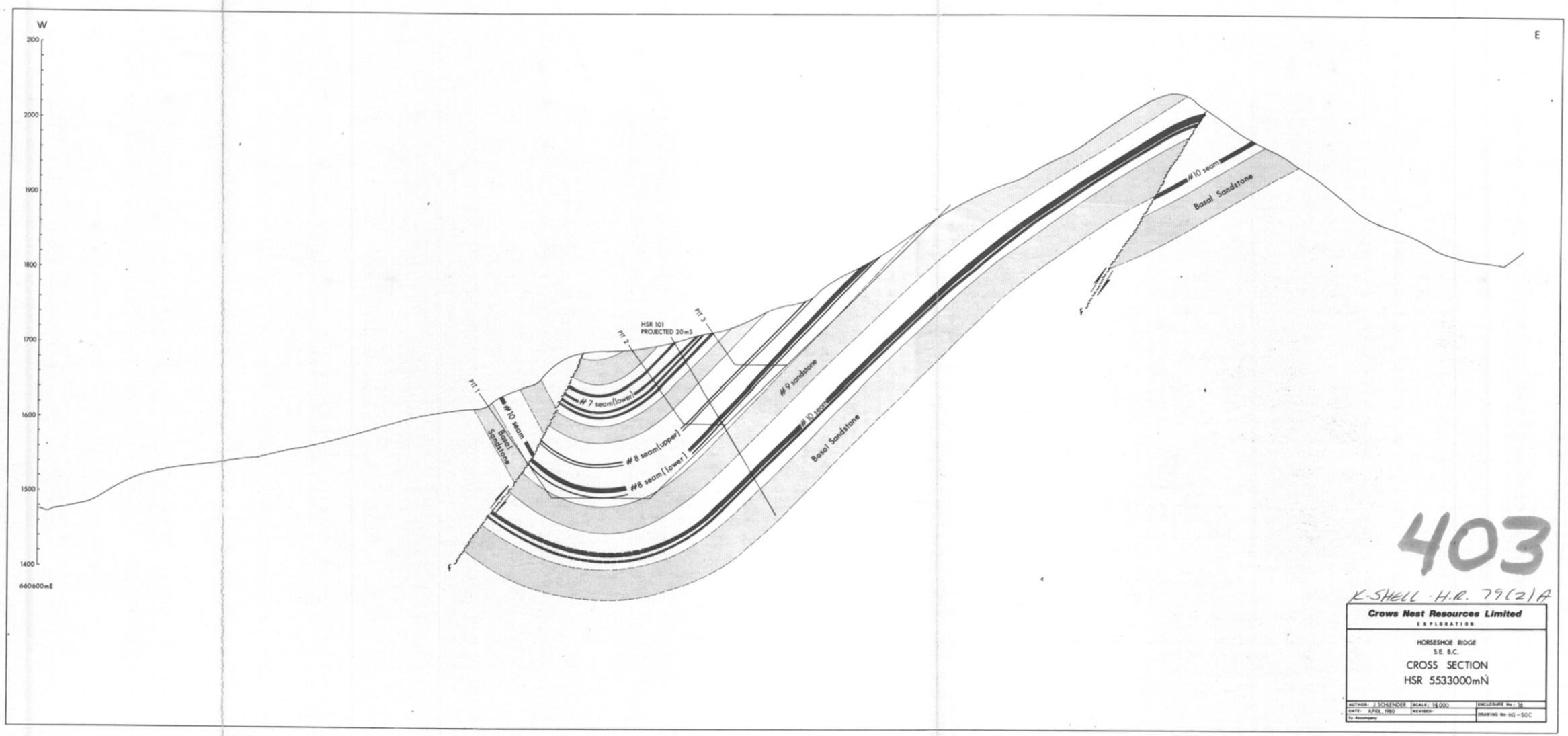
K-SHELL - H.R. 79(2)A.

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS - SECTION
HSR 5532800mN

AUTHOR: J. SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 15
DATE: APRIL, 1980	REVISED:	DRAWING No: HG - 50 G
To Accompany		



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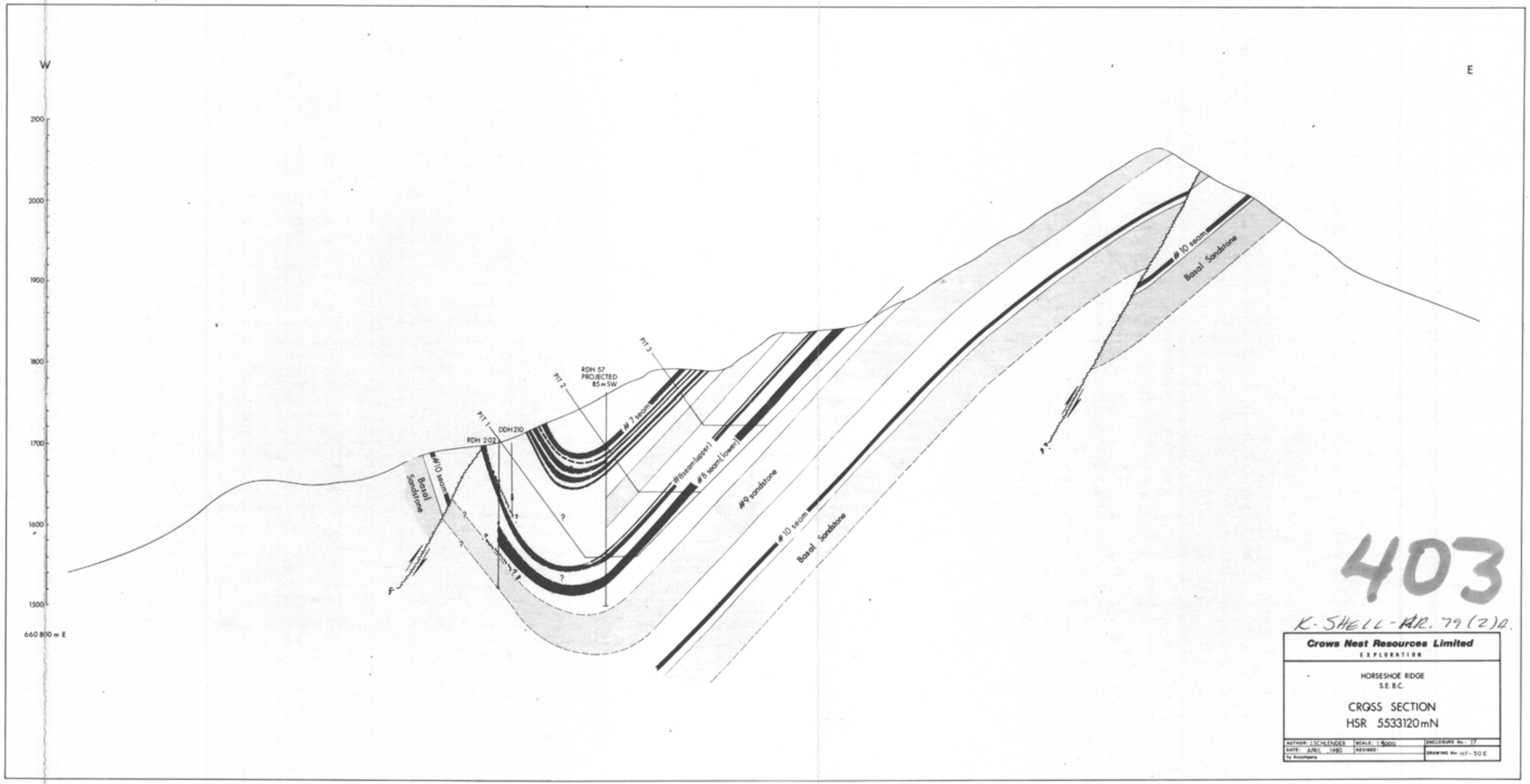
K-SHELL H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.
CROSS SECTION
HSR 5533000mN

AUTHOR: J. SCHLENDER	SCALE: 1:500	ENCLOSURE No: 36
DATE: APRIL, 1980	REVISED:	DRAWING No: HG - 50C
To Accompany		



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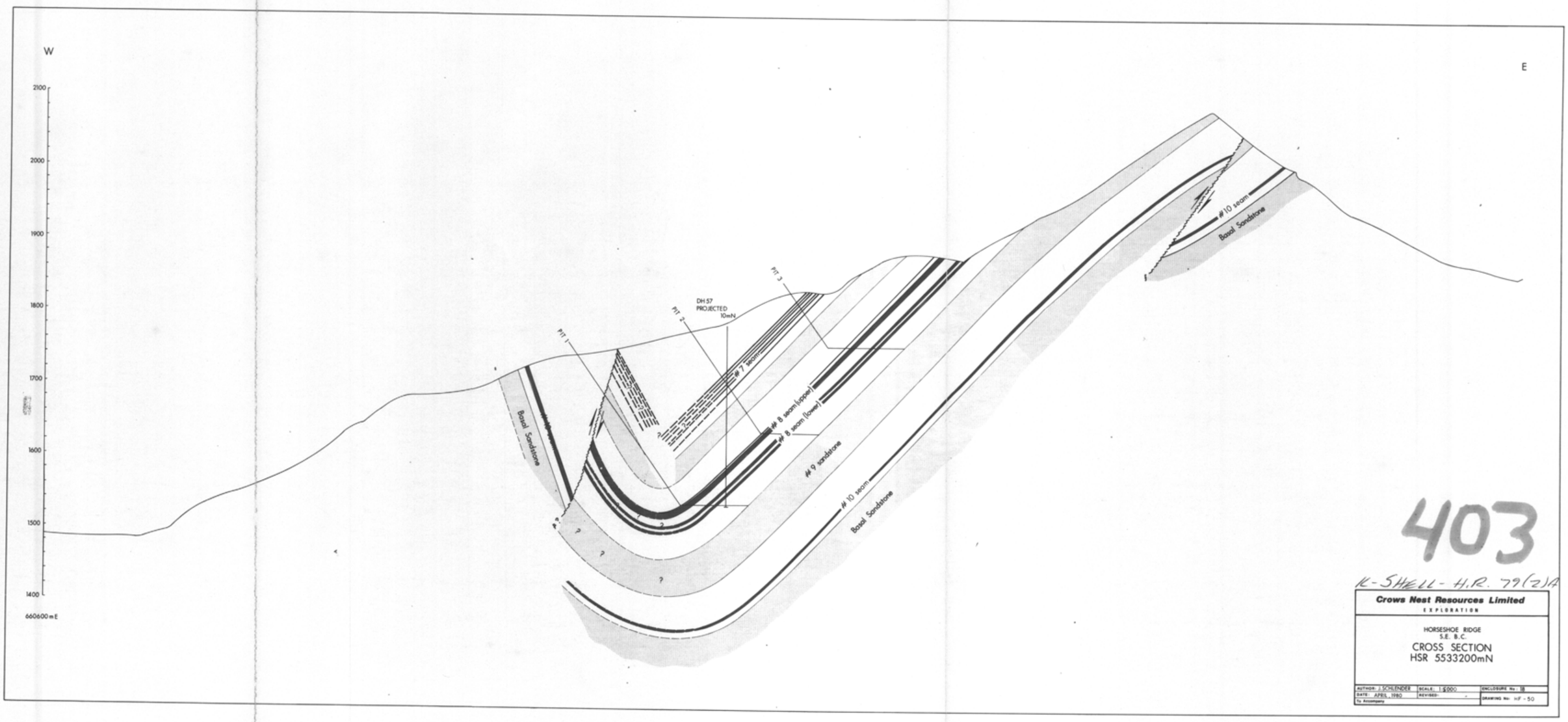
K-SHELL-AR. 79(2)A.

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5533120mN

AUTHOR: J.SCHLENDER	SCALE: 1:500	ENCLOSURE No.: 17
DATE: APRIL 1980	REVISED:	
To Accompany		DRAWING No: H.F.-50 E



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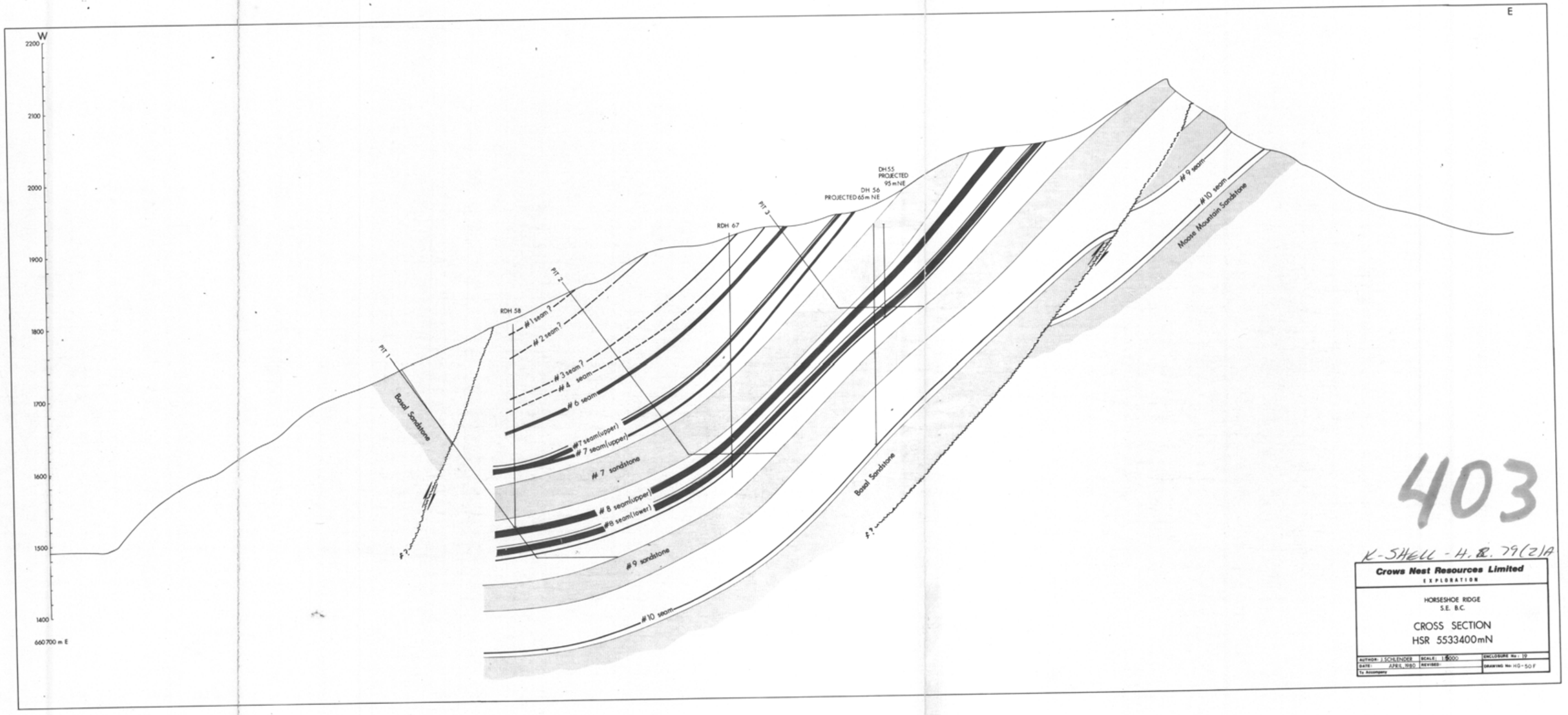
K-SHELL - H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.
CROSS SECTION
HSR 5533200mN

AUTHOR: J.SCHLENDER	SCALE: 1:5000	ENCLOSURE No: 18
DATE: APRIL 1980	REVISED: -	DRAWING No: HF - 50
To Accompany		



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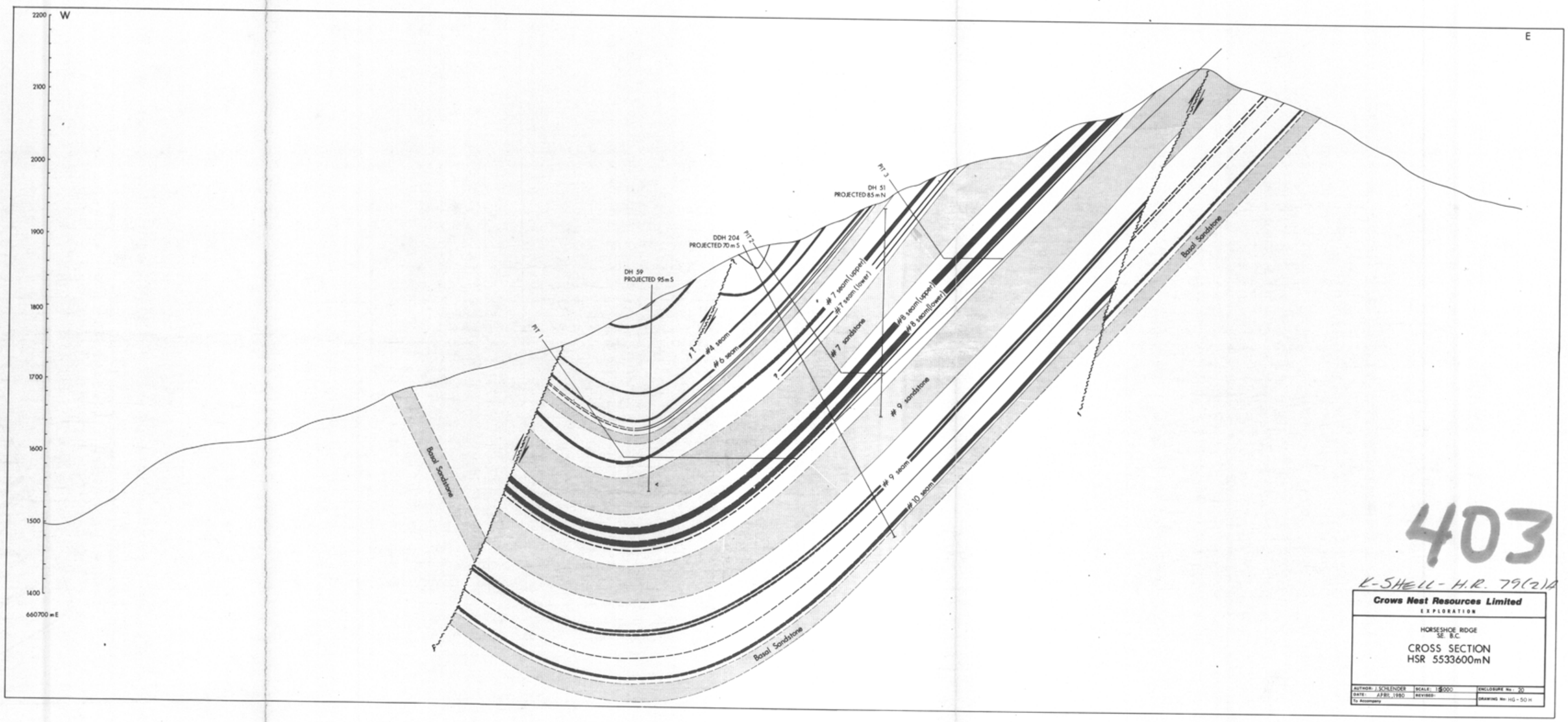
K-SHELL - H.B. 79(21)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5533400mN

AUTHOR: I. SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 19
DATE: APRIL 1980	REVISED:	DRAWING No: HG-50 F
To Accompany		



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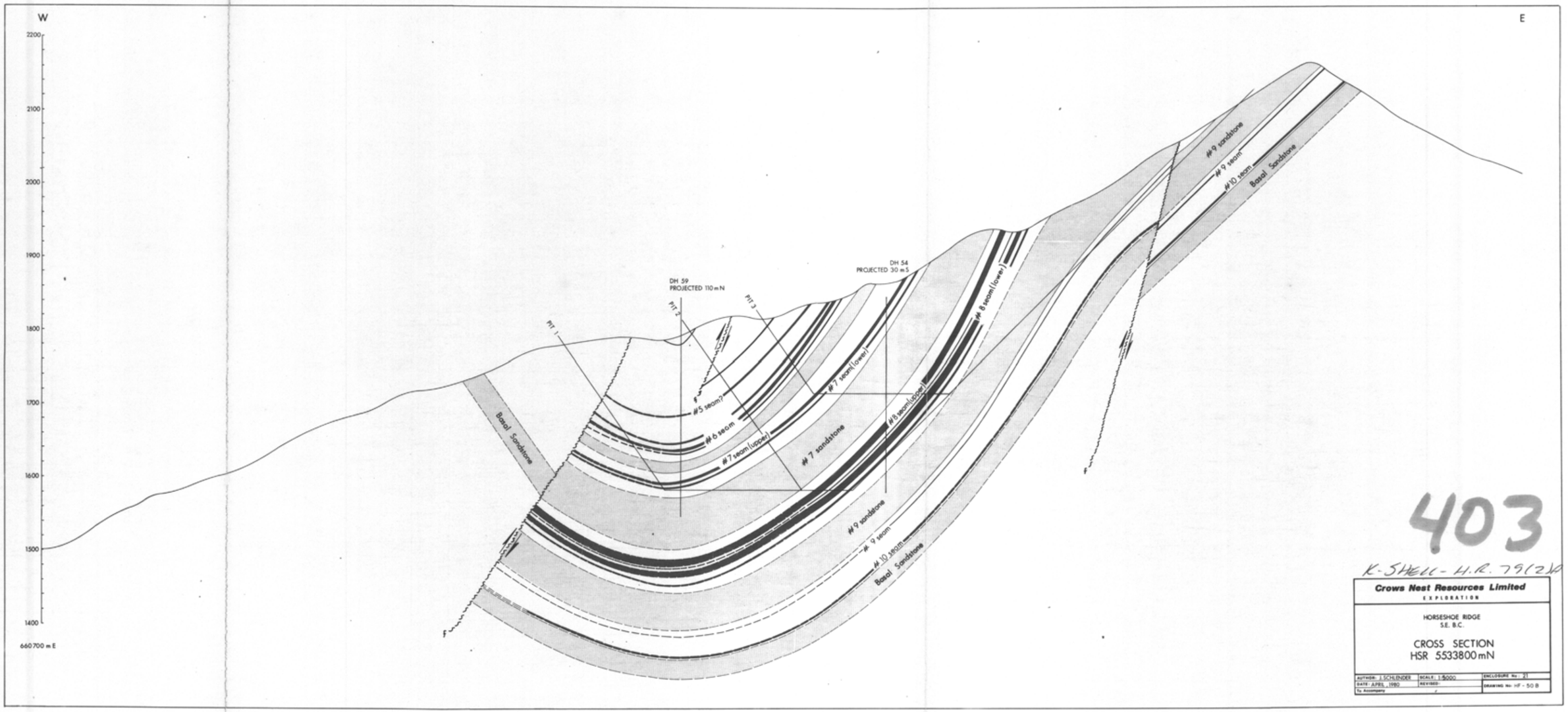
K-SHELL - H.R. 79(2)1

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
SE. B.C.

CROSS SECTION
HSR 5533600mN

AUTHOR: J. SCHLEINDER	SCALE: 1:5000	ENCLOSURE No. 20
DATE: APRIL, 1980 To Accompany	REVISED:	DRAWING No: HG - 50 H



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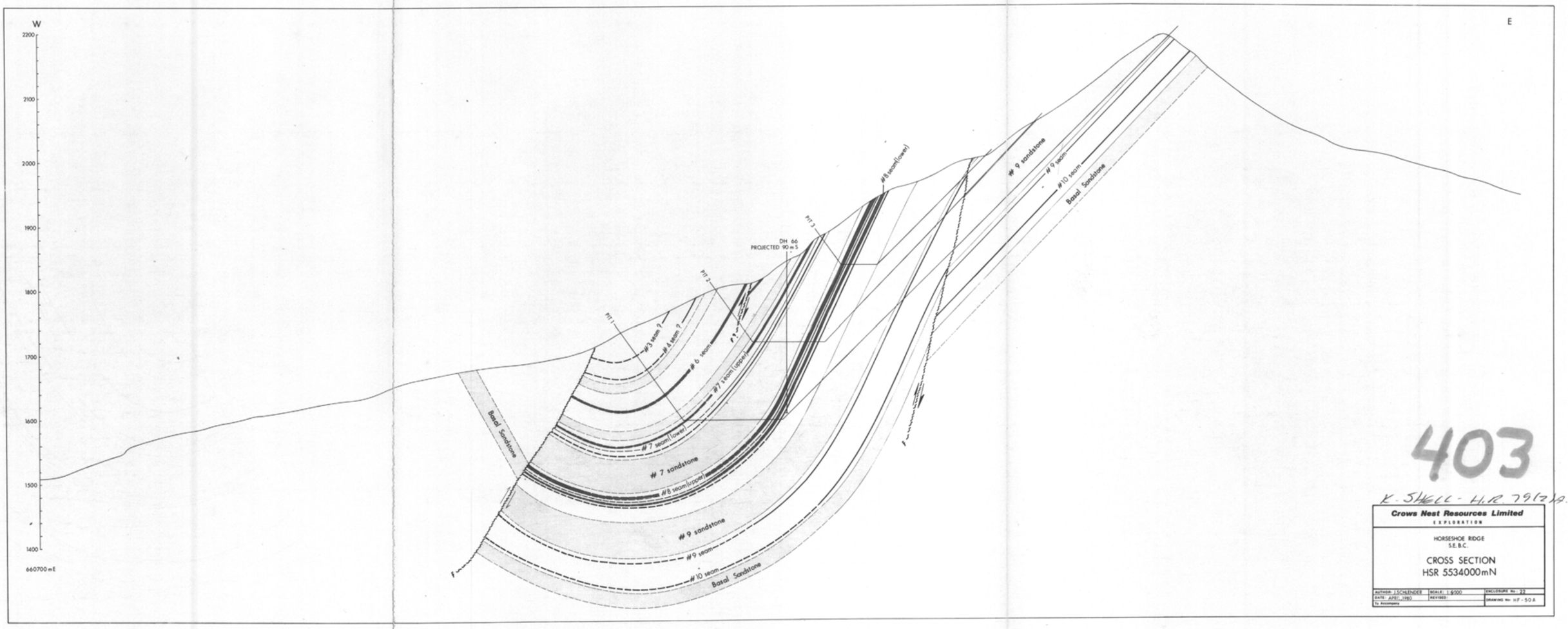
K-SHELL - H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5533800 mN

AUTHOR: J. SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 21
DATE: APRIL, 1980	REVISED:	DRAWING No: HF - 50 B
To Accompany		



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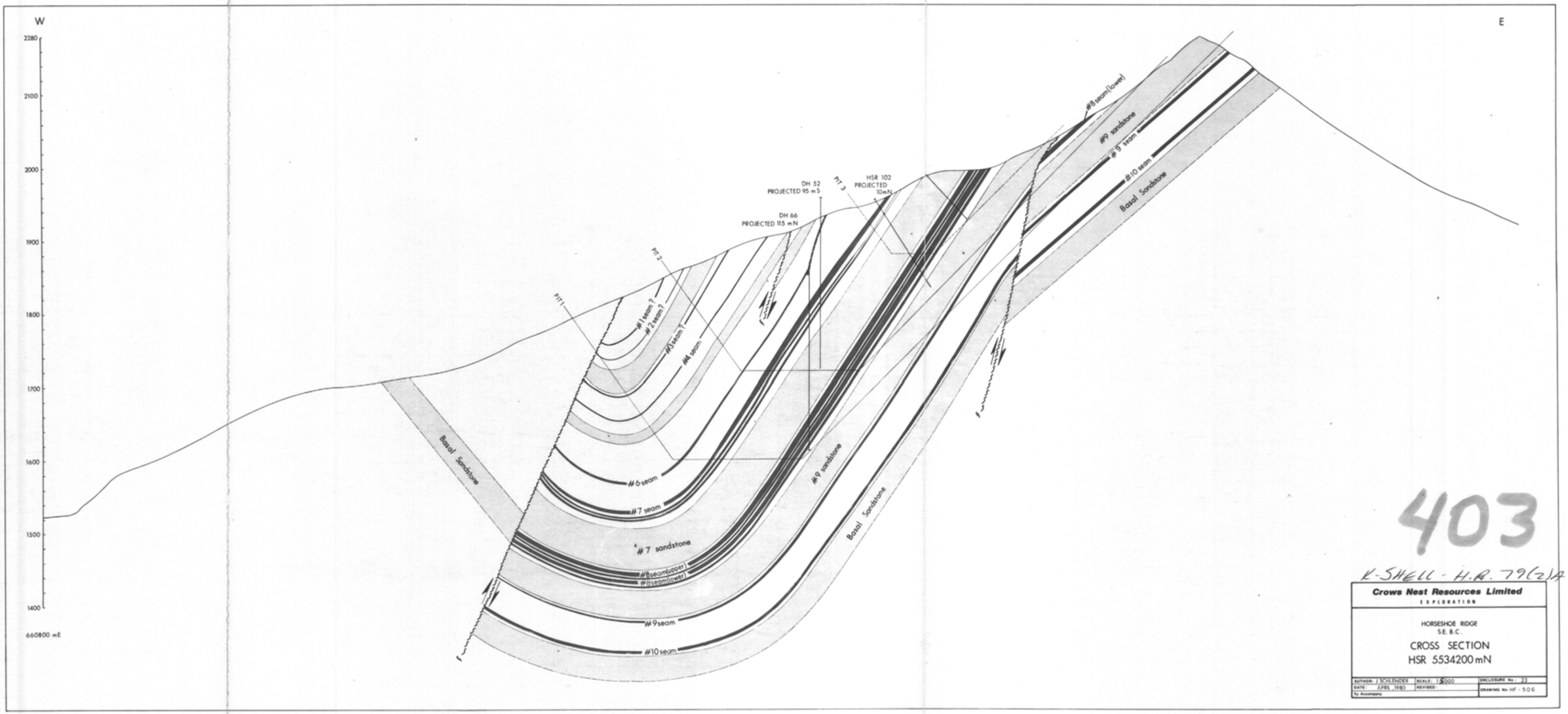
K-SHELL - H.R. 7917(2).

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E.B.C.

CROSS SECTION
HSR 5534000mN

AUTHOR: J.SCHLENDER	SCALE: 1:500	ENCLOSURE No.: 22
DATE: APR. 1980	REVISED:	DRAWING No: HF-50A
by Anonymous		



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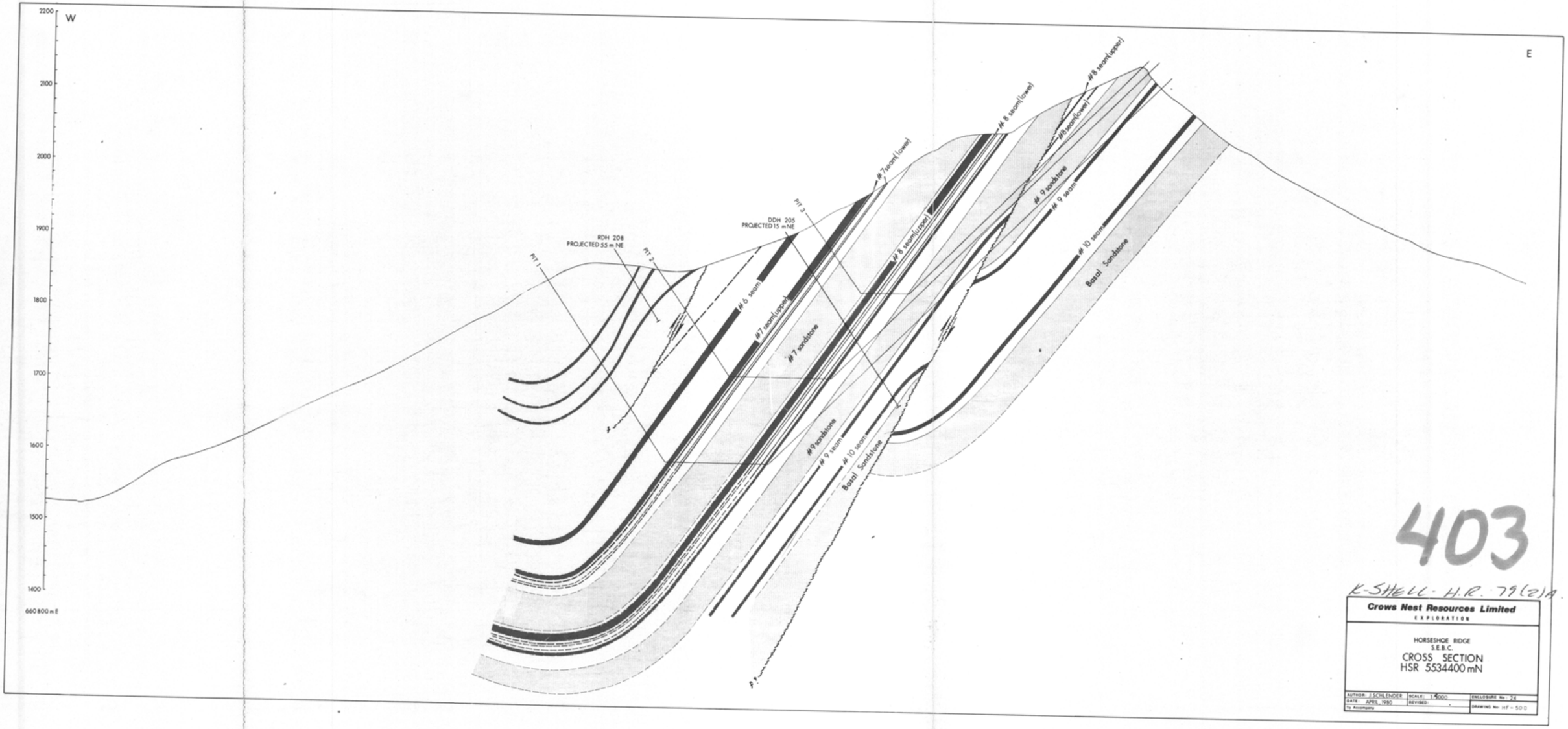
K-SHELL - H.R. 79(2)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5534200 mN

AUTHOR: J. SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 22
DATE: APRIL 1980	REVISED:	DRAWING No: HF - 506
To Accompany		



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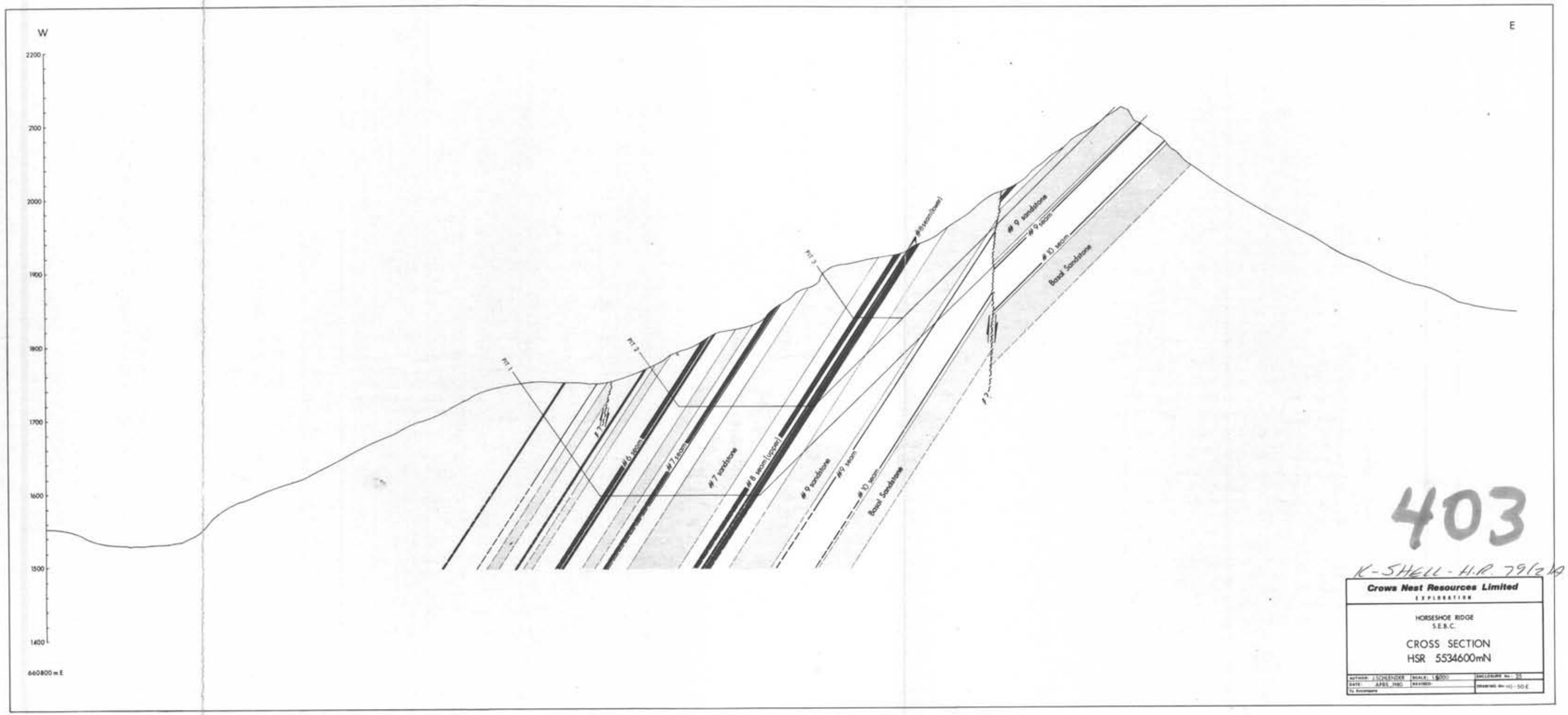
K-SHELL - H.R. 79(2)A.

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E.B.C.
CROSS SECTION
HSR 5534400 mN

AUTHOR: J. SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 24
DATE: APRIL, 1980	REVISED:	DRAWING No: HF-500
To Accompany		



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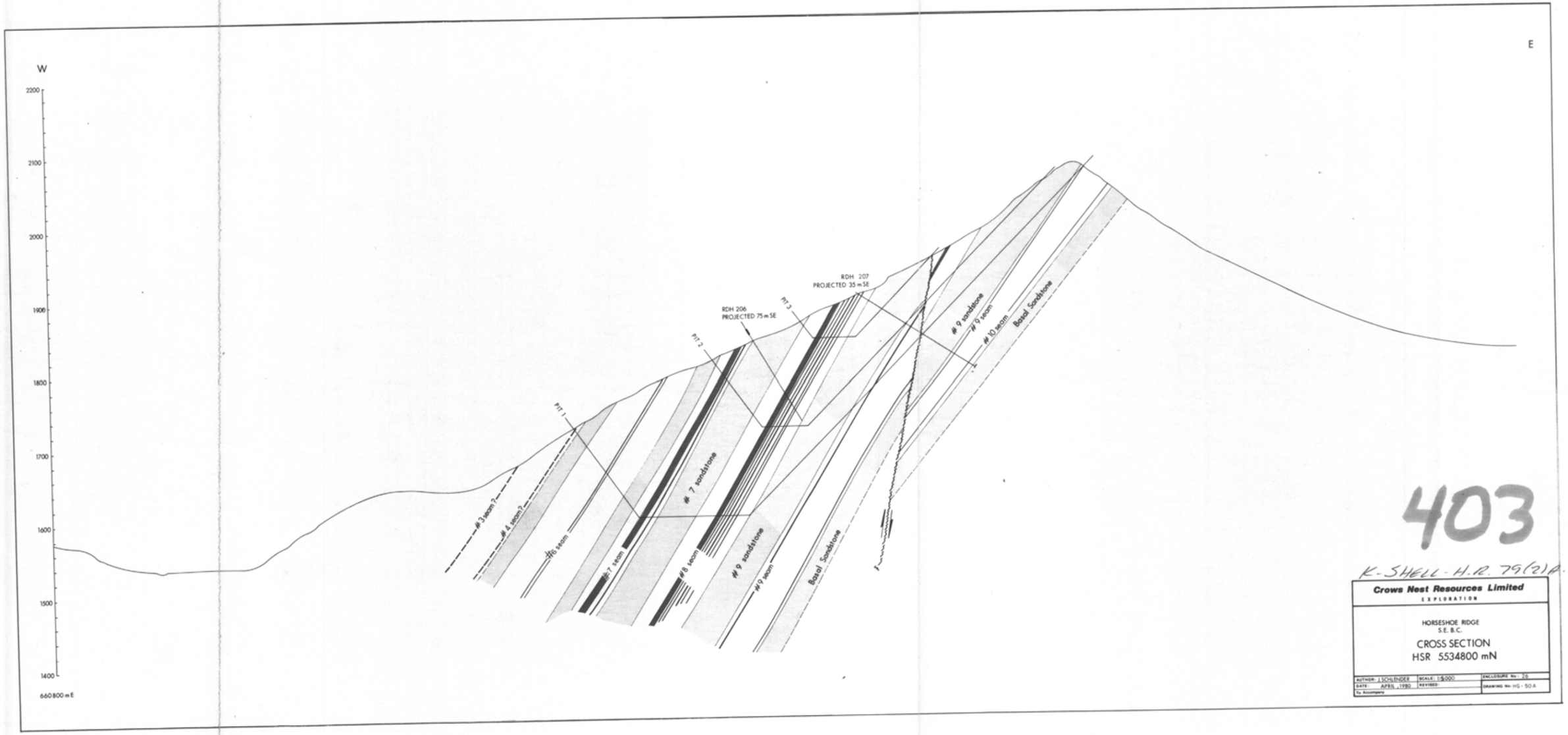
K-SHELL - H.R. 79/2/9.

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E.B.C.

CROSS SECTION
HSR 5534600mN

AUTHOR: J.SCHLENDER	SCALE: 1:500	ENCLOSURE No.: 25
DATE: APRIL 1980	REVISED:	DRAWING No.: 50-E
To Accompany		



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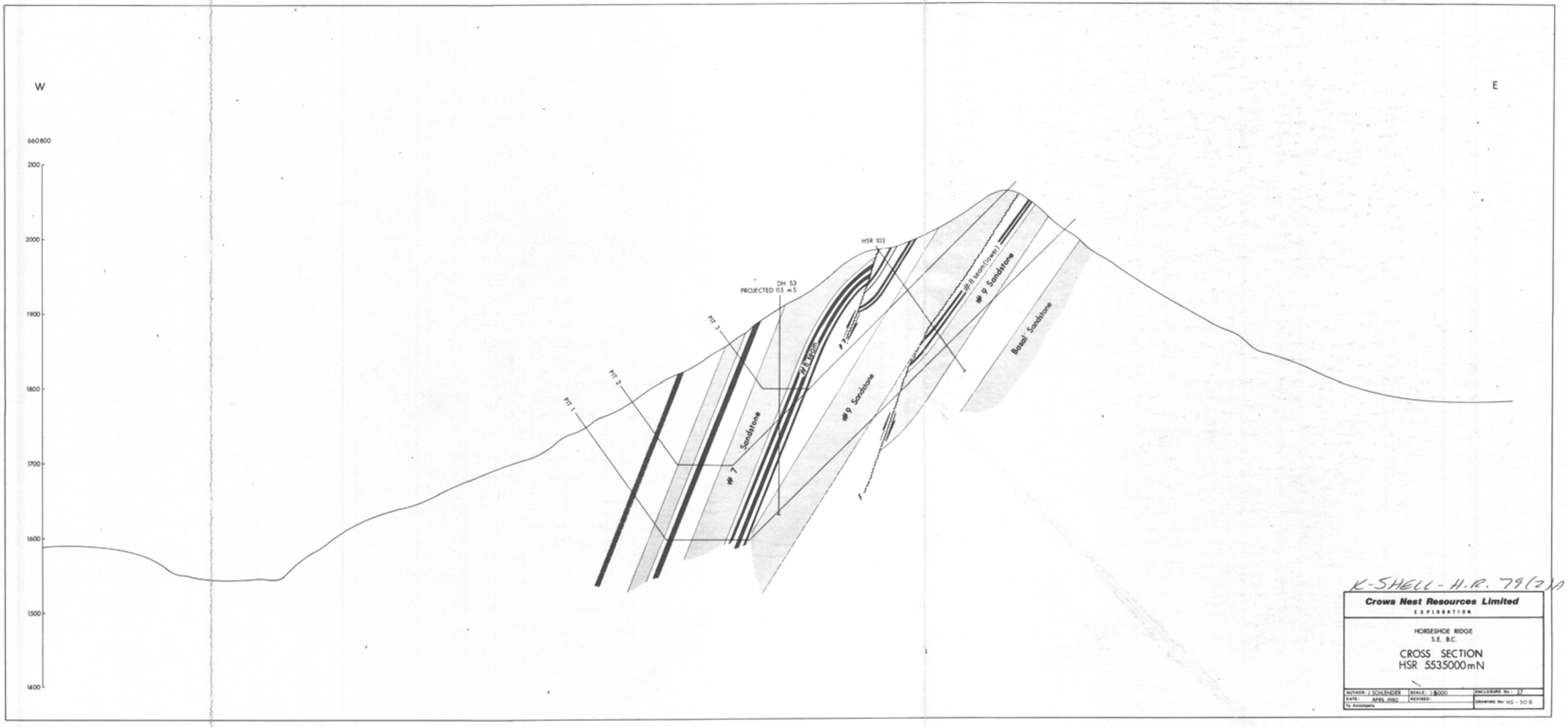
K-SHELL - H.R. 79(2)A.

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5534800 mN

AUTHOR: J. SCHLENDER	SCALE: 1:5000	ENCLOSURE No.: 20
DATE: APRIL, 1980	REVISED:	DRAWING No: HG - 50 A
To Accompany		



K-SHELL - H.R. 79(7)A

Crows Nest Resources Limited
EXPLORATION

HORSESHOE RIDGE
S.E. B.C.

CROSS SECTION
HSR 5535000mN

AUTHOR: J. SCHLENDER	SCALE: 1:1000	ENCLOSURE No.: 27
DATE: APRIL 1980	REVISED: -	DRAWING No: HG - 50 B
To Accompany		

INTER-OFFICE CORRESPONDENCE

Date DECEMBER 18, 1980

To CROWSNEST RESOURCES LIMITED (C.N.R.L.)

From SHELTECH CANADA

Subject LOCATION SURVEY
HORESHOE RIDGE - SPARWOOD AREA
S.E. BRITISH COLUMBIA 4951K

All work done in this area was done from control stations Sheep, 103 104, and 201.

Ten new drill holes as well as four old drillholes, numberous coal outcrops and trenches were surveyed in this area.

Conventional survey methods using a 10" theodolite and electronic distance measuring equipment were used to obtain coordinates and elevations of the survey points. Calculations were done in the U.T.M. system with distances and bearings converted to plane (reference meridian was 117°W) and results were reported to C.N.R.L. in both tabular and plan form.

The survey cost attributed to Horseshoe Ridge was approximately $17,750.

D Poulsom Sr. Surveyor.

Dave Poulsom

Enclosure

DPcw

Drill Holes

	N	E	Elev.
*101	5533017.85	661474.89	1715.96
*102	5534194.89	661941.86	1951.90
*103	5534997.32	661924.51	1988.55
*104	5534293.72	661856.17	1954.80

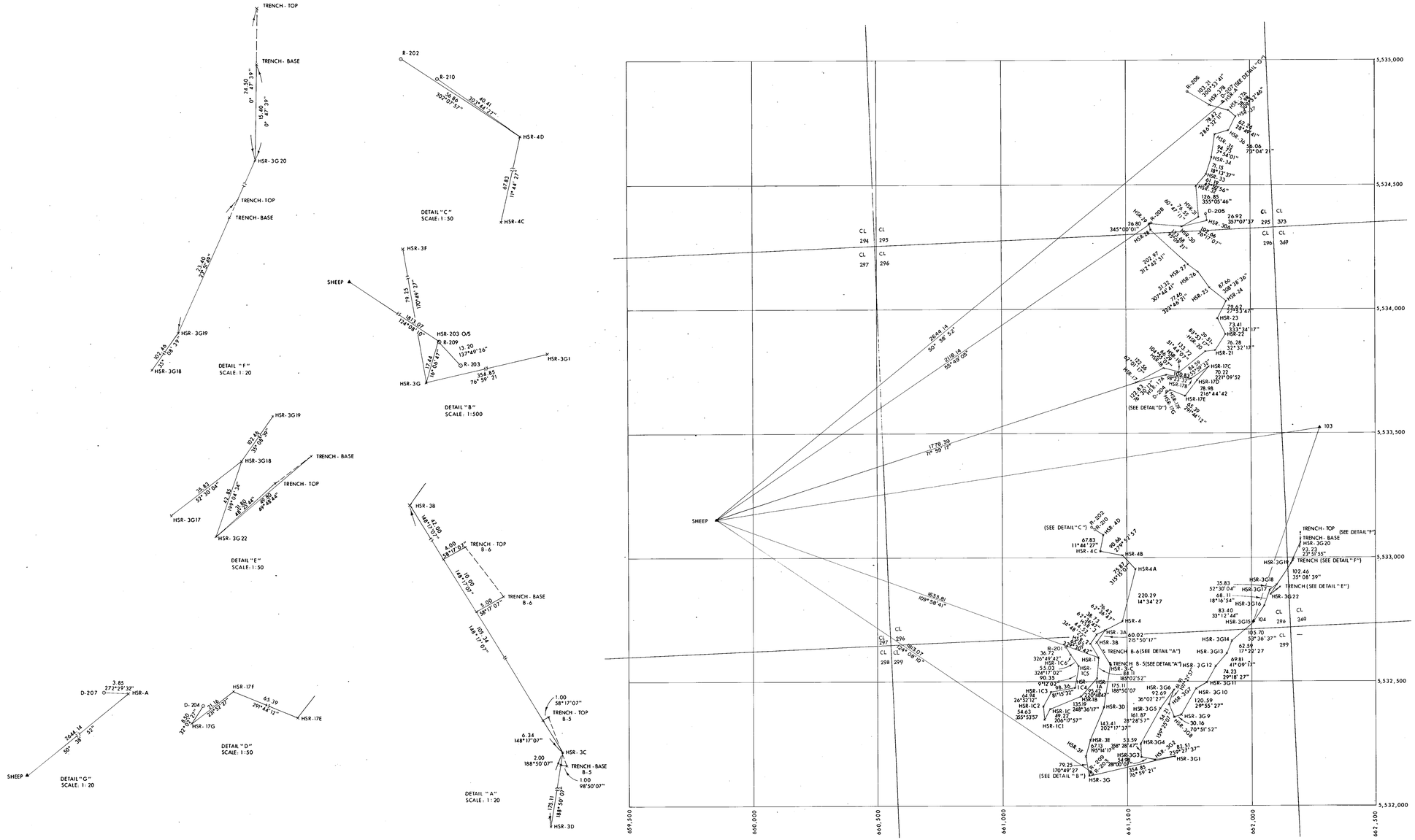
* old holes

Horseshoe Ridge

Control	N	E	Elev.
Sheep	5533155.43	659850.55	1923.36
103	5533523.85	662278.84	2157.46
104	5532740.96	662007.42	2020.58
201	5534874.88	659007.28	2180.80

Drill Holes

R201	5532639.75	661253.49	1664.13
R202	5533122.85	661358.32	1699.29
R203	5532128.23	661359.86	1794.06
D204	5533668.96	661664.92	1897.32
D205	5534384.79	661824.78	1922.46
R206	5534874.98	661749.29	1869.38
D207	5534832.21	661891.32	1904.61
R208	5534345.45	661602.80	1899.93
R209	5532811.33	661703.03	1838.52
R210	5533115.08	661373.16	1699.17



CONTROL	COORDINATES N	E	ELEVATIONS
Northwest	5,539,195.22	645,450.24	2415.5
103	5,533,523.80	662,278.84	2157.66
104	5,532,240.96	662,007.42	2020.80
SHEEP	5,533,155.43	659,850.55	1923.36

DRILL HOLES	COORDINATES N	E	ELEVATIONS
R 201	5,532,639.75	661,253.49	1664.13
R 202	5,533,122.85	661,358.32	1699.29
R 203	5,532,128.23	661,359.86	1794.06
D 204	5,533,068.90	661,664.92	1897.32
D 205	5,534,384.79	661,824.78	1922.46
R 206	5,534,878.98	661,749.29	1869.38
D 207	5,534,832.21	661,891.32	1904.61
R 208	5,534,345.45	661,602.80	1899.93
R 209	5,532,811.33	661,703.03	1838.52
R 210	5,533,115.08	661,373.16	1699.17

U.T.M. PROJECTION REFERRED TO 117° WEST LONGITUDE
DISTANCES ARE PLANE AND HAVE BEEN CORRECTED FOR SCALE AND SEA LEVEL FACTORS
ALL DISTANCES ARE IN METERS AND DECIMALS THEREOF
BEARINGS ARE GRID AND DERIVED FROM STATIONS 103 AND 104
ELEVATIONS ARE REFERRED TO MEAN SEA LEVEL
CONTROL STATIONS 103 AND 104 ARE TIED BY CONVENTIONAL AND DOPPLER SATELLITE SURVEY METHODS TO GEODETIC STATION NORTHWEST.

LEGEND:
DRILL HOLE ····· ⊙
NAIL ····· ×
CONTROL STATION · ▲
— — — — INDICATES TRENCH

NOTE
THE LOT BOUNDARIES HAVE BEEN TRANSFERRED GRAPHICALLY FROM FOREST COVER MAPS 3.5", R.G.D. THEREFORE THEIR POSITION IS APPROXIMATE ONLY.

E. SHELL U.R. '79 (2) A

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Crows Nest Resources Limited
EXPLORATION

DRILL HOLE AND TRENCH TRAVERSES
HORSESHOE RIDGE AREA
S.E. BRITISH COLUMBIA

N.T.S. 82 G 15 LONGITUDE 114°45' LATITUDE 49°56'

AUTHOR: — SCALE: 1:5000 — DRAWING No. Figure # 2
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Ta Ravenhurst

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K-SHELL - HORSESHOE R. '79(3)A

(BOOK 1 OF 4)

LITHOLOGY

APPEN. B, C, G, H & I

403

K-SHELL - HORSESHOE RIDGE 79(3)A
(BOOK 1 OF 4).

APPENDIX B

GEOLOGICAL BRANCH
ASSESSMENT REPORT

00 403

TRUE SEAM
THICKNESS (METRES)

DRILL HOLE #

SEAM	53	103	206	207	205	52	102	66	54	59	204	51	58	67	56	55	57	202	101	209	65	201	203	Avg.
6					5.41	3.47		4.32		3.71	6.18		2.52	3.36										4.14
7 Upper		6.90			7.40	4.68	4.08	4.12	1.26	3.63	4.88	5.39		4.37			7.52		Part 2.06					5.30
7 Lower			0.65		3.04	2.05	1.24	2.58	1.25	0.84	2.86	3.72	10.06	2.35			8.33		4.27					2.46
8 Upper	8.81		7.63		7.03		6.74	4.86	6.83		6.57	7.68		10.38	8.09	8.21	6.80	7.19	4.81		4.07	8.47		7.11
8 Lower	14.32	4.52	10.09	5.36	7.83		7.29	8.51	11.10		2.98	9.71		10.07	9.85	6.97	10.14	3.25	6.90		7.29	16.69		8.67
9					2.04						5.83											2.47	0.77	2.25
10					2.17														9.08	7.88		7.38	6.17	2.17* 7.62
Avg.	4.14	5.30	2.46	7.11	8.67																			

* NORTHERN THICKNESS

HORSESHOE RIDGE

Trench B - 1

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
0.50	Coal	with carbonaceous shale splits (30%)	
		shale; dark gray; carbonaceous at base	
1.00	Coal	mainly bright; clean	
0.15	Shale	prominent iron staining; crumbly; numerous coal bands $\leq$ 5 mm	
0.25	Coal	mainly bright	
1.00	Shale	dark gray; blocky; weathered orange-yellow	
			N040°E/50°W

HORSESHOE RIDGE

Trench B - 1A

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
+1.00	Shale	carbonaceous in places; with coal (15%)	
0.50	Coal/Shale	40%	
1.65	Coal	bog iron shale seen to pinch out at base	
0.50	Shale	covered at base	
			N040°E/50°W

HORSESHOE RIDGE

Trench B - 2

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
2.00	Sandstone	covered; medium; massive	
7.00	Siltstone	with very fine sandstone	
3.50	Sandstone	fine with some interbedded, very fine sandstone near top	N020°E/50°W
6.20	Siltstone	medium gray; blocky; grading to very fine sandstone	N027°E/60°W
0.30	Shale	slightly carbonaceous; silting upwards	
0.15	Coal		
0.05	Shale	carbonaceous	
0.17	Coal	clean	
0.75	Shale	dark gray; fissile	N045°E/55°W
0.20	Shale	carbonaceous with coal bands < 5 mm	
0.50	Coal	clean	
0.07	Shale	carbonaceous	
1.00	Coal	clean	
0.35	Coal	carbonaceous shale interbeds	
0.30	Shale	carbonaceous with some coal; hard	
0.40	Coal	clean	
0.20	Shale	carbonaceous with 4 cm coal in middle; hard	
4.50	Coal	clean seam with few shale splits	
0.10	Shale	carbonaceous	
0.25	Coal	somewhat shaly	
0.60	Shale	dark gray; coaly and carbonaceous band throughout	
1.00	Shale	silty; dark gray; blocky	N05°E/60°W

HORSESHOE RIDGE

Trench B - 3

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
+3.00	Sandstone	fine to very fine	
1.00	Shale	dark gray; carbonaceous at base; silty at top	
0.35	Shale	carbonaceous and coaly; small scale deformations	
1.10	Coal		
0.45	Shale	carbonaceous	
0.30	Coal		
0.20	Shale	carbonaceous	
1.00	Coal	clean	
1.90	Coal		
3.00	Coal	clean; here the coal shows various attitudes; mainly vertical; highly sheared	
6.00	Coal	clean; this coal maintains a constant attitude	N020°E
0.80	Shale	carbonaceous with interbedded coal (20%)	
0.10	Shale	dark gray; some carbonaceous coal	
0.10	Coal		
0.08	Shale	carbonaceous	
0.05	Coal		
0.50	Shale	numerous wood casts	
			N020°E/60°W

HORSESHOE RIDGE

Trench B - 4

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
†1.00	Shale	medium gray; silting upwards	
0.25	Shale	carbonaceous	
0.45	Coal	numerous shaly bands	
0.30	Shale	dark gray; hard; carbonaceous bands	
0.45	Coal		
0.15	Coal	shaly	
Base	Shale	carbonaceous bands; dark gray; hard	

HORSESHOE RIDGE

Trench B - 5

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
0.60	Sandstone	medium; massive	
0.30	Sandstone	fine to medium; broken; partially carbonaceous	
0.70	Coal		
0.40	Shale	carbonaceous; probably sheared	N030°E/45°W
5.30	Coal		

HORSESHOE RIDGE

Trench B - 6

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
7.00	Siltstone	with sandstone; partially covered; small interbedded shale beds	N022°E/57°W
0.20	Shale	dark gray; blocky	
0.20	Shale	dark gray; carbonaceous	
0.35	Coal	shaly	
0.30	Shale	dark gray; hard; blocky	
0.35	Shale	carbonaceous; some coal lamina; medium hard to soft	
0.30	Shale	with coal interbeds; carbonaceous; soft	
0.20	Coal	with some carbonaceous shale bands	
0.15	Shale	carbonaceous; soft; coaly	
0.45	Coal		
0.04	Shale	dark gray; blocky	
0.50	Coal	with some carbonaceous shale bands near base (< 1 cm)	
0.38	Shale	dark gray; hard; with carbonaceous coal lamina	N025°E/58°W
1.60	Coal	with small shale bands	
0.10	Shale	carbonaceous; coaly	
3.00	Coal	with several blocky shale bands (< 2cm)	
0.13	Shale	dark gray; blocky; carbonaceous at base and top	
0.12	Coal		
0.30	Shale	dark gray with carbonaceous shale and coal lamina	
0.60	Shale	dark gray with some siltstone interbeds; and carbonaceous lamina fining upwards	
0.70	Sandstone	very fine; some siltstone interbeds and carbonaceous lamina	

HORSESHOE RIDGE

Section B - 9

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
	Sandstone		
0.95	Shale	carbonaceous; with coal stringers	
2.50	Coal		
0.15	Shale	carbonaceous	
0.15	Coal		
2.60	Shale	carbonaceous	
0.40	Shale	dark gray	
5.40	Siltstone	medium gray; weathered yellow	N347°/81°W

HORSESHOE RIDGE

Trench B - 7

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
5.00	Sandstone	very fine to fine with carbonaceous partings; sheet like weathering at base	N025°E/50°W
0.10	Shale	carbonaceous	
0.15	Coal	highly weathered; appears shaly	
0.80	Coal	clean	
0.40	Shale	carbonaceous with minor coal bands	
5.10	Coal	bog iron at roughly 2 m from base (.15); mainly clean with several small shale bands near top (< 5 cm)	
0.25	Shale	carbonaceous with coal	
0.10	Coal		
1.90	Shale	partially carbonaceous with several small coal bands	
0.45	Shale	carbonaceous; flakey	N031°E/47°W
1.50	Coal	clean	
0.45	Shale	dark gray; hard; partially carbonaceous; top highly carbonaceous; flakey	N028°E/50°W
0.15	Shale	carbonaceous; broken	
0.30	Coal	highly weathered; appears somewhat shaly	
0.25	Shale	dark gray; silty at base; partially carbonaceous at top	
2.00	Sandstone	fine to very fine; blocky; light to medium gray; silty at top	N030°E/45°W

HORSESHOE RIDGE

Trench B - 8

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
2.00	Covered	fine Sandstone suboutcrop; coal bloom at top	
5.00	Sandstone	very fine and siltstone interbeds	N005°E/55°W
4.00	Sandstone	fine	N012°E/57°W
12.50	Siltstone	and shale interbedded; mainly siltstone	
1.00	Shale	silty	
0.75	Siltstone	with very fine sandstone	
3.40	Shale	slightly silty; undulating dip; type of disturbance uncertain	
4.00	Shale	dark gray; bottom partially carbonaceous; minor small coal bands	
2.50	Coal	with several small shale splits (< 5cm)	
0.10	Shale	carbonaceous	
3.00	Coal	clean	
Base	Shale	dark gray; slightly silty	N020°E/52°W

HORSESHOE RIDGE

Trench B - 10

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
+1.00	Siltstone		
3.00	Shale	dark gray interbedded with coal; and carbonaceous shale	
0.80	Coal		
2.00	Shale	dark gray interbedded with coal and carbonaceous shale	
0.30	Shale	carbonaceous	
1.50	Coal		
0.06	Shale	carbonaceous	
0.40	Coal		
0.20	Shale	dark gray	
0.15	Coal		
0.60	Shale	dark gray; slightly silty; hard	
0.10	Coal		
0.20	Shale	carboanceous	
0.40	Coal		
			N010°W/62°W

HORSESHOE RIDGE

Trench B - 11

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
1.50	Siltstone	with large nodules of very fine sandstone and siltstone	
2.80	Shale	silting upwards; very silty at top	
1.10	Coal	with carbonaceous shale (30%)	
0.30	Shale	mostly carbonaceous; yellow bands; weathered at top	
0.50	Coal	shaly at top	
1.00	Covered		
0.50	Coal		
0.20	Shale	carbonaceous and coaly	
4.90	Coal	high iron shale pod at 1.0 m; several small blocky shale splits; highly sheared	
1.60	Shale	carbonaceous with coal bands; extremely sheared; becoming blocky; hard towards top	
0.70	Coal	with several shale splits	

HORSESHOE RIDGE

Trench B - 12

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
4.00	Shale	dark gray; hard; blocky; several carbonaceous bands and two small coal bands	
3.20	Coal	sheared; clean	
0.40	Siltstone	with some minor coal stringers	
0.35	Shale	carbonaceous and fissile	
0.65	Siltstone	medium gray	
0.40	Shale	dark gray; silty upwards	
0.20	Shale	black; yellow weathering	
0.10	Coal		
0.25	Shale	black; yellow weathering	

HORSESHOE RIDGE

Trench B - 13

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
2.00	Shale	dark gray; silty upwards	
3.00	Coal	suboutcrop	
3.00	Siltstone	with very fine sandstone lamina	
7.00	Sandstone	fine to very fine; thinly bedded; small fault at base	

HORSESHOE RIDGE

Trench B - 14

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
5.00	Sandstone	fine to medium; massive	N001°W/72°W
0.45	Siltstone	dark gray	
0.90	Shale	dark gray; fissile; slightly silty; several coal lamina	
7.00	Coal	.05 shale at .5 from base; several others throughout	
1.55	Siltstone	sandy near base; several small coal lamina < 5 cm in top half	
0.50	Sandstone	very fine; fining upwards	
0.80	Shale	medium gray; top half silty and highly weathered; small coal stringers at top	
0.80	coal	bog iron in bottom half	
2.00	Shale	dark gray; with carbonaceous and coaly bands; small coal interbeds (< 10 cm)	
0.50	Coal	two small shale splits	
3.50	Sandstone	very fine; blocky; medium gray	N005°W/74°W

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Trench B - 15

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
1.50	Sandstone	very fine with siltstone interbeds; fine lamina; brown	
2.00	Siltstone	brown with very large nodules (40 cm)	
2.50	Shale	dark gray	
0.30	Shale	carbonaceous and coaly	
0.55	Coal	and shaly coal	
0.45	Shale	carbonaceous and coaly lamina; fissile	
0.50	Coal		
0.05	Shale	blocky	
2.10	Coal	several small shale splits	
0.05	Shale	high iron lense	
0.75	Coal		N017°E/45°W
0.95	Shale	dark gray; blocky	
0.50	Coal	very hard	

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Section B - 16

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
7.00	Shale	with coal bloom; suboutcrop and covered	
5.00	Shale	dark gray; suboutcrop	
2.00	Shale	dark gray; blocky	N015°E/57°W
2.00	Coal		
0.60	Shale	dark gray; blocky	
1.00	Coal	.1 carbonaceous shale split near top	
1.00	Shale	dark gray; carbonaceous at base	N025°E/55°W
0.70	Coal	and shale suboutcrop	
0.50	Shale	carbonaceous	
8.00	Siltstone/Shale	gray and brown	
0.30	Sandstone	very fine	
2.00	Shale	brown silting upwards	N015°E/70°W
0.10	Coal		
0.50	Shale	dark gray; fissile	
0.20	Coal	sheared	
0.40	Shale	carbonaceous; fissile	
Base	Coal		

Section B - 17

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
1.85	Coal	shaley; 2 thin iron stained shale partings; oolitic coal	
0.20	Shale	carbonaceous	
0.85	Coal	badly weathered	
5.40	Shale	silty; plant fragments throughout; coaly at top; fissile	
0.58	Coal	shaly	
2.80	Covers	Appears to be Shale as above	
0.30	Shale	As above; slightly coaly	
0.62	Coal	shaly; badly weathered; some inter-bedded coaly shale	
4.15	Shale	silty; plant fragments throughout; coaly at top; fissile	15°/45°W
0.41	Siltstone	very fine grain sandstone; massive; medium gray	
0.71	Shale	silty; plant debris throughout	
0.33	Sandstone	lens	
0.94	Shale		
0.10	Shale	coaly; fissile	000°/41°W
2.00	Sandstone	fine grain; finely laminate shale; splits near base; dark gray; some iron weathering	
4.50	Cover	broken rubble; slightly sheared	
1.00	Sandstone	fine grian with siltstone interbeds; concretion lenses throughout	
0.29	Shale	black; carbonaceous; coaly wisps; very fissile	
0.30	Sandstone	fine grain; finely laminated; small scale cross-bedding	
0.43	Shale	dark gray; slightly silty; fissile	
0.62	Sandstone	massive; fine grian; dark gray; weathering orange	

Section B - 17

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
1.00	Shale	black; grading to siltstone at top; trace carbonaceous material throughout	
0.60	Sandstone	fine grain; massive; trace carbonaceous material	
0.92	Sandstone	fine grain; massive; dark gray to black with some silty interbeds; with concretion band near top	
1.29	Sandstone	fine; finely lamianted; light and dark gray; small scale cross-bedding; weathers orangy-red	175°/45°W
0.70	Sandstone	interbedded with shale; fine grain; generally massive; shale shows fissility	
0.38	Siltstone	dark gray	
0.35	Shale	weathered orange; with contretion	
0.90	Shale	silty; dark gray	

HORSESHOE RIDGE

Section B - 18

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
3.30	Sandstone	with minor roll; heavy iron and pyrite stains; "fault?"	N166°/68°W
3.00	Shale	silty at top; medium to dark gray; heavy iron stains	
0.46	Coal	dull; shaly; sheared	
1.01	Shale	black; slightly carbonaceous	176°/71°W
0.10	Coal		
1.00	Shale	black; carbonaceous; generally massive	
5.00	Coal	sheared at base	
1.00	Shale	fissile; abundant carbonaceous material ; abrupt contact with coal above	005°/62°W
0.44	Sandstone	fine grained; finely laminated; light to dark gray; small scale cross-bedding; weathers orange-red	
0.05	Siltstone	concretion band; orange-yellow weathering	
1.00	Sandstone	fine grained; finely laminated; light to dark gray; small scale cross-bedding; weathers orange-red; some fissility	
0.25	Shale	black; carbonaceous; weathers orange-yellow	
0.12	Coal		
0.20	Shale	black; carbonaceous; weathers orange-yellow	

HORSESHOE RIDGE

Section B - 19

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
0.41	Shale	dark gray to black; weathered orange-red	
0.10	Coal		
0.05	Shale	dark gray to black; weathered orange-red	
0.07	Coal		
0.33	Shale	dark gray to black; weathered orange-red; showing some slickensides	
7.20	Coal	powdery	
2.29	Cover	could not dig with backhoe	
1.42	Sandstone	fine grain; badly weathered	
0.15	Shale	fissile; dark gray	
3.51	Sandstone	fine grain; badly weathered	003°/61°W
0.13	Shale	silty in part; fissile; dark gray to black; iron stains	
0.10	Coal		
0.13	Shale	carbonaceous; coaly wisps throughout	
0.17	Coal		
0.10	Shale	badly weathered	
0.94	Coal	impregnated with mud or soil from above	
0.25	Shale		
0.05	Coal		
0.23	Shale		
0.43	Sandstone	fine grain; cross-bedded; weathered rust appears finely laminated; some carbonaceous material	
0.64	Cover		
0.23	Sandstone	finely laminated; abundant carbonaceous material; rust weathered	

HORSESHOE RIDGE

Section B - 19 con't

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
0.43	Shale	black; carbonaceous; some rust weathered	
1.30	Cover	appears to be sandstone or siltstone	
2.00	Shale	silty; light gray; fissile; tree plant fragments	
1.27	Shale	black; carbonaceous	
0.94	Shale	light gray; trace of plant fragments; fissile; some rust weathered	
0.13	Coal	badly weathered	
1.09	Shale	black; generally massive, carbonaceous	012°/86°W
0.61	Cover		
2.64	Sandstone	generally massive; carbonaceous material throughout; fine grain appears to be small scale cross-bedding	001°/55°W
0.71	Coal	powder	
0.20	Coal	shaly	
1.42	Coal		
0.38	Coal	shaly	
0.36	Shale	coaly appears to be sandstone/siltstone	

HORSESHOE RIDGE

Section B - 20

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
	Sandstone	massive; fine grain; medium brown	000°/70°W
15.00	Coal		N43°W
0.10	Shale	dark gray	
0.40	Coal	soft	
0.50	Shale	dark gray; interbedded carbonaceous shale	
0.20	Shale/Coal	carbonaceous; interbedded	
1.00	Shale	dark gray; blocky	
0.90	Coal	clean	
0.15	Shale	carbonaceous	
1.20	Shale	dark gray; blocky	
1.00	Shale	dark gray; interbedded carbonaceous shale	
0.40	Coal/Shale	carbonaceous; interbedded	
0.35	Coal	clean	
4.40	Shale	blocky; silty in part	
0.20	Coal	shaly	
0.85	Shale	dark gray; blocky	
0.40	Shale/Coal		
0.40	Coal	clean	
0.40	Shale	dark gray; blocky; carbonaceous at base	
0.60	Coal	clean	
0.20	Shale	dark gray; blocky	
0.40	Shale	carbonaceous	
3.00	Shale	blocky with carbonaceous shale interbedded	
0.25	Shale	carbonaceous	

HORSESHOE RIDGE

Section B - 20 con't

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
0.30	Coal	shaly	
2.40	Coal	clean	
1.40	Shale	dark gray; carbonaceous shale; with coal stringers	
0.30	Coal	clean	
0.15	Shale	carbonaceous	
2.20	Coal	clean	
2.50	Shale	dark gray; sheared; carbonaceous shale and coal stringers	
1.50	Coal	clean	
0.90	Coal	shaly	
0.15	Shale	carbonaceous; minor coal stringers	
0.50	Shale	dark gray with carbonaceous lamina	175°/65°W

HORSESHOE RIDGE

Section B - 21

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
3.50	Shale	Carbonaceous, minor coaly stringers, minor silty stringers	170°/66°W
4.40	Coal	shaly in places	
4.60	Shale	silty at top, carbonaceous, minor coal stringers	176°/70°W
2.20	Siltstone	shaly	
4.60	Coal	clean; minor shale partings at top	
5.00	Shale	highly broken	
4.20	Coal	shale splits at top; rolled; disturbed	179°/70°W
1.70	Siltstone	carbonaceous and shaly; horizontal lamina becoming shaly at base; lots of plant debris; few slickensides	

HORSESHOE RIDGE

Section B - 26

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
2.30	Sandstone	medium grain; generally massive; few coal partings	177°/63°W
0.30	Coal	dirty	
1.40	Siltstone	dark gray	
0.50	Coal		
0.20	Shale		
0.60	Coal		
2.10	Sandstone	fine grain; massive	
0.15	Coal	shaly	
1.00	Sandstone	fine grain; massive	
0.25	Shale	carbonaceous	
0.20	Coal		
0.25	Shale		
1.40	Sandstone	fine grain; generally massive with concretion bands at base	
1.60	Shale	blocky; slightly silty	
2.00	Cover		
19.10	Sandstone	coarse grain; large scale cross-bedding; minor rolls throughout	160°/61°W

HORSESHOE RIDGE

Section B - 27

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
5.60	Cover	.5 sandstone concretion	147°/29°E
0.70	Shale	black; carbonaceous	
16.00	Cover		
0.60	Sandstone	fine grain; finely laminated	
1.50	Cover	appears to be shale	
1.20	Shale	blocky	
1.90	Shale	fissile	
1.50	Shale	weathered orange- blocky	
0.15	Shale	coaly	
0.10	Coal		
0.10	Shale	carbonaceous	
			008°/68°E

HORSESHOE RIDGE

Section B - 28

Th (m)	MAIN	LITHOLOGY	STRIKE/DIP
0.80	Sandstone	fine grain; massive	048°/16°W
0.50	Coal		
0.90	Shale	carbonaceous	
0.40	Coal	dirty	
0.40	Shale		
1.30	Coal	dirty	
0.60	Shale	carbonaceous	
3.40	Coal	sheared	
0.20	Siltstone		
0.40	Shale	numerous coal partings	
1.30	Sandstone	fine grain; broken	
0.30	Shale	broken; carbonaceous	
0.50	Coal		
4.00	Sandstone	medium grain; massive; slickensides minor rolls at top; "faulted"	008°/34°W
3.60	Coal	sheared	
14.00	Cover	measured along road	
2.80	Coal	measured along road	
1.00	Cover	measured along road	

HORSESHOE RIDGE
1979 PROGRAM

DRILL HOLE SUMMARY

HOLE No. HSR-R-201

LOCATION 5532639.75 N 661253.49 E

ELEVATION 1664.13 m

DRILL DATE Sept./79

HOLE DIRECTION Vertical

OUTCROP ATTITUDE 115°/10° E

WATER LEVEL Ground Level

LOGS RUN Gamma Ray; Density (LSD & BRD), Neutron, Resistivity

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	14.20	16.40	2.20	2.17				
Upper	17.50	18.60	1.10	1.08				
	22.60	27.90	5.30	5.22				
	55.05	55.95	0.90	0.89				
	57.30	68.40	11.10	10.93				
Lower	69.40	72.00	2.60	2.56				
	76.65	79.00	2.35	2.31				
	218.50	219.40	0.90	0.89				
	219.90	220.60	0.70	0.69				
	223.20	224.10	0.90	0.89				
	263.60	266.00	2.40	2.36				
	267.00	267.90	0.90	0.89				
0	269.00	270.40	1.40	1.38				
	271.60	272.00	0.40	0.39				
	272.80	274.10	1.30	1.28				
	276.40	277.50	1.10	1.08				

Note: Specific Gravity for Coal Analysis is 1.50

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR--R 202

LOCATION 5533122.85 N 661358.32 E

ELEVATION 1699.29 m

DRILL DATE Sept./79

HOLE DIRECTION Vertical

OUTCROP ATTITUDE 160°/70° E

WATER LEVEL 13.70 m

LOGS RUN Gamma; Density (LSD, BRD), Neutron, Resistivity, Caliper, Verticality

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	44.90	46.00	1.10	0.38				
	46.70	47.40	0.70	0.24				
	48.20	49.85	1.65	0.56				
B Upper	50.50	51.30	0.80	0.27				
	51.80	60.85	9.05	3.10				
	62.00	62.60	0.60	0.21				
	63.50	70.60	7.10	2.43				
	96.20	97.20	1.00	0.34				
	97.80	98.45	0.65	0.22				
B Lower	104.65	108.05	3.40	1.16				
	116.60	117.00	0.40	0.14				
	117.15	121.20	4.05	1.39				
	206.10	207.10	1.00	0.34				
	207.60	208.40	0.80	2.74				

Note: Specific Gravity for Coal Analysis is 1.50

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-R 203

LOCATION 5532128.23 N 661359.86 E

ELEVATION 1794.06 m

DRILL DATE Sept./79

HOLE DIRECTION Vertical

OUTCROP ATTITUDE 065°/25° W

WATER LEVEL

LOGS RUN Gamma, Density (LSD & BRD), Neutron

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
9	16.25	16.70	0.45	0.41				
	17.05	17.45	0.40	0.36				
	66.85	69.20	2.35	2.13				
	75.00	75.60	0.60	0.54				
	77.05	77.35	0.30	0.27				
10	78.50	79.05	0.55	0.50				
	80.30	81.30	1.00	0.91				
	85.10	86.10	1.00	0.91				
	91.30	92.30	1.00	0.91				

Note: Specific Gravity for Coal Analysis is 1.50

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-D 204

LOCATION 5533668.96 N 661664.92 E

ELEVATION 1897.32 m

DRILL DATE July/79

HOLE DIRECTION 110°/60° E

OUTCROP ATTITUDE 016°/55° W

WATER LEVEL

LOGS RUN Gamma, Density (LSD & BRD)

EAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	30.60	31.20	0.60	0.05	1.09	26.38	5.95	1.0
	31.80	34.50	1.70	0.15	1.74	26.38	4.16	0.5
Upper	57.40	59.10	1.70	0.97	1.04	26.19	4.86	1.5
	61.10	62.10	1.00	0.86				
Lower	62.80	63.40	0.60	0.52	1.01	25.10	6.54	0.0
	64.40	65.20	0.80	0.69				
	72.80	74.60	1.80	1.69	1.07	26.18	4.50	1.50
	75.40	76.20	0.80	0.75	0.56	27.51	6.11	8.0
	79.90	80.40	0.50	0.47				
	98.90	99.40	0.50	0.47				
Upper	99.60	102.40	2.80	2.63	0.51	25.69	6.05	8.0
	103.00	104.00	1.00	0.94				
	107.20	108.20	1.00	0.97				
	108.70	109.10	0.40	0.39				
Lower	109.60	110.00	0.40	0.39	0.89	25.08	6.62	1.5
	110.30	110.70	0.40	0.39				
	149.30	153.80	4.50	4.22				
Upper	154.50	155.20	0.70	0.66	0.56	26.44	6.12	8.0
	162.30	162.90	9.60	0.56				
	163.50	164.30	0.80	0.75	0.47	24.51	7.73	7.5
Lower	172.30	173.90	1.60	1.55	0.25	22.43	10.52	5.5

Note: Specific Gravity for Coal Analysis is 1.5

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-D 204

LOCATION

ELEVATION

DRILL DATE

HOLE DIRECTION

OUTCROP ATTITUDE

WATER LEVEL

LOGS RUN

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	243.90	249.60	5.70	5.51				
8 Upper	250.30	251.40	1.10	1.06	0.76	21.84	6.45	4.0
8 Lower	259.90	260.90	1.00	0.87	0.95	20.63	5.79	1.5
	261.60	268.40	6.80	5.89	0.72	21.15	8.12	3.5
	271.70	272.70	1.00	0.87				
	273.10	273.50	0.40	0.35	0.59	22.72	8.02	7.5
	386.70	387.10	0.40	0.38				
	387.60	389.70	2.10	1.97	0.58	21.48	6.26	5.5
9	390.40	391.90	1.50	1.41				
	392.80	393.80	1.00	0.94				
	394.40	395.60	1.20	1.13	0.65	21.31	8.49	5.5
	411.20	413.30	2.10	2.09	0.52	23.73	8.57	7.5
10	420.40	420.80	0.40	0.40				
	433.80	?			0.85	22.02	9.70	7.0

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE
1979 PROGRAM

DRILL HOLE SUMMARY

HOLE No. HSR-D 205

LOCATION 5534384.79 N 661824.78 E

ELEVATION 1922.46 m

DRILL DATE August/79

HOLE DIRECTION 080°/55° E

OUTCROP ATTITUDE 170°/45° W

WATER LEVEL

LOGS RUN Gamma, Density (LSD & BRD), Neutron, Caliper, Verticality

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	10.40	13.90	3.50	3.38				
6 Upper	14.10	14.90	0.80	0.77				
6 Lower	15.00	16.30	1.30	1.26				
	57.70	58.25	0.55	0.48				
7 Upper	58.50	66.50	8.00	6.92				
	69.24	70.50	1.26	1.09				
7 Lower	75.30	76.25	0.95	0.82				
	78.60	79.90	1.30	1.13				
	152.05	152.60	0.55	0.50				
	152.80	154.20	1.40	1.27				
	154.50	155.15	0.65	0.59				
	155.20	156.15	0.95	0.86				
	156.25	156.80	0.55	0.50				
8 Upper	156.95	157.15	0.20	0.18				
	157.35	159.30	1.95	1.77				
	159.45	160.40	0.95	0.86				
	160.55	160.80	0.25	0.23				
	160.90	161.20	0.30	0.27				

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-D 205

LOCATION

ELEVATION

DRILL DATE

HOLE DIRECTION

OUTCROP ATTITUDE

WATER LEVEL

LOGS RUN

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	165.10	166.30	1.20	1.09				
	168.40	168.95	0.55	0.50				
	169.30	169.65	0.35	0.32				
	169.80	170.30	0.50	0.45				
8 Lower	171.45	171.80	0.35	0.32				
	171.95	172.10	0.15	0.14				
	172.25	174.00	1.75	1.59				
	174.20	175.90	1.70	1.54				
	178.75	179.05	0.30	0.28				
	179.20	179.90	0.70	0.66				
	180.20	181.20	1.00	0.94				
9	245.80	247.00	1.20	1.04				
	247.45	248.60	1.15	1.00				
10	272.00	273.90	1.90	1.65				
	274.10	274.70	0.60	0.52				

HORSESHOE RIDGE
1979 PROGRAM

DRILL HOLE SUMMARY

HOLE No. HSR-R 206

LOCATION 5534874.98 N 661749.29 E

ELEVATION 1869.38 m

DRILL DATE Sept./79

HOLE DIRECTION 080°/60° E

OUTCROP ATTITUDE 170°/70° W

WATER LEVEL 22 m

LOGS RUN Gamma, Density (LSD & BRD), Neutron, Caliper, Resistivity, Verticality

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	14.10	14.50	0.40	0.35				
	14.60	16.35	1.75	1.52				
	16.50	17.25	0.75	0.65				
	17.50	21.85	4.35	3.77				
7 Upper	22.00	22.25	0.25	0.22				
	22.45	22.55	0.10	0.09				
	22.65	23.35	0.30	0.26				
	23.45	23.50	0.05	0.04				
	25.25	25.35	0.10	0.09				
7 Lower	27.55	26.10	0.55	0.48				
	109.20	109.35	0.15	0.13				
	109.55	111.65	2.10	1.82				
	111.80	112.60	0.80	0.69				
	112.80	113.35	0.55	0.48				
	113.60	114.95	1.35	1.17				
8 Upper	115.10	115.70	0.60	0.52				
	115.90	117.05	1.15	1.00				
	117.15	117.90	0.75	0.65				
	120.30	120.75	0.45	0.39				
	120.95	121.25	0.30	0.26				
	121.55	122.15	0.60	0.52				

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-R 206

LOCATION

ELEVATION

DRILL DATE

HOLE DIRECTION

OUTCROP ATTITUDE

WATER LEVEL

LOGS RUN

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	124.40	125.30	0.90	0.78				
	125.60	126.20	0.60	0.52				
	127.40	127.70	0.30	0.26				
8 Lower	127.90	128.35	0.45	0.39				
	128.50	128.95	0.45	0.39				
	129.45	129.90	0.45	0.39				
	130.05	132.70	2.65	2.29				
	132.65	134.20	1.55	1.34				
	134.40	136.25	1.85	1.60				
	138.90	140.00	1.10	0.95				
	140.15	140.40	0.25	0.22				
	140.65	140.90	0.25	0.22				
	141.05	141.90	0.85	0.74				

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-R 207

LOCATION 5534832.21 N 661891.30 E

ELEVATION 1904.61 m

DRILL DATE Sept./79

HOLE DIRECTION 084°/60° E

OUTCROP ATTITUDE 170°/70° W

WATER LEVEL

LOGS RUN Gamma

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
Coal Zone*	11.00	18.00	7.00	5.36				
Coal Zone*	23.00	27.00	4.00	3.06				
Coal Zone*	35.00	36.00	1.00	0.77				

* NOTE: Coal Zone used because of only one log run in hole

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-R 208

LOCATION 5534345.45 N 661602.80 E

ELEVATION 1899.93 m

DRILL DATE Sept./79

HOLE DIRECTION 072°/60° E

OUTCROP ATTITUDE 168°/68° W

WATER LEVEL

LOGS RUN Gamma, Density (LSD), Caliper

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	5.10	6.00	0.90	0.71				
	6.50	7.30	0.80	0.63				
	47.60	49.30	1.70	1.34				
	50.20	50.90	0.70	0.55				
	68.60	69.50	0.90	0.71				

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-R 209

LOCATION 5532811.33 N 661703.03 E

ELEVATION 1838.52 m

DRILL DATE Sept./79

HOLE DIRECTION Vertical

OUTCROP ATTITUDE 016°/54° W

WATER LEVEL 75.5 m

LOGS RUN Gamma, Density (LSD & BRD), Neutron, Resistivity, Caliper, Verticality

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
	141.40	142.80	1.40	0.82				
	143.50	146.10	2.60	1.53				
10	147.00	149.80	2.80	1.65				
	150.80	154.40	3.60	2.12				
	154.60	157.10	0.50	0.29				
	159.90	162.40	2.50	1.47				

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE
1979 PROGRAM
DRILL HOLE SUMMARY

HOLE No. HSR-D 210

LOCATION 5533115.08 N 661373.16 E

ELEVATION 1699.17 m

DRILL DATE Oct./79

HOLE DIRECTION Vertical

OUTCROP ATTITUDE 160°/70° E

WATER LEVEL 1.00 m

LOGS RUN Gamma, Density (LSD & BRD), Neutron

SEAM No.	TOP	BASE	APP. THICK	TRUE THICK	MOISTURE	VOLITILES	ASH	FSI
?	64.30	65.20	0.90	0.31	0.59			
	65.80	66.30	0.50	0.17	0.51			
	66.60	66.85	0.25	0.09				
	67.30	70.10	2.80	0.96	0.44			

Note: Specific Gravity for Coal Analysis is

HORSESHOE RIDGE

DRILL HOLE 204

CORING PERFORMANCE

SEAM DESIGNATION	SAMPLE NUMBER(S)	% RECOVERED (Meas. Thick. / Geoph. Thick)
3 Seam	1 & 2	43%
4 Upper	3	74%
4 Lower	4	68%
5 Seam	5 & 6	110%
6 Upper	7	66%
6 Lower	8	45%
	Sample Tag #9 destroyed	
7 Upper	10	49%
7 Lower	11 & 12	64%
8 Upper	13	74%
8 Lower	14, 15, & 16	67%
9 Seam	17 & 18	68%
411.4-413.2	19	61%
10 Seam	20	66% *

Total Measured Core = 358.69

Total Drilled Core = 449.20

*Used difference in marker blocks and measured thickness to calculate % recovered

Average Coal Core Performance = 65%

Total Rock & Coal Core Performance = 80%

CROWS NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	S.E. BRITISH COLUMBIA

DATE		
	BEGIN	JULY 30/79
	END	AUG. 20/79

HOLE No. 204

HOLE PARTICULARS

LOCATION	5 533 668.96 N 661 664.92 E		
ELEVATION	1897.32	HOLE BEARING (AZ°)	105
TOTAL DEPTH	452.00	HOLE ANGLE (°)*	60°

LOGGING

LOGS RUN	CCS through rods
LOGGED BY	BPB
OTHER TESTS	NIL
	NIL

COAL CORING PERFORMANCE

CORE DIAMETER		HQ
TOTAL	CORE RECOVERED	39.30
	LENGTH CORED	60.67
	CORE RECOVERY	%

EXAMINATION

LOG USED	Lithology
No. OF SEAMS SAMPLED	12
EXAMINER (S)	JLS & JLL
DATE	Sept. 3/79

BOX No	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH*	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°)▲	SEAM DESIG	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	REMARKS† RQD	REMARKS† Hard
1						Casing to 96'													
		28.3		0.59	Shale	medium gray; abundant plant fragments; iron staining throughout; broken				NOTE:	Analytical data calculated on an air dried basis from a 1.5 Float								
	30.8			0.14	Shale	extremely broken													
				0.34	Shale	weathered; soft; brecciated; stick													S5
				0.09	Shale	as above; broken													
				0.26	Shale	medium gray; silty; carbonaceous fragments throughout; iron staining													
				0.07	Shale	as above; broken													
			30.65																
		30.65		0.08	Coal	dull; powdered			1	1.09		5.95	26.38	66.58	1				
	32.16																		
			31.18																
				0.38	Coal	dull with trace bright; powdered													
		31.18		0.08	Shale	with trace coaly wisps; broken													
			32.8																
	33.68																		
		32.8																	
				0.07	Coal	dull; shale splits; broken													
				0.19	Coal	dull; broken			2	1.74		4.16	26.38	67.72	1/2				
				0.08	Coal	dull with trace bright; very broken													
	35.2																		
				0.20	Coal	dull with trace bright; broken													
			34.5																
		34.5		0.27	SST	medium grain; iron staining throughout; plant fragments; broken													R4
	36.73																		
				0.29	SST	as above; very broken													
	37.91																		
				0.20	SST	vuggy; carbonaceous calcite filled fractures; iron staining on bedding; stick; broken at base	4°(t)												
						END OF BOX 1													
2				0.19	SST	vuggy; fine grain; trace slickensides on bedding; iron staining along bedding; stick	2°												R3

ALL LINEAR UNITS IN METRES

* MEASURED FROM THE HORIZONTAL PLANE

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

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 204

FILE No. BA-211A

CORE & COAL CORE DESCRIPTION

PROJECT	
AREA	HORSESHOE RIDGE

HOLE No.	204
CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard
				0.14	SST	Brecciated; broken													
			36.4	0.11	SLT	broken													
	38.7																		
		36.4																	
				0.13	SST	fine grain; crossbedded; iron staining; very broken													
	39.2																		
				0.16	SST	brecciated; vuggy; iron staining throughout; silty in part;													
			38.3			broken													
		38.3																	
				0.18	SST	very fine grain; crossbedded; iron stain; abundant plant													R3
						fragments; broken	20°(t)												
	39.7																		
				0.22	SST	fine-medium grain; carbonaceous wisps throughout; vuggy;													
						iron staining; broken													
	40.4																		
				0.12	SST	as above; calcite filled fractures at top													
				0.16	SST	as above; very broken													
	41.3																		
				0.09	SST	fine-grain; vuggy; abundant calcite filled fractures; cross-	21°(t)												R3
						bedded undulating bedding surfaces; iron staining; stick													
				0.18	SST	as above; broken													
				0.09	SST	as above; stick													
				0.05	SST	as above; broken													
	42.8																		
				0.63	SST	fine grain; with trace silty carbonaceous interbeds; vuggy													
						abundant calcite filled fractures; cross-bedded; stick;													
						(.06-.1 m sticks)													
	44.3																		
				0.28	SST	fine-medium grain; iron staining; massive; broken													
						END OF BOX 2													
3																			
				0.29	SST	as above; very broken													
				0.22	SST	as above; with trace calcite filled fractures; vuggy; stick	21°(t)												
				0.34	SST	as above; very broken													
				0.21	SST	as above; broken													
	46.0																		
				0.17	SST	as above; broken													
				0.82	SST	as above; very broken													
	47.5																		
				0.19	SST	as above; broken													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

× measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CRC NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	REMARKS † RQD	REMARKS † Hard
				0.30	SST	fine grain; trace plant fragments; minor calcite filled fractures; iron staining throughout; stick	17°(t)												R4
				0.60	SST	as above													
	49.0					END OF BOX 3													
4																			
				0.19	SST	as above; very broken													
				0.18	SST	as above; stick	18°												R4
				0.19	SST	as above; very broken													
				0.50	SST	as above; broken													
	50.5																		
				0.12	SST	as above; broken													
				0.31	SST	as above; with trace slickensides on bedding surface; irregular bedding; stick	43°												
				0.60	SST	as above; broken													
	52.4																		
				0.30	SST	as above; vuggy in part; broken													
				0.18	SST	as above; very broken													
				0.09	SST	as above; very broken													
				0.10	SST	breccia; broken													
				0.32	SST	as Sandstone above; very broken													
	54.8																		
						END OF BOX 4													
5																			
				0.07	SST	fine grain; carbonaceous shale interbeds; iron staining along bedding; minor calcite filled fractures; trace plant fragments; stick	17°												R3
				0.17	SST	as above; very broken													
	56.3																		
				0.08	SST	as above; very broken													
				0.09	SST	as above; broken													
				0.59	SST	as above; appears to be more shaly; very broken													
				0.12	Shale	slickensided along bedding; coaly wisps; iron staining throughout; stick													
				0.18	SST	heavily iron stained; carbonaceous material; fine grain; very broken													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x = measured thickness of core

HOLE No. 204 CONTINUED

CR(NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac Freq.	RQD	Hard
	57.9																		
				0.12	SST	as above; very broken													
				0.22	SST	as above; very broken and powder													
	58.6																		
				0.14	SST	as above; very broken													
	58.9																		
				0.35	SST	as above; very broken													
				0.24	SST	fine-medium grain; crossbedded with irregular bedding; minor calcite filled fractures; iron staining; abundant plant fragments; broken	34°												
				0.10	SST	extremely broken													
			54.20																
		54.20		0.05	Shale	carbonaceous													
	60.3																		
				0.12	Shale	with silty interbeds; medium-dark gray; trace plant fragments; slick	34°												
				0.14	Shale	as above; iron staining; broken													
				0.10	Shale	as above; broken													
						END OF BOX 5													
6	61.57					LOST CORE													
	62.18		57.40																
		57.4		0.09	Coal	bright with dull; broken to powdered													
				0.11	Coal	bright; slightly broken													
				0.20	Coal	bright													
				0.14	Coal	bright with dull													
				0.29	Coal	bright with dull													
				0.15	Coal	dull and bright; broken			3	1.04		8.86	26.19	67.91	1.5				
	63.40																		
				0.06	Shale	carbonaceous; slicks													
				0.09	Coal	dull and bright; broken													
				0.07	Shale	carbonaceous													
				0.05	Coal	dull and bright; broken													
			59.1																
	64.1																		
		59.1																	

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard
				0.21	Shale	carbonaceous; iron staining on fracture surfaces; abundant plant fragments ; broken													
				0.18	Shale	as above; stick													
	64.77																		
				0.26	Shale	as above; stick													
			61.15																
		61.15																	
				0.14	Coal	dull and bright; broken													
				0.12	Shale	carbonaceous; broken													
				0.09	Coal	dull and bright; broken													
			62.05																
	66.14	62.05																	
				0.71	Breccia	poorly lithified breccia; shale fragment from .001 to .025; soft and muddy			4	1.01		6.54	25.10	67.35	0				
	67.06		62.80																
		62.80																	
				0.14	Coal	powdered; dirty													
			63.40																
		63.40		0.18	Shale	carbonaceous; with fine coal wisps													
			64.40	0.14	Coal	powdered with shale; muddy													
	67.97																		
						END OF BOX 6													
7																			
			64.40	0.70	Shale	carbonaceous; coal traces; very broken													
		64.40																	
				0.15	Coal	bright ; with dull; broken													
	68.88																		
				0.08	Coal	as above													
				0.13	Shale	carbonaceous; broken													
				0.19	Coal	dull with bright													
			65.20																
		65.20		0.15	Shale	carbonaceous; slicks													
	70.10																		
				0.31	Shale	carbonaceous; abundant carbonaceous fragments on bedding surfaces; iron staining on fractures; broken													
				0.10	Shale	as above; stick													
				0.38	Shale	as above; broken	74°(t)												
	71.32																		
				0.12	Shale	medium to dark gray; trace plant fragments	59°										4.9		R3
				0.14	SLT/SH	interbedded; with calcite filled fractures; iron stained; trace plant fragments; irregular-bedding	54°												

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CI 5 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE	HOLE No. CONTINUED	204
AREA			

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.12	SLT	calcite filled fractures; irregular bedding; small fault	50°/FS												
				0.09	Breccia	Angular fragments; very poor sorting of fragments .02 m - .001 m fragments composed of fine grain													
			67.8			sandstone; siltstone													
		67.8		0.12	SST	fine grain sandstone; crossbedding; fine black laminae on foreset beds; heavy iron staining; broken	8° 4°												R3
				0.51	SST	as above; broken													
						END OF BOX 7													
8																			
				0.19	SST	as above; stick; bioturbated (burrow vertical)	18°												
	72.8																		
				0.41	SST	as above; broken													
				0.19	SST	as above; stick													
				0.76	SST	fine grain; medium gray; iron staining around grains; minor calcite filled fractures; iron staining on fracture surfaces; crossbedded	15° 29°	72°									5.3		R3
	74.68																		
				1.06	SST	as above	20°	61° 74°									2.3		R3
				0.12	SST	as above; with coaly wisps; broken													
				0.22	SST	as above; coaly wisps; calcite filled fractures													
	76.2																		
				0.36	SST	as above; minor calcite filled fractures	13°	69°											
			72.8																
		72.8		0.20	Coal	bright with dull													
						END OF BOX 8													
9																			
				0.09	Coal	bright; with dull													
				0.26	Coal	bright													
				0.08	Coal	bright with dull													
				0.28	Coal	bright													
				0.60	Coal	bright with dull													
				0.05	Coal	bright													
				0.14	Coal	bright with dull			5										

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. CONTINUED 204

C. S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
	77.72																		
				0.07	Coal	bright													
				0.06	Coal	bright; with dull													
				0.05	Coal	Bright													
				0.07	Coal	bright; with dull													
				0.03	Coal	bright and dull			5	1.07		4.50	26.18	68.25	1.5				
				0.07	Coal	bright and dull													
				0.13	Coal	dull with bright													
				0.03	Shale	carbonaceous													
				0.04	Shale	carbonaceous; pulverized													
				0.04	Coal	dull and bright													
				0.05	Coal	bright; with dull													
				0.06	Coal	bright; with dull													
				0.09	Coal	dull and bright													
				0.02	Shale	carbonaceous with coal wisps													
				0.07	Coal	dull and bright; broken													
				0.05	Shale	carbonaceous													
			74.6	0.05	Coal	dull and bright; pulverized													
		74.6		0.17	SLT	carbonaceous; small coal wisps on bedding planes; slickensided													
	78.94		75.4																
		75.4		0.17	Coal	dull and bright													
				0.09	Shale	carbonaceous													
				0.01	Coal	dull													
				0.05	Shale	carbonaceous													
				0.02	Coal	dull and bright													
				0.05	Coal	dull with bright													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(†) Bedding Trace

HOLE No. 204 CONTINUED

CR ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.09	Coal	dull and bright														
				0.06	Coal	dull and bright														
				0.05	Coal	dull and bright with minor pyrite stains				6	0.56		6.11	27.51	65.82	8				
				0.09	Coal	bright with dull; with minor pyrite stains														
				0.05	Coal	dull with bright														
				0.09	Coal	dull and bright														
				0.08	Coal	dull with bright														
				0.11	Coal	dull														
				0.04	Shale	carbonaceous				↓										
			76.20																	
	80.47																			
		76.20																		
				0.59	Shale	medium gray; carbonaceous; coaly wisps on	2x58	2x76												
						bedding; minor pyrite and iron staining on	4x35													
						joint surfaces	56													
						END OF BOX 9	42											9	58	R2
							68	65												
10							70	68												
				0.86	Shale	as above; with plant fragments on bedding surfaces	10													
	82.00																			
					Shale	as above	45													
							60	4x66												
							58	10x58										13.4	50	R2
			79.75				2x48													
		79.75		0.08	SH/Coal	interbedded; broken														
	83.50																			
				0.25	Shale	coaly; calcite filled fractures; slicks on	78													
						fractures and bedding surfaces	58	68												
				0.25	Coal	shaly with some coal chunks	32											8.7	43	R2
			80.40																	
				0.61	Shale	as above; coaly zone	55	55												
							68	56												
	85.00																			
		80.4																		
				0.48	Shale	as above														
						END OF BOX 10														
11																				
				0.28	SLT	laminated; medium to light gray; minor coal bands	49	77										7		R3
								69												
								67												

ALL LINEAR UNITS IN METRES

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•RQD — ROCK QUALITY DESIGNATION (%)
FF —— FRACTURE FREQUENCY
°(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † FF RQD Hard
				0.69	Shale	dark gray; coaly bands	Joints 70										
							78										
							72										
	86.56			0.31	Shale	dark gray; coaly bands	75										
							78										
			82.5														
		82.5															
				1.24	SLT	with sand layers interbedded; medium to light	43 78										3.2 R3
						gray; sand laminae; fine to medium grain size	78										
			83.8				76										
	88.09	83.8					78										
				0.12	Shale	medium to dark gray	12 70										5.8 R3
				0.07	Shale	brecciated; calcite filled; light gray	43 70										
			84.8	0.52	Shale	medium to dark gray	6 73										
		84.8		0.67	SLT	bioturbated; medium to light gray; with sandy	2x66										
						laminae											
			85.8	0.23	SLT	rubble zone											
	89.61	85.8															
				0.15	Shale	dark gray; indistinct bedding; iron staining	71 65										
						END OF BOX 11											
12																	
				0.26	Shale	rubble zone; as above	70 2x72										
			86.7	0.30	Shale	as above; coaly bands	65										0.5 R2
		86.7		0.55	SLT	mottled greenish gray; with pyrite nodules; coaly	65										
			87.5			in places	22										
		87.5		0.26	Shale	dark gray to black; coaly; iron staining on	69										
						joints	12										
							15										
	91.16						15										
			87.9	0.17	Shale	as above	42 76										3.1 R3
		87.9		1.43	SLT	light gray; some sandy laminae (medium gray)	29 76										
						iron staining on joints	73										
	92.68																
			90.3	1.15	SLT	as above; some calcite stringers	0										2.1 R3
		90.3		0.26	SST	light to medium gray with interbedded siltstone;	2x70										
						bioturbated; iron staining on joints; some											
						calcite stringers											
						END OF BOX 12											

ALL LINEAR UNITS IN METRES

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CF 3 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS ▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac Freq.	RQD	Hard
13			90.6	0.09	SST	sandstone; fine-medium grain; at $CaCo_3$ bands	20°										1		R3
		90.6		0.86	Shale	shale; with calcite vein; black; carbonaceous	34°										3.5		R2
	94.95						2x58°												
				1.06	Shale	black; with marcasite nodules; carbonaceous	58°												
	96.01					(coaly material in lower portion of section)	2x70°												
							54°												
							63°												
							56°										6		R2
			91.9	0.33	Shale	black; carbonaceous material (plant) grades to													
						siltstone											0		R2
		91.9		0.80	SLT	gray; alternating light and dark; minor cross-											0		R2
	97.54					beds; thin calcite veinlets.													
			92.8																
		92.8																	
				0.08	Shale	black; slickensides; badly broken; iron stained	60°										1		R2
						joint													
				0.56	SLT	light - dark gray; calcite infilling; coaly blebs											0		R2
						END OF BOX 13													
14																			
			94.2	0.64	SLT	as above													
		94.2	94.50	0.17	Shale	dark gray; slickensided; minor calcite veinlets;	2x24										2		R2
						broken	66°												
	99.06	94.5				* Core has been rearranged													
				0.25	SLT	gray; calcite infilled											0		R2
				0.10	Shale	black; with fossil structures; coaly (relic mud													
						volcano)													
				0.61	SLT	gray; calcite in-filled; light and dark													
			95.9																
		95.9		0.15	Shale	black; coaly; calcite infilled													
			96.3																
		96.3																	
				0.45	SLT	light and dark gray; calcite infilled													
	100.59						18°										1		R2
			98.3	1.52	SLT	light and dark gray; cross-beds; calcite filled													
						fractures; iron staining													
						END OF BOX 14													
15																			
	102.11	98.3																	
			99.0	0.55	Shale	dark gray; carbonaceous with thin coaly traces													
		99.0																	
			99.3	0.22	Coal	dull and bright; pulverized													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

* (t) Bedding Trace

HOLE No. 204 CONTINUED

CR , NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq'y	RQD	Hard
		99.3	99.6	0.23	Shale	carbonaceous with coaly wisps													
	103.63	99.60																	
				0.34	Coal	dull with bright													
				0.13	Coal	dull													
				0.22	Coal	bright and dull; broken													
				0.09	Coal	bright													
				0.21	Coal	bright with dull													
				0.14	Coal	dull and bright; pulverized													
				0.12	Coal	dull and bright; broken													
	105.16			0.14	Coal	dull with bright; contains minor pyrite													
				0.07	Coal	dull and bright			7	0.51		6.05	25.69	67.75	8				
				0.26	Coal	dull													
			102.5	0.29	Coal	dull with bright													
		102.5		0.17	Shale	carbonaceous shale; fragmented													
	106.68																		
			103.00	0.35	Shale	carbonaceous shale; fragmented													
						END OF BOX 15													
16	108.2																		
		103.0		0.09	Coal	dull and bright; fragmented													
				0.07	Coal	dull with bright bands; minor pyrite													
				0.08	Coal	dull and bright; minor pyrite													
				0.12	Coal	dull with bright; minor pyrite													
			104.0	0.05	Coal	dull													
		104.0		0.18	Shale	carbonaceous shale with coaly wisps of bright coal													
	109.73																		
				0.11	Shale	carbonaceous shale with coaly stringers													
			107.2	0.27	Shale	carbonaceous shale; broken with ground up portion													
		107.2		0.14	Coal	bright and dull; powdered core													
	111.25			0.03	Coal	dull with bright; powdered core													
				0.03	Coal	dull with bright; solid core													

ALL LINEAR UNITS IN METRES

x measured thickness of core

† :-RB/OR S — GOLDER ASSOCIATES HARDNESS CODE
•RQD — ROCK QUALITY DESIGNATION (%)
FF —— FRACTURE FREQUENCY
*(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 204 CONTINUED

CR(NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. @ 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	× TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq/	RQD	Hard
				0.02	Coal	dull coal													
				0.02	Coal	dull and bright													
				0.14	Coal/Sh	powdered mixture of coal and carbonaceous shale													
				0.09	SLT	friable siltstone; abundant carbonaceous material extensively weathered; hematite staining throughout													
				0.09	Coal	bright with dull													
				0.04	Coal	dull and bright; broken													
				0.07	Coal	dull and bright													
				0.14	Coal	dull with bright			8	0.89		6.62	25.08	67.41	1.5				
			108.2	0.06	Coal	dull													
	112.17																		
		108.2		0.10	Shale	shale with coaly wisps; slickensides; broken													
			108.7	0.09	Shale	shale; slickensided													
		108.7		0.06	Coal	dull													
			109.1	0.04	Coal	dull with bright													
		109.1		0.12	Shale	shale with coaly stringers													
				0.07	Shale	carbonaceous shale with thin bright coal bands													
	113.61																		
				0.11	Shale	carbonaceous shale with coaly stringers; broken													
				0.13	Coal/Sh	broken mixture of dull coal and carbonaceous shale													
			110.7	0.04	Shale	carbonaceous shale; with bands of bright coal													
		110.7																	
				0.22	SST	fine grain sandstone; abundant carbonaceous material calcite filled fractures; iron stained on fracture surface													
	114.91		111.0																
						END OF BOX 16													
		111.0																	

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
17			111.50	0.50	SLT	medium gray with .01 sandstone interbeds; iron	Joints												
		111.50				staining on joints; calcite stringers	54										1.0		R3
				0.27	Shale	dark gray; coaly; iron staining on joints													
				0.21	Shale	as above													
	115.83																		
			112.80	0.82	Shale	as above	4	73											
		112.8		0.60	SLT	light gray; iron stains on joints; bedding	40	66									4.9		R3
						indistinct	29	64											
							11												
	117.35																		
				0.08	SLT	as above	32	88											
				0.50	SST	medium to light gray; fine to medium grain;	22	82											
						calcite stringers; iron stained joints; minor	14	81											
						brecciation at 117.62	25	87									9.9		R3
				0.27	SST	rubble; as above	17												
				0.22	SST	medium gray; medium to fine grain	20												
			114.90	0.18	SST	rubble; as above	0												
		114.90					20												
				0.29	Shale	dark gray to black; abundant plant fragments;													
	118.87					iron staining on joints	25												
				0.55	Shale	dark to medium gray; coal stringers; minor iron	56	73											
						staining on joints; slickensided joints	14	75											R3
							52	69											
						END OF BOX 17	33												
18				0.14	Shale	carbonaceous; badly broken; slickenslided;		64°									0		R1
						coaly blebs													
				0.19	Coaly Sh	very badly broken; slickenslides													
				0.13	Shale	black; carbonaceous; calcite infilled; slicken-													
						sided													
				0.26	Shale	as above; badly broken													
	120.4			0.07	Shale	as above; badly broken; slickenslided	30° x 2												
			116.40																
		116.40		1.18	SLT	carbonaceous; calcite infilled; fine grain;	25°	74°									1.3		R2
						light gray; minor iron staining													
	121.9			0.13	SLT	gray; calcite infilling; carbonaceous wisps													
*																			

ALL LINEAR UNITS IN METRES

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FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

I (†) Bedding Trace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard.
				0.08	SLT	badly broken; as above; iron stained	joints												
				0.17	SLT	as above	3°												
				0.07	SLT	badly broken; as above													
				0.22	SLT	as above													
			118.25																
		118.25		0.26	SST	badly broken; very fine grain; dark gray and	25°	78											
						orange bands; calcite in-fill; minor cross-	18°												
						bedding; iron stains													
				0.75	SST	as above													
	123.45																		
				0.16	SST	as above													
			119.40																
						END OF BOX 18													
19		119.40																	
				1.10	SLT	minor cross-bedding; orange and black banded	38°	80°									1.3		R2
						with some light gray bands	25°												
				0.45	SLT	as above; badly broken													
	124.82																		
				0.75	SLT	fine grained; as above													
				0.85	SLT	fine grained; alternate dark and gray bands;		78°									0		R2
						minor calcite infilling													
	126.34																		
				0.03	SLT	as above; badly broken													
				0.40	SLT	minor cross-bedding; orange and black bands		68°									0		R2
				0.51	SLT	as above; badly broken													
						END OF BOX 19													
20																			
				0.05	SST	Breccia; broken													
				0.15	SST	dark gray; carbonaceous plant fragments; fine													
						grain; very broken													
				0.28	SST	as above; broken													
	127.7																		
				0.60	SST	as above; broken with minor calcite filled													
						fractures													
				0.17	SST	as above; very broken													
				0.26	SST	as above; few coaly wisps; stick													
				0.20	SST	as above; very broken													

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▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard
			125.4																	
	129.2	125.4		0.51	SST	coarse grain; salt and pepper; abundant calcite filled fractures; coaly wisps; stick														
				0.14	SST	as above; very broken														
				0.11	SST	medium grain; minor calcite filled fractures; iron staining; stick														
				0.12	SST	coarse grain; few coaly wisps; few plant fragments iron staining														
				0.22	SST	as above; very broken														
						END OF BOX 20														
21				0.14	SST	as above; broken	10°													
				0.20	SST	as above; with distinct bedding; stick	6°											7.5	38	R3
				0.11	SST	as above; broken	7°	61°												
				0.23	SST	as above; stick		61°												
				0.09	SST	as above; slightly coarser grain with more coaly wisps on bedding surfaces; bedding breaks; stick		50°												
				0.10	SST	as above; broken														
				0.11	SST	as above; stick														
				0.07	SST	as above; broken														
				0.07	SST	as above; stick														
				0.11	SST	as above; broken														
	132.4																			
				0.29	SST	as above; broken														
				0.42	SST	as above with calcite filled fragments;	4°	56°											34	R3
			129.3			slickensides abrupt contact below		66°										10		
								70°												
		129.3		0.12	Shale	silty; with carbonaceous plant fragments; pyrite staining on slickensided surface	11°	61°												
				0.51	SLT	medium-dark gray; carbonaceous plant fragments;	80°													R3
						iron staining on joints and bedding; slicken-	72°													
						sides along bedding; calcite filled fractures	73° 66°													
						throughout	62°													
	134.0																			

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

° (t) Bedding Trace

HOLE No. 204 CONTINUED

CR: NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE	HOLE No.	204
AREA		CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.e.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.14	SLT	as above; broken	Joints													
				0.11	SLT	as above; gypsum (?) on joint surfaces; stick	3 x 3°													
				0.45	SLT	as above; stick	6°													
																		5.4	44	
						END OF BOX 21														
22				0.08	SLT	as above; stick		76°												
				0.07	SLT	as above; broken		79°												
				0.53	SLT	as above; stick		81°												
	135.6																			
				0.36	SLT	as above; stick; bedding indistinct		71°												
				0.10	SLT	as above; broken		68°										3.3	62	R3
				0.98	SLT	as above; stick		67°												
								71°												
	137.2																			
				0.40	SLT	as above; stick	4°	70°												
				0.07	SLT	as above with abundant calcite filled fractures	2 x 30°	66°												
				0.13	SLT	as above; broken		84°										5.9	68	
				0.21	SLT	as above; stick		68°												
				0.37	SLT/SST	interbedded; sandstone is fine grain with flame structures and pseudo nodules at sandstone/siltstone contact														
				0.22	SLT	as above														
	138.7																			
				0.56	SLT	as above; stick	8°	63°												
							36°	69°												
						END OF BOX 22	7°	74°										10	35	R2
23				0.71	SLT	as above; stick		64°												
				0.28	SLT	as above; broken		72°												
				0.12	SLT	as above; stick		3x76°												
				0.09	SLT	with thin sandy lenses														
	140.2																			
				0.60	SLT/SST	sandstone is fine grain; iron staining on joints	60°	78°												
							63°													
			136.7																	

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

° (↕) Bedding Trace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard.
		136.7																		
				0.71	Breccia	Sandstone; Siltstone; poorly lithified poor sorting; stick	Bedding & Joints are indistinguishable												67	S5
	141.7																			
				0.82	Breccia	as above; stick													35	S5
			138.3																	
		138.3		0.13	SLT	dark gray; carbonaceous; plant fragments on bedding surfaces; heavy iron staining; very broken														
				0.21	SLT	as above; broken														
			139.2																	
						END OF BOX 23														
24																				
	143.3	139.2		0.19	SST	fine grain; light gray with black material accentuating cross-bedding; calcite filled fractures; iron stains on fracture surfaces; broken	1° 62° 52° 54°	81° 71°										10.2	17	
				0.35	SST/SLT	interbedded; sandstone fine grain; extensively cross-bedded; iron stained; stick														R2
				0.08	SLT	dark gray; carbonaceous; plant fragments; calcite and iron staining on fracture surfaces														
			139.9																	
		139.9		0.24	Shale	carbonaceous; soft														R5
				0.17	Shale	as above; broken														
	144.5																			
				0.79	Shale	as above; very broken to powder														
	146.7		141.1																	
		141.1		0.98	SST	very broken														
				0.32	SST	fine grain; with silty interbeds; cross-beds; minor calcite filled fractures; broken														
				0.10	SST	as above; very broken														
	147.2																			
				0.36	SST	as above; very broken														
						END OF BOX 24														
25	147.8																			
				0.60	SLT	shaley; dark gray with plant fragments; very broken														
	148.4																			
				0.34	SLT	as above; very broken														
				0.10	SLT	as above; stick														
	149.1																			
			147.3	0.73	SLT	as above; very broken to powder														

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

x tmeasured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard.
	150.4																		
		147.3		0.79	Shale	dark gray; black; carbonaceous; very broken to powder													
	152.1																		
				0.61	Shale	dark gray-black; broken core													
			149.3																
		149.3		0.06	Coal	dull; powdered													
						END OF BOX 25													
26																			
	153.92			0.31	Coal	bright with dull; broken stick													
				0.09	Coal	dull with bright; broken													
				0.16	Coal	dull and bright													
				0.15	Coal	dull with bright; broken													
	155.45																		
				0.07	Coal	dull; broken													
				0.10	Coal	dull with bright; broken													
				0.20	Coal	bright with dull; broken and powder mix													
				0.10	Coal	dull; powder													
				0.33	Coal	bright and dull powder													
				0.07	Coal	dull; powder			10	0.56		6.12	26.44	66.88	8				
	156.97																		
				0.15	Coal	dull with bright; powder													
				0.16	Coal	dull and bright; broken stick													
				0.06	Coal	dull; powder													
			153.8	0.11	Coal	dull with bright; broken													
		153.8		0.28	Shale	dark gray-black; carbonaceous													
			154.5																
		154.5		0.20	Coal	dull; broken and powder mix													
	158.5																		
				0.09	Coal	dull with bright; broken													
				0.06	Coal	bright; broken													
				0.04	Coal	dull; powder													
				0.07	Coal	bright; broken													
			155.2	0.03	Coal	dull; powder													
		155.2																	

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▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CR) NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.92	SST/SLT	interbedded; fine grain sandstone - siltstone		62°												
						finely laminated; calcite fracture filling;														
						irregular bedding														
	160.02																			
						END OF BOX 26														
27																				
			156.3	0.29	SLT	as above; abrupt contact with underlying shale		49°										2.9	82	R3
								56(†)												
		156.3		0.24	Shale	dark gray-black; carbonaceous with abundant		56°												
			156.6			plant fragments; silty at base; stick		67°												
		156.6																		
				0.72	SLT	with fine grain sandstone interbeds; cross-bedded														
						few plant fragments; stick														
	161.5																			
				0.08	SLT	as above; stick		82°										12	45	R3
								87°												
			158.4	0.67	SST	fine grain with silt interbeds; cross-bedded;		65°												
						abundant calcite filled fractures; slickensides		68°												
						along bedding; flame structures at sand-silt		71x69°												
						contacts		77°												
		158.4		0.58	SLT	medium gray; slickensides along bedding; calcite														
	162.8					filled fractures at top; shaley at top; pyrite on														
						slickensides; few carbonaceous wisps at top														
				0.15	SLT	as above; sandy lenses; very broken	17°	62°										18.2	8	R4
				0.15	SST/SLT	sand and silt interbeds; sandstone; fine grain;		66°												
						cross-bedded; minor calcite filled fractures		62°												
							5°	66°74°												
				0.61	SLT	shaley; medium - dark gray; slickensides	9°													
	164.1					along bedding; calcite on slickensides														
						END OF BOX 27														
28																				
				0.89	SLT	light gray; sandy; shaly interbeds; soft	9°	57°										6.3	69	R2
						sediment deformation; slickensides on bedding	3°	62°												
			161.30			minor calcite filled fractures at top; Pyrite	25°	59°												
		161.30				blebs at top; stick		2x61												
				0.39	Shale	dark gray; slightly silty; trace fragments														R3
	165.7																			
			162.35	0.38	Shale	dark gray-black; carbonaceous with plant fragments														
						silty in parts; coaly wisps throughout														
		162.35		0.16	Coal	bright with dull stick														
				0.10	Coal	dull; stick														
				0.05	Coal	dull; powder														

ALL LINEAR UNITS IN METRES

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*(†) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 205 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard.
				0.08	Coal	Dull; broken; stick														
				0.10	Coal	dull with bright; stick														
			162.95	0.09	Coal	dull; broken														
		162.35	163.45	0.21	Shale	coaly				11	0.47		7.73	24.61	67.29	7.5				
		163.45		0.05	Coal	dull; broken														
	167.03			0.12	Coal	dull; broken														
				0.16	Coal	dull; broken														
	167.64		164.3	0.09	Coal	dull with bright; broken stick														
		164.3		0.11	Shale	coaly														
				0.14	Coal/SH	broken core														
				0.05	Shale	dark gray; coaly wisps; broken														
	168.25			0.20	SLT-SH	interbedded; medium-dark gray; plant fragments calcite fracture filling; slickensided														
						END OF BOX 28														
29				0.05	SLT	dark gray with minor coaly wisps; well developed		2x56°												
						bedding breaks with slickensides on bedding	25°	63°										6.5	85	R3
						surfaces; stick		54°												
				0.08	SLT	as above; stick		61°												
				0.18	SST	fine grain; extensively cross-bedded; with minor silty interbeds; stick		59°												
			165.4	0.66	SLT	dark gray-black; carbonaceous with fine grain sandy lenses; stick														
		165.4		0.21	Shale	black; carbonaceous; stick														R2
	169.8																			
			166.1	0.22	Shale			65°												
		166.1		0.72	SST/SLT	sand and silt interbeds; evidence of soft sediment deformation; flame structure at sand silt contact; calcite on slickensided fractures; stick	36° 28°	68°										3.9	74	R2
			167.0	0.19	SLT	as above; broken														
	171.0																			
		167.0		0.17	Shale	black; carbonaceous; stick		2x64°										8.8	35	R2

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▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CR › NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE	HOLE No.	204
AREA		CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
			167.5	0.18	Shale	as above; broken		62°												
		167.5		0.59	SLT/SST	medium-dark gray siltstone with minor fine grain		74°												
			169.6			sandy interbeds; minor calcite filled fractures	38°	2x76°												
		169.6		0.19	Shale	carbonaceous with thin coaly partings; broken to powder	36°													
				0.26	Shale	black; carbonaceous; calcite on fracture surfaces; stick														
				0.10	Shale	as above; broken														
	172.5			0.16	Shale	as above with thin sandy partings; stick														
						END OF BOX 29														
30				1.20	SLT	medium-dark gray; abundant plant fragments; stick		6x81°										4.4	76	R2
	173.7			0.53	SLT	as above; with thin sand interbeds; stick		6x75°												
				0.05	SLT	as above; broken		84°										5.1	55	R2
				0.88	SLT	as above; stick														
				0.05	SLT	as above; broken														
	175.3																			
			172.2	0.44	Shale	dark gray-black; carbonaceous; slickensides at top; broken														
		172.2		0.06	Coal	dull; broken and powder														
				0.05	Coal	dull with minor pyrite; broken														
				0.06	Coal	dull with bright; stick														
				0.10	Coal	dull with bright; with minor pyrite; stick														
				0.05	Coal	dull; powder														
				0.03	Coal	shaly coal														
				0.17	Coal	dull; stick														
	176.8									12	0.25		10.52	22.43	66.80	5.5				
				0.05	Coal	dull; broken														
						END OF BOX 30														
31				0.13	Coal	dull with bright; broken stick														

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq	RQD	Hard.
				0.24	Coal	dull; broken	Joints													
				0.23	Coal	dull; powder														
			173.9																	
		173.9		0.63	Shale	medium gray; abundant plant fragments; silty;														
						stick														
	178.3																			
				1.42	SLT	dark gray; with carbonaceous plant fragments;		71°										4.2	70	R2
						calcite and pyrite on slickensided fractures;		62°												
						surface; thin coaly wisps in upper part of the		72°												
						section; stick		66°												
	179.8						56°	74°												
				0.47	Shale	as above; stick		6x71°										4.2	80	R2
				0.67	SLT	dark gray with minor sandstone partings; stick														
			177.20																	
		177.20		0.24	SST	fine grain with minor silt partings; calcite filled														
						fractures; stick														
						END OF BOX 31														
32																				
				0.08	SST	as above; stick														
	181.4																			
				0.38	SST	as above; stick		80°										3.3	92	R3
				0.18	SST	medium grain; cross-bedded		78°												
				0.02	SLT	dark gray		2x72°												
								69°												
				0.53	SST	medium grain; cross-bedded; as sandstone above														
				0.10	SLT	dark gray with minor coal partings; stick														
				0.17	SST	as sandstone above; stick														
				0.15	SLT	dark gray with calcite filled fractures; stick														
	182.9																			
				1.50	SST	medium grain; with minor silt partings; flame		4x79°										2.7	91	R2
						structures and pseudo nodules at sand-silt														
						contact; stick														
	184.4																			
				0.21	SLT	medium-dark gray		82°										.6	82	R2
				0.25	SST	medium grain; cross-bedded; some bioturbation														
				0.64	SLT	dark gray; carbonaceous plant material; stick														
						END OF BOX 32														
33																				
				0.16	SLT	as above														

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

CR ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No.	204
CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.14	SLT	dark gray; with minor lenticular sand bedding; stick	Joints												
				0.05	SST	medium grain; cross-bedded; stick													
				0.10	SLT	dark gray with sand bodies; some soft sediment deformation; slickensides on bedding; stick													
	185.9																		
				0.05	SST/SLT	fine grain; siltstone interbeds; stick	70°										2.0	97	R2
				0.14	SLT	medium gray; slickensides on fracture surface	78°												
				0.31	SLT	silt with sandy interbeds; stick	80°												
				0.52	SST	medium grain with minor silty interbeds; calcite filled fractures at base; stick													
				0.44	SST	fine grain with minor silty partings; lenses of coarse grain sandstone at base; stick													
	187.4																		
				0.11	SST	fine grain with minor silt	21°	72°											
				0.31	SLT	medium gray; density related sedimentary struc - tures at top; calcite on fractures at base; stick	20° 18° 21°	71°									4.5	83	R3
				0.06	SLT	as above													
				0.27	SLT	as above													
				0.03	SST	fine grain; finely laminated													
				0.03	SLT	dark gray													
				0.59	SST	medium grain sandstone with thin coaly wisps; poorly sorted; stick													
				0.02	SLT	dark gray; plant fragments; stick													
	189.0																		
				0.06	SLT	as above	6x73°										4.1	95	R3
				0.83	SST	medium grain sandstone with minor silt bands; evidence of bioturbation (burrows) slickensided surfaces on silt partings; stick													
						END OF BOX 33													
34																			
				0.18	SST	medium grain. sandstone; coarsly laminated; stick													
				0.25	SST	fine grain; finely cross-bedded; calcite on bedding breaks													

ALL LINEAR UNITS IN METRES

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FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) *Bedding Trace*

HOLE No. 204 CONTINUED

CR[illegible] NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.13	SLT	dark gray; stick														
				0.15	SST/SLT	finely interbedded; fine grain sandstone and silt stick														
	190.5																			
				0.09	SST	as above; stick		51°										7.0	80	
				0.92	SST	poorly sorted; coarse grain; carbonate cement		56°												
						large mud chips at top; calcite filled fractures		64°												
						pyrite on slickensided bedding surfaces;		71°												
						numerous coaly wisps; stick														
				0.44	SST	fine grain with numerous coaly wisps; platey breaks		6x74°												
	192.0					along coaly bands; stick														
				0.15	SST	as above; stick		8x76°										7.0	62	
				0.38	SST	calcareous sandstone as above														
				0.32	SST	medium grain with numerous coaly partings; stick														
				0.35	SST	as above; broken														
				0.31	SST	as above; stick														
	193.5																			
				0.33	SST	coarse grain; carbonate cement; numerous coaly wisps; coarsely cross-bedded; breaks along coaly partings; stick		2x84°												
						END OF BOX 34														
35																				
				0.65	SST	as above; stick		82°												
							63°	75°74°										.61	56	R3
	194.6			1.50	SST	as above; becoming less calcareous and more carbonaceous; breaks along coaly partings		66°90°												
								84°73°										4.0	88	R3
								79°75°												
	196.1			0.58	SST	as above; fewer coaly partings at base														
				1.01	SST	coarse grain; massive; salt and pepper; well sorted calcareous cement		76°										.63	94	R3
	197.8																			
				0.42	SST	as above														
						END OF BOX 35														
36																				
				1.16	SST	as above												0	100	R3
	199.3																			
				0.16	SST	as above; abrupt; contact with sandstone below		72°										1.3	94	

ALL LINEAR UNITS IN METRES

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FF — FRACTURE FREQUENCY
*(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CR[illegible]S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	× TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.62	SST	Medium-gray with thinner coarser grain sand interbeds; fine cross-bedding; coaly wisps at base; becoming coarser at base; a gradational contact		79°													
				0.80	SST	very coarse grain; coarsely laminated; with calcite filled fractures at top; minor slickensided carbonaceous material; salt and pepper sand; moderatly sorted		84°(t)													R3
	200.9																			
				1.53	SST	as above with few carbonaceous partings which are planes of weakness		2x81° 5x85°											4.6	97	R3
	202.4																			
						END OF BOX 36															
37																					
	202.4			1.56	SST	as above with minor calcite filled fractures at base; becoming coarser at base; pyrite on fractures		78° 2x75°											1.92	100	
	203.9																			
				1.47	SST	coarse grain with abundant coaly wisps throughout moderatly sorted; salt and pepper; trace pyrite on carbonaceous zones; minor calcite filled fractures at top		2x82° 2x71° 2x78° 2x81°											6.1	65	R3
	205.4							74°													
				0.36	SST	as above; slicks on fracture surfaces															
				0.57	SST	medium grain; finely cross-bedded	2x66	82°													
				0.07	SST	medium grain; with numerous silty mud chips (rip-up clasts)		88° 75°													
				0.02	SLT	medium gray		68°													
						END OF BOX 37															
38																					
				0.24	SST	medium grain; finely laminated		72°													
				0.21	SST	medium grain; mud clasts; numerous thin coaly partings; becoming coarser at base		2x75° 80°											6.6	67	R3
	207.0																			
				0.33	SST	medium grain; finely laminated with very fine coaly partings; becoming coarser at base; a gradational coarsening downward sequence		2x76° 60°84° 81°											4.1	72	
				0.23	SST	coarse grained; numerous coaly wisps containing pyrite; carbonate cement															
				0.21	SST	coarse grained; cross-beddad; moderately well sorted; carbonate cement															
				0.47	SST	coarse grain with numerous coaly wisps															

ALL LINEAR UNITS IN METRES

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FF — FRACTURE FREQUENCY
°(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

× measured thickness of core

HOLE No. 204 CONTINUED

CR 3 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
	208.5			0.07	Shale	carbonaceous with thin coal bands; slickensides on bedding; broken	47°	68°										4.0	77	R3
				0.14	SLT	dark gray to black; faint laminations	14°													
				0.26	SST	fine grain; cross-bedded; sand with silty inter-beds		71°												
				0.33	SST	fine grain; finely cross-bedded; carbonate cement		74°72°												
			205.90	0.17	SST/SLT	interbedded; fine grain; sandstone with siltstone														
		205.90		0.35	Shale	silty with few plant fragments														
	210.0			0.22	Shale	as above; minor coally partings		75°												
				0.06	Shale	as above; broken		2x66°										4.2	79	R3
			207.1-	0.25	Shale	as above; slickensides on coal partings		70°												
		207.10		0.38	SLT/SST	dark gray; siltstone with minor sandstone lenses	20°													
				0.10	SST	medium grain; finely cross-bedded; calcite on fracture surfaces		75°												
						END OF BOX 38														
39																				
				0.51	SST	as above; becoming silty at base														
	211.5																			
				0.53	SST	as above	22°	68°										3.4	82	R3
				0.59	SLT	dark gray; plant fragments; slickensides on thin coally partings; broken stick	20°	66° 71°												
				0.43	SST/SLT	interbedded fine grain sandstone with siltstone with thin coaly partings														
	213.1																			
				1.53	SST/SLT	as above; sandstone becoming cross-bedded at base with calcite filled fractures		78° 74°84°												
	214.6																			
				0.53	SST/SLT	as above														
						END OF BOX 39														
40																				
				0.19	SST/SLT	as above		82°										2.0	81	R2
				0.45	SLT	dark gray with carbonaceous plant fragments; minor calcite filled fractures		78° 64°												
				0.17	SST/SLT	interbedded medium grain sandstone with siltstone minor calcite filled fractures														

ALL LINEAR UNITS IN METRES

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FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CR 3 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.18	SLT	dark gray with plant fragments; minor fine grain sandy lenses														
	216.2			0.79	SLT/SST	siltstone with interbedded fine grain sandstone; calcite on slickensided bedding and fracture surfaces	25°	60° 70°										3.6	71	R3
				0.16	SLT/SST	as above; broken														
	217.2			0.12	SST/SLT	as above with abundant calcite filled fractures; minor brecciated material in the fractures; slickensides on fractures	3x30											3.5	87	
				0.13	SST	fine grain; finely cross-bedded; abundant calcite filled fractures; brecciated material in the fractures; slickensides on fractures	55°	66°												
				0.25	SST/SLT	intermixed; soft sediment slumping (?)														
				0.98	SST/SLT	fine grain; cross-bedded sandstone interbedded with dark gray siltstone; minor mud chips in base of sand layers; bioturbation; minor calcite filled fractures; slickensides on fractures														
	218.8			0.58	SST/SLT	as above		80°										2.1	83	R3
						END OF BOX 40														
41				0.54	SST/SLT	as above		2x70°												
				0.24	SST/SLT	as above; broken- stick														
				0.22	SST/SLT	as above; stick														
	220.3			1.46	SST/SLT	interbedded; sandstone is fine grain; cross-bedded; some soft sediment deformation; worm burrows; calcite filled fractures through-out	7°	60°(t)										0.7	87	R3
	221.9							71°										0.6	83	R3
				1.23	SST/SLT	as above; sandy at base; abrupt contact below		70°(t)												R3
				0.33	SST	fine grain; finely laminated; cross-bedded; calcareous with calcite filled fractures at base														R4
	223.4			0.05	SST	as above; slickenside at base	54°													
						END OF BOX 41														
42				0.55		as above with calcite filled fracture and calcite filling on joint surface	28°													R4

ALL LINEAR UNITS IN METRES

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▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

CRL NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.91	SST	medium grain with fine grain band in middle		2x72°												
						heavily cross-bedded; rip-up clasts throughout		82°												
						salt and pepper; calcareous with minor calcite		80°(†)												
						filled fractures throughout; 1 coaly wisp at base,		49°												
						slickensided with pyrite blebs on slickensides												2.7	65	R3
	224.9																			
				1.38	SST	as above with numerous coaly wisps throughout;		2x46°												
						wisps are slickensided and bedding breaks along		26°												
						wisps; numerous calcite filled fractures; no		56°												
						pyrite blebs		51°												
	226.6																	4.0	66	R4
				1.39	SST	medium to coarse grain; coarsening downwards;		68°												
						abundant coaly wisps throughout; bedding breaks		55°												
						along wisps; calcite filled fractures throughout		69°												
						sandstone is hardness of R4 -R5 but breaks easily	36°	67°												
						along coaly wisps; salt and pepper; calcareous	16°	62°										4.7	100	R4
						END OF BOX 42														
43																				
				0.82	SST	as above; broken														
				0.41	SST	as above; stick														
	228.1																			
				0.33	SST	as above; stick; calcareous cement														R3
				0.12	SLT	black; carbonaceous with plant fragments		52°												R3
				0.91	SST	as sandstone above		58°82°										2.72	76	R3
	229.7							68°												
				0.06	SLT	black; carbonaceous		2x65°										1.96	93	
				0.02	SST	coarse grain; indistinct bedding		68°												
				0.41	SST	medium grain; calcareous cement; numerous thin														
						coaly partings														
				1.02	SST	medium - coarse grain; salt and pepper sand;														
						calcareous cement; numerous thin coaly wisps on														
						bedding; sandstone is generally massive														
						;														
	231.2																			
				0.73	SST	as above; slickensides on bedding breaks		68°										2.7	70	R3
								3x71°												
						END OF BOX 43														
44																				
				0.75	SST	as above; with thicker coaly partings up to .001														
						m. thick; mud chips at base														
				0.03	SLT	dark gray; slickensides on bedding														
	232.7																			
				0.18	SST	as sandstone above; minor pyrite blebs														

ALL LINEAR UNITS IN METRES

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•RQD — ROCK QUALITY DESIGNATION [%]
FF —— FRACTURE FREQUENCY
*(†) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CR[illegible] NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
						CORE LOSS (†)														
	233.3																			
				0.41	SST	coarse grain; poorly sorted; calcareous cement		68°										3.4	80	R3
						salt and pepper; coarsly laminated by light and		65°												
						dark bands; minor carbonaceous material		3x90°												
				0.25	SST	as above with increasing number of coaly wisps														
				0.83	SST	as above without coaly wisps ; coarsening down-														
						ward; calcite filled fractures														
	234.7																			
				0.77	SLT	dark gray; abundant plant fragments		70°										1.3	125	R4
	235.3																			
				0.19	SLT	as above														
				0.11	SST	medium grain; cross-bedded at top; becoming	35°	84°										5.9	53	R2
						massive at base; calcite filled fractures		2x90°												R3
							15°	84°												
				0.05	SLT/SST	finely laminated; sandstone-siltstone; lamina														
						disturbed by burrowing														
				0.10	SLT	dark gray														
				0.51	SST/SLT	finely laminated; finely cross-bedded														
						END OF BOX 44														
45																				
				0.08	SLT	dark gray; minor plant fragments														
	236.5																			
				0.04	SLT	as above; broken		78°												
				0.03	SLT	as above; stick		2x75°												
				0.06	SST/SLT	interbedded; sandstone very fine grain; cross-		81°										3.1	98	R4
						bedded														
				0.18	SLT	black; minor carbonaceous fragments														
				0.39	SST	fine grain; finely laminated; cross-bedded;														
						calcite filled fractures														
				0.66	SLT	black at top; becoming dark gray toward base;														
						plant fragments at base														
	237.7		230.85																	
		230.85		1.07	Shale	silty; black; minor plant fragments; thin sandy	5x4°	78°												
			231.9			bands toward base		74°										5.3	68	R3
		231.9		0.19	SST	very fine grain; cross-bedded; abundant carbonaceous														
						material														
*				0.30	SLT	black; broken														

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CRL NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
	239.3			0.06	SLT	as above		77°												
			232.45					71°												
		232.45				END OF BOX 45		82°												
46																				
				1.43	Shale	black; minor plant fragments and coaly wisps; few calcite filled fractures; slickensides on bedding breaks at base		80°										2.7	99	R3
	240.80																			
				0.69	Shale	as above; stick; no slickensides	2x27°	76°												
				0.16	Shale	as above; broken		81°												
				0.29	Shale	as above; stick		80°										4.5	57	R3
	242.30																			
				0.66	Shale	as above		78°												
				0.02	SST	fine grain; some soft sediment deformation		74°												
				0.75	Shale	as above		85°										2.1	73	R3
	243.8																			
				0.09	Shale	as above	6°	80°												
				0.11	SST	fine grain; cross-bedded; minor soft sediment	21°	2x72°												
						deformation; minor calcite filled fractures		2x74°												
								2x68°												
				1.22	Shale	black; minor plant fragments; numerous thin		75°												
						coaly partings		2x82°												
								76°										8.8	85	R3
						END OF BOX 46														
47																				
				0.01	Shale	as above														
	245.06																			
				0.81	Shale	dark gray-black; coaly wisps throughout; few plant fragments; slickensides on bedding with pyrite bleb	21°	73° 59°										2.3	66	R2
				0.09	Shale	as above; very broken														
				0.08	Shale	as above; broken														
				0.49	Shale	as above; abundant plant fragments; stick														
	246.6																			
				0.61	Shale	as above; few slickensides on bedding with coaly wisps throughout		68° 73°68°												
				0.11	Shale	carbonaceous with coaly stringers of bright coal; slickensides on bedding surfaces														
			243.85																	
		243.85		0.04	Coal	bright; broken														
				0.04	Coal	dull and bright; stick														

ALL LINEAR UNITS IN METRES

x measured thickness of core

†:•R&/OR S — GOLDER ASSOCIATES HARDNESS CODE
•RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY
°(↑) = Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR , NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.08	Coal	bright with dull bands; stick													
				0.07	Coal	dull and bright; broken to powder													
				0.06	Coal	dull with bright bands; stick													
	248.1																		
				0.10	Coal	dull and bright; stick													
				0.09	Coal	dull with bright bands; broken													
				0.06	Coal	dull; broken													
				0.05	Coal	dull with bright; broken													
				0.06	Coal	dull; broken													
				0.04	Coal	dull with bright; broken													
	248.7																		
				0.06	Shale	black; carbonaceous; stick													
				0.09	Sh/Coal	intermixed; broken													
				0.05	Coal	dull and bright; broken													
				0.20	Coal	dull; broken; stick													
				0.07	Coal	dull; broken stick													
				0.26	Coal	dull; stick; abundant pyrite blebs													
	249.6																		
				0.06	Coal	bright with dull bands; broken			13	0.76		6.56	21.84	70.95	4				
				0.03	Coal	dull with bright bands; stick													
				0.06	Coal	bright with dull bands; stick													
						END OF BOX 47													
48																			
				0.09	Coal	dull; broken													
				0.06	Coal	dull and bright; broken													
				0.13	Coal	dull with bright; broken to powder													
				0.02	Shale	carbonaceous with coaly stringers; caved?													
	250.5																		
				0.08	Coal	dull with bright; broken													
				0.06	Coal	bright with dull; broken													
				0.08	Coal	dull; broken; stick													

ALL LINEAR UNITS IN METRES

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•RQD — ROCK QUALITY DESIGNATION (%)
FF —— FRACTURE FREQUENCY
*(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CRL . NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.13	Coal	dull with bright; broken													
				0.05	Shale	medium gray; carbonaceous													
				0.06	Coal	dull with bright; broken													
				0.05	Coal	dull and bright; stick													
				0.06	Coal	dull with bright; broken													
				0.05	Coal	dull; broken													
				0.04	Coal	bright; broken													
				0.04	Coal	bright with dull; broken													
				0.11	Coal	dull with bright; broken													
	251.5																		
				0.06	Coal	dull and bright; broken													
				0.05	Coal	dull; powder													
				0.16	Coal	dull; stick													
				0.04	Coal	dull with bright; stick													
				0.14	Coal	dull; stick													
				0.36	Coal	dull; stick; minor pyrite blebs													
	252.7																		
				0.04	Coal	dull with bright; stick													
				0.04	Coal	dull; stick													
				0.02	Coal	dull and bright; stick													
				0.06	Coal	dull; broken; stick													
				0.05	Coal	dull and bright; stick													
				0.09	Coal	dull with bright; stick													
				0.10	Coal	dull; stick													
				0.08	Coal	dull with bright; stick													
				0.12	Coal	dull with bright; broken and powder mix			13(cont)										
				0.06	SLT	with lenses of fine grain sandstone; stick													
				0.02	Shale	carbonaceous; stick													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

FILE No. BA-212A
REVISED Nov 1978

CRC NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % o.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.09	Coal	dull; stick													
				0.11	Coal	dull with bright; stick													
				0.07	Coal	dull; broken stick													
	253.9																		
				0.25	Coal	dull with bright; stick													
				0.18	Coal	dull with bright; stick													
				0.08	Coal	dull and bright; stick													
				0.05	Coal	dull with bright; stick													
				0.06	Coal	bright; stick													
				0.12	Coal	bright with dull; stick													
						END OF BOX 48													
49																			
				0.09	Coal	dull with bright; stick													
				0.13	Coal	bright with dull; stick													
				0.10	Coal	dull; powder													
			251.5	0.15	Coal	dull with bright; stick													
	255.1	251.5		0.60	Shale	dark gray-black; abundant carbonaceous plant fragments													
	256.0			0.68	Shale	as above													
				0.04	Coal	dull; powder													
			253.8	0.81	Shale	medium-dark gray; carbonaceous plant fragments at top; silty becoming sandy at base													
	257.6																		
		253.8		0.89	SST/SLT	fine grain sandstone/siltstone interbedded; finely laminated; calcite filled fractures; becoming shaly at base	66°												
	258.3		254.7																
		254.7		0.45	Shale	black; carbonaceous; coaly wisps; calcite filled fractures													
			255.25			silty at base													
						END OF BOX 49													
50																			
		255.25		0.99	SLT/Sh	interbedded siltstone and silty shale with fine grain sandy lamina at top; abundant plant fragments; calcite filled fractures throughout	33°	65°											
	259.8																		

ALL LINEAR UNITS IN METRES

† :•R&/OR S — GOLDER ASSOCIATES HARDNESS CODE
•RQD — ROCK QUALITY DESIGNATION [%]
FF —— FRACTURE FREQUENCY
*(t) - Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CR\ , NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (*)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.47	Shale	dark gray; silty with abundant plant fragments;		73°										3.9	69	R3
						very fine grain sandstone laminae in the middle		71°												
						calcite filled fractures throughout		2x76°												
								81°												
				0.42	SST/SLT	interbedded sandstone and siltstone; dark gray-														R4
						black; minor cross-bedding; abundant calcite														
						filled fractures; few plant fragments throughout														
				0.15	SST	fine grain; cross-bedded; minor erosional surface														
						(sharp angular unconformity)														
				0.20	SLT	with fine grain sand laminae minor calcite filled														
						fractures throughout														
	261.2																			
				0.11	Shale	dark gray; carbonaceous; abundant slickensides;	25°	59°										7.5	34	
						broken														
				0.30	SST	fine grain with silt interbeds; cross-bedded;	44°	62°												
						abundant calcite filled fractures; calcite on	29°													
						joint; abrupt contact with shale below														
				0.09	Shale	dark gray; carbonaceous														
				0.35	SST	fine - medium grain; slickensides on joints and														
						bedding; calcite filling on joints; abundant														
						calcite filled fractures throughout; disturbed														
						bedding														
	262.1																			
			258.95	0.27	SST	as above; broken (Fault Zone?)	26°	2x57°										9.1	8	
							31°	54°												
		258.95		0.34	Shale	dark gray; slickensides and calcite on joints														
						and bedding (Fault Zone ?)	32°	49°												
						END OF BOX 50														
51																				
				0.11	Shale	black carbonaceous; plant fragments														
			259.9	0.11	Coal/Sh	powdered mixture														
	263.7																			
		259.9		0.25	Coal	dull with bright; broken stick														
				0.07	Coal	dull; broken														
				0.09	Coal	dull; broken and powder														
				0.04	Coal	bright with dull stick				14	9.95		5.79	20.63	72.63	1.5				
				0.18	Coal	dull with bright; stick														
			260.9	0.21	Coal	dull with bright; stick														
	264.6																			

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 204 CONTINUED

CR. 5 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
		260.9		0.19	Shale	dark gray-black; carbonaceous; plant fragments; slicken-sides on bedding surface; stick													
				0.08	Shale	as above; broken													
				0.08	Shale	as above; stick													
	265.2																		
			261.5	0.12	Shale	as above; stick													
		261.5		0.13	Coal	dull; broken													
	266.7																		
				0.05	Coal	dull; stick													
				0.24	Coal	dull; powder													
				0.16	Coal	dull; broken													
	268.2																		
				0.09	Coal	dull; broken													
				0.04	Coal	bright with dull; broken													
				0.13	Coal	dull with bright; stick			15	0.72		8.12	21.15	70.01	3.5				
	268.5																		
				0.13	Coal	dull with bright; stick													
				0.07	Coal	bright and dull; stick													
				0.11	Coal	dull with bright; stick													
				0.12	Coal	dull; stick													
				0.24	Coal	dull; powder													
				0.12	Coal	dull with bright; broken													
				0.03	Coal	dull; powder													
				0.07	Coal	dull; stick													
				0.02	Coal	dull; powder													
				0.06	Coal	dull; stick													
						END OF BOX 51													
52																			
				0.10	Coal	dull; broken													
	269.7																		
				0.08	Coal	dull; broken													
				0.36	Coal	dull with bright; broken													

ALL LINEAR UNITS IN METRES

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•RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY
*(t) - Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CRA NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.16	Coal	dull; stick			15(cont)										
				0.02	Coal	bright; powder													
				0.13	Coal	dull and bright; broken													
				0.16	Coal	dull; broken													
				0.05	Coal	dull; broken													
				0.03	Coal	bright; powder													
				0.17	Coal	dull; broken; shaly at top													
	271.3																		
				0.28	Coal	dull; broken and powder													
				0.09	Coal	dull with bright; broken													
				0.05	Coal	dull; powder													
			268.3	0.08	Coal	dull; broken													
		268.3		0.24	Shale	dark gray; abundant plant fragments; carbonaceous													
	272.6																		
				0.09	Shale	as above; broken													
				0.08	Coal	dull; powder													
				0.15	Shale	as shale above													
				0.02	Coal	dull; broken													
				0.07	Shale	as shale above													
				0.03	Coal	dull; broken													
				0.68	Shale	medium gray; few plant fragments; few coaly wisps towards base													
	274.0																		
				0.06	Shale	as above; broken													
				0.10	Shale	as above with more plant carbonaceous fragments; stick													
				0.12	Shale	as above; broken													
						END OF BOX 52													
53				0.25	Shale	medium - dark gray; carbonaceous with abundant plant fragments; broken													
			271.7	0.26	Shale	as above; more carbonaceous; broken													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

(°(↕) Bedding Trace

HOLE No. 204 CONTINUED

CR. 5 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
		271.7		0.15	Coal	dull, powder														
				0.10	Coal	dull with bright; broken														
				0.14	Coal	dull; stick														
				0.09	Coal	dull; broken and powder														
				0.08	Coal	bright with dull; broken														
				0.04	Coal	dull; broken														
				0.11	Coal	dull; broken and powder														
				0.07	Coal	dull; powder														
				0.03	Coal	dull; oolitic texture				16	0.59		8.02	22.72	68.67	7.5				
	276.4			0.18	Coal	dull; powder														
				0.10	Coal	dull; stick														
				0.11	Coal	bright with dull; stick														
				0.08	Coal	dull; broken														
				0.44	Coal	dull; broken and powder														
				0.10	Coal	dull; broken														
				0.08	Shale	medium gray; trace plant fragments														
			273.5	0.08	Coal	dull; powder														
	278.0	273.5		0.40	Shale	light gray; silty; trace plant fragments at base														
				0.91	Shale	as above														
						END OF BOX 53														
54																				
			275.5	0.11	Shale	as above; without plant fragments														
		275.5	275.7	0.10	SST	fine grain; massive														
		275.7		0.34	Shale	light-medium gray; silty; homogeneous														R5
	279.7			0.93	Shale	dark gray; abundant plant fragments near top	0°	72°										1.9	93	R3
			276.9			with pyrite blebs near top	5°													
		276.9																		

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CR\ , NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.39	SST	fine grain; corss-bedded with small scale soft sediment deformation in silty lamina ; abrupt contact with silty shale below														R4
				0.21	Shale	medium gray; silty with minor coaly wisp near top														
	281.2																			
				1.43	SST/SLT	interbedded sandstone-siltstone-shale in units .02 m - .05 m thick; cross-bedded with soft sediment deformation; calcite filled fractures throughout; slickensides on bedding; abundant plant fragments towards base; 3 coaly wisps towards base		68°											.6	97	
			279.1																	
		279.1		0.12	Shale	dark gray; abundant plant fragments; slightly silty														
	282.8																			
			279.4	0.16	Shale	medium gray; trace plant fragments; silty towards base														R2
		279.4		0.14	SLT	abundant plant fragments		69°										1.4	77	R4
			279.65	0.05	SLT	as above; broken		84°												
		279.65		0.16	Shale	medium gray; few plant fragments; slightly silty														
						END OF BOX 54														
55				0.42	Shale	medium--darkgray; abundant plant fragments; few coaly wisps towards base														R2
				0.03	Coal	dull; powder														
				0.53	Shale	as shale above; slickensides on bedding														
	284.4																			
			280.9	0.26	Shale	as above; silty towards base; gradational basal contact	2°	64°										1.4	72	
		280.9		1.73	SLT	medium gray; abundant plant fragments; shaly in part														R3
				0.40	SST	fine grain; massive; few minor calcite filled fractures														R4
	285.9																			
				.45	SST	fine grain; light gray; bedding indistinct; few calcite filled fractures; trace plant fragments on silt (.08m) near base	12°											0.7	88	R3
	287.4																			
				0.15	Shale	silty; light gray; homogeneous	14°	72°										1.3	90	R5
				0.12	SST	medium grain; massive; poorly sorted; minor calcite filled fractures														

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CR ♪ NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
56																				
			284.80	0.22	SST	as above; abrupt contact with shale; below														
		284.80	285.30	0.47	Shale	dakr gray; few plant fragments; homogeneous														R2
		285.30		0.35	SST/SLT	interbedded fine-medium grain; sandstone-silt-														R3
						stone approx. 70% sand; cross bedding; minor calcite														
						filled fractures; abrupt contact with														
			286.70																	
		286.7		0.20	Shale	silty; medium dark gray; few plant fragments														
	288.9																			
				1.43	Shale	medium-dark gray; slightly silty; plant fragments		78°										1.4	84	R2
						throughout; few sandy wisps; minor calcite with														
						iron filled fractures; calcite on fractures;		74°												
						slickensides on bedding towards base														
	290.5																			
				1.53	Shale	as above; not silty	2°	06°74°												
																		1.9	92	R2
						END OF BOX 56														
57																				
				0.09	Shale	as above														
	292.0																			
				1.53	Shale	as above; slickensides on bedding; trace plant		73°												
						fragments														
	293.5																			
				1.50	Shale	as above; no slickensides plant fragments through-out		67°										.66	100	R2
	295.0																			
			291.85	0.53	Shale	as above; abrupt contact below; minor calcite	17°	65°										2.0	86	
						filled fractures throughout														
		291.85		0.56	SST	fine grain; abundant calcite filled fractures;	9°													
						rip-up clasts at base; minor breccia in fracture														
						zone														
						END OF BOX 57														
58																				
				0.40	SST	as above; with fine grain sandstone at base														
	296.6																			
				0.05	SST	as above		17°												
				0.97	SST	fine to medium grain; salt and pepper sand; thin	45°	2x76°										2.7	99	R4
						dark gray silty lamina , minor calcite filled														
						fractures; minor iron stains on fractures;														
						slickensides on fractures														
				0.32	SLT	dark gray; contains minor thin sandy lamina														
				0.14	SST/SLT	interbedded; thinly laminated														
	298.1		294.35																	
		294.35																		
				1.53	SST	medium grain; coarsening downward; finely cross-	27°	66°												

ALL LINEAR UNITS IN METRES

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•RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY
*(†) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
						bedding; carbonaceous material on all bedding sur 35° joints	73°												
						faces and accentuates cross-bedding; calcite and 12°	70°												
						iron staining on joints; slickensides on joints; 21°	71°												
						coarser sandstone is poorly sorted; coaly partings	78°												
						at base	61°										6.6	97	R3
	299.6																		
				0.16	SST	coarse grain; numerous coaly partings; easily 38°	3x68°												
						broken on partings; slickensides on bedding; 8°	69°												
						pyrite blebs associated with coaly partings	75°										4.6	61	R3
				0.09	SST	medium grain; carbonaceous material throughout;													
						minor coaly partings; breaks along coaly partings													
				0.03	SST	with siltstone rip-up clasts													
				0.28	SST	coarse grain; poorly sorted; numerous coaly													
						partings with pyrite blebs; slickensides on													
						partings calcite filled fractures; breaks													
						easily along coaly partings; generally massive													
						END OF BOX 58													
59																			
				0.96	SST	as above													
	301.1																		
				1.38	SST	as above; with increasing number coaly partings 42°	76°80°												
							78°60°												
							56°62°										5.1	58	R2
	302.7			1.51	SST	as above													
	304.20																4.6	59	R3
				0.21	SST	as above													
						END OF BOX 59													
60																			
				1.39	SST	as above with decreasing number of coaly partings													
						increase in coaly wisps													
	305.7																5.7	88	R3
				1.16	SST	as above													
				0.21	SST	as above; broken											4.7	59	R3
				0.14	SST	as above; stick													
	307.2																		
				0.96	SST	as above											7.0	72	R3
				0.21	SST	coarse grain with numerous shale rip-up clasts													
			304.90																
		304.90		0.03	Shale	dark gray; silty													
						END OF BOX 60													
61																			
				0.37	Shale	as above													

ALL LINEAR UNITS IN METRES

† :-R&/OR S — GOLDER ASSOCIATES HARDNESS CODE
•RQD — ROCK QUALITY DESIGNATION (%)
FF —— FRACTURE FREQUENCY
*(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

CRL ... NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (°)▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
			306.35	0.77	Shale	medium gray with few sandy wisps throughout;		65°												
						plant fragments throughout; abrupt with sand	0°	67°										9.1	60	R2
						below		60°												
		306.35		0.67	SST	coarse grain; salt and pepper grains; massive														R3
						with abundant coaly wisps and partings throughout;														
						breaks along coaly zones														
	310.4																			
				0.35	SST	as above	3°	68°										5.3	66	
				0.24	SST	as above; broken														
				1.00	SST	medium-coarse grain; poorly sorted; faint traces														
						of bedding; small scale cross-bedding; few coaly														
						wisps; slickenside on bedding														
	312.1																			
				0.61	SST	as above; with coarse grains; calcite on fractures	33°	72°										1.28	99	R4
						slickenside on bedding break														
						END OF BOX 61														
62																				
				0.97	SST	coarse grain; salt and pepper; massive; minor														
						calcite filled fractures														
	313.6																			
				0.12	SST	as above		2x58°												
				0.03	SLT	carbonaceous		64°												
				1.37	SST	medium to coarse grain; moderately well sorted;		68°												
						cross-bedded; minor coaly wisps; salt and pepper	28°	58°												
						slickensides on coaly partings	12°	68°										5.2	78	R3
	315.2																			
				0.54	SST	as above	14°	2x66°												
				0.06	SST	as above; broken		55°												
				0.97	SST	as above		70°												
	316.7							2x68°										9.0	7.8	R3
						END OF BOX 62														
63																				
				1.50	SST	as above; with coaly partings and wisps;												5.3	69	R3
						increasing toward base														
	318.2																			
				0.45	SST	coarse grain; abundant carbonaceous material														
						throughout; numerous coaly wisps and partings;														
						easily broken along partings														
				0.09	SLT	black; abundant coaly material; arenaceous														
				0.03	SST//SLT	intermixed; numerous coaly partings														

ALL LINEAR UNITS IN METRES

× measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 204 CONTINUED

CR[illegible]S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.,	RQD	Hard
				0.94	SST	coarse grain; salt and pepper; moderately sorted; generally massive; abundant carbonaceous material throughout; thicker (.005 m) coaly partings at base												6.9	82	R3
	319.7			0.05	SST	medium grain; carbonaceous material throughout; shale rip-up clasts at base		56°												
				0.07	Shale	black; carbonaceous														
				0.06	Shale	with sand lens														
				0.34	SST	medium to coarse grain; salt and pepper; finely laminated; minor cross-bedding; minor carbonaceous material throughout; coaly partings at base														
				0.51	SST	coarse grain; poorly sorted; generally massive; rip-up clasts throughout; some coaly partings														
				0.26	SST	coarse grain; massive; moderately well sorted; minor carbonaceous material throughout														
						END OF BOX 63														
64				0.30	SST	as above												4.5	79	R3
	321.6			1.55	SST	as above; becoming vuggy at base		2x71°												
								64°54°												
								50°69°												
	323.1							59°										4.5	92	R4
				0.42	SST	as above; vuggy at top; faint trace of bedding	0°	59°												
	323.4																	4.8	100	
				0.02	SST	as above; broken		62°64°												
																		2.9	93	R4
				1.39	SST	coarse grain; moderately well sorted; generally massive with faint trace of bedding; some carbonaceous material on bedding; polished bedding surfaces		65°												
								67°												
	324.9																			
				0.44	SST	as above		53°61°										2.5	94	R4
								64°												
						END OF BOX 64														
65																				
				0.75	SST	as above; with trace of carbonaceous material														
	326.1																			
				0.31	SST	as above; slickensides on carbonaceous bedding; breaks minor cross-bedding; visible		64°										1.3	100	R4
								54°												
				1.27	SST	coarse grian; massive; salt and pepper; moderately well sorted														
	327.5																			

ALL LINEAR UNITS IN METRES

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FF —— FRACTURE FREQUENCY
*(†) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

× measured thickness of core

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	ROD	Hard
				0.30	SST	as above Joints	71°										.7	81	R3
				0.56	SST	as above; with faint bedding traces	66°(t)												
				0.55	SST	as above; with visible bedding trace													
	329.2																		
				0.42	SST	as above	53°										.6	95	R3
				0.06	SST	as above; massive	54°(t)												
						END OF BOX 65													
66																			
				1.12	SST	as above													
	330.7																		
				1.47	SST	as above; with faint bedding trace at top; coaly material along bedding break	60°										.7	98	R3
	332.2																		
				1.53	SST	as above; massive											0	100	R3
	333.8																		
				0.21	SST	as above											2.0	100	R3
						END OF BOX 66													
67																			
				1.27	SST	as above with rip up clasts at base; coaly parting at base													
	335.3																		
				0.03	SST	medium grain; abundant coal wisps; slickensides on bedding breaks	70°										11.3	37	R3
				0.31	SST	as above with few coaly wisps; slickensides on bedding breaks with coal material	69° 75°												
				0.63	SST	medium-coarse grain; abundant coaly wisps; accentuating bedding; slickensides on coaly partings													
				0.03	SST	as above; broken													
				0.55	SST	as above; stick													
	336.8																		
				1.12	SST	as above; abrupt contact with clean sand below	68°										5.9	75	R4
				0.39	SST	coarse grain; moderately well sorted; massive													
	338.3																		
						END OF BOX 67													
68																	.6	100	R3
				1.53	SST	as above; with coaly wisp in middle; few brown mud chips throughout													
	339.8																0	100	R3
				1.33	SST	as above													
	341.4																		

ALL LINEAR UNITS IN METRES

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•RQD — ROCK QUALITY DESIGNATION (%)
FF —— FRACTURE FREQUENCY
°(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CRA NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	S.E. B.C.

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard.
				1.46	SST	as above											0	100	
						END OF BOX 68													
69																			
	342.9																		
				1.6	SST	as above											0	100	
	344.5																		
				0.97	SST	as above											2.7	91	
				0.13	SST	medium - coarse grain; abundant coaly wisps and partings throughout; slickensides on coaly partings													
				0.36	SST	coarse grain; abundant shale rip-up clasts through out; calcite filled fractures; massive													
	345.9																		
				0.61	SST	as above; without rip-up clasts but small mud chips throughout											1.93	97	
			343.2	0.27	SST	as above with abundant rip-up clasts													
		343.2		0.17	SLT	shaly in part with abundant plant fragments													
						END OF BOX 69													
70																			
				0.50	SLT	with fine grain sandstone interbeds; bedding disturbed by slumping; plant fragments throughout													
	347.5																		
			344.75	0.69	SLT/SST	as above; aburpt contact with sand below	74°										1.2	100	
		344.75	345.3	0.72	SST	coarse grain; generally massive; with a zone of rip up clasts in middle; faint bedding traces at base; abrupt contact with siltstone below													
		345.3		0.18	SLT	shaly; dark grey; soft deformation on siltstone-sandstone contact													
	349.0																		
				0.26	SLT	as above; abrupt contact with sand below	79°(t)										3.2	100	
				0.32	SST	coarse grain with abundant carbonaceous wisps throughout; few coaly partings; slickensides on partings; trace of bedding													
				1.01	SST	coarse grain; generally massive; moderately well sorted; rip-up clasts throughout; trace of coal wisps													
	350.5						70°										3.4	80	
				0.27	SST	as above	72°												
				0.34	SST	as above with faint bedding traces at 68°(t)	74°												
						END OF BOX 70													

ALL LINEAR UNITS IN METRES

x measured thickness of core

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•RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY
*(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac.* Freq.	RQD	Hard.
71			348.1	0.12	SST	as above													
		348.1	348.25	0.33	SLT	dark gray; minor sandy lenses; few plant fragments													
		348.25		0.44	SST	medium grain; massive; salt and pepper; increasing number of coaly partings toward base													
	352.0																		
				0.34	SST	coarse grain; salt and pepper; coarsely laminated											1.3	100	R3
				1.22	SST	medium to coarse grain; salt and pepper; massive; mud chips throughout; calcite filled fractures at top													
	353.6																		
				1.53	SST	as above with weathered out calcite filled fractures in middle; few coaly partings at base	70°										1.9	199	R3
	355.1																		
				0.33	SST	as above with one calcite filled fracture at base	80°												
							4x70°										4.1		
						END OF BOX 71													
72																			
				1.14	SST	as above; faint bedding traces; increasing number of coaly partings; calcite filled fractures at top													
	356.6																		
				1.54	SST	as above; abrupt contact with fine grain sandstone below 9°	75°										5.1	75	SS R4
							81°												wisps R3
	358.1		354.80																
		354.8		1.48	SST/SLT	dark gray; interbedded; sandstone is fine grain; cross-bedded; some soft sediment deformation on sand; silt contacts; some bioturbation; minor calcite filled fractures throughout; slickensides on bedding breaks; trace plant fragments	2x70°												
							66°												
							81°										4.1	89	R3
						END OF BOX 72													
73																			
	359.7			1.53	SST/SLT	as above with no slickensides; plant fragments throughout increasing toward base	2x76°										2.6	100	R3
	361.2																		
				0.45	SST	fine grain; medium to dark gray; coaly wisps throughout; one coal parting (.005 m thick) at base; slickensided along wisps and parting; generally massive; abrupt contact with laminate sandstone below	70°										1.4	99	R4
				1.02	SLT	fine to medium grain; finely laminated; dark sand lamina accentuates bedding and cross-bedding; carbonaceous material throughout; some soft sediment deformation shown toward base; minor calcite filled fractures throughout													
	362.7																		
				0.77	SST	as above; slickensides on bedding breaks	4x70°												
				0.19	SLT	dark gray; slightly shaly; trace plant fragments; gradating contact above and below	75°										3.8	93	R3

ALL LINEAR UNITS IN METRES

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FF —— FRACTURE FREQUENCY
*(†) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.11	SST	fine grain; medium to dark gray; plant fragments throughout; some soft sediment deformation													
				0.10	Shale	dark gray; silty in part; few plant fragments and coaly wisps throughout; slickensides on coaly wisps													
						END OF BOX 73													
74				0.45	SST	very fine to fine grain; faint bedding shows cross-bedding; and soft sediment deformation; trace plant fragments throughout													
	364.2			0.07	SLT	shaly; abundant carbonaceous material throughout	76°79°												
				0.16	SST	fine grain; thinly laminated; small scale cross-bedding gradational above; abrupt below	72° 70°										4.5	76	R3
				0.18	Shale	silty; dark gray one coaly wisp in middle which is slickensided													
				0.19	SST	fine grain; thinly laminated; cross-bedded; abrupt contact with shale below; slickensided at base													
				0.15	Shale	dark gray to black; carbonaceous; slickensides throughout abundant carbonaceous material throughout													
				0.21	SST	fine grain as sandstone described above with minor calcite filled fractures near top													
				0.06	Shale	same as shale described above													
				0.32	SST	fine grain; generally massive with faint bedding traces at top; some soft sediment deformation shown at shale; sandstone contact at top; minor plant fragments throughout; becoming shaly at base													
	365.8			0.19	Shale	dark gray; silty in part; carbonaceous material throughout; slickenside at top	2x72° 61°										.39	99	R3
				0.40	SST	fine grain with few silty interbeds; abundant carbonaceous material throughout; polished surfaces on fresh breaks	2x75°												
				0.96	SST	medium to dark gray; thinly laminated; cross-bedded; carbonaceous material throughout; minor calcite filled fractures throughout													
	367.3			0.25	SST	as above with some silty interbeds showing soft sediment deformation											2	100	R3
						END OF BOX 74													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE	HOLE No.	204
AREA		CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard.
75				0.44	SST	as above with abundant calcite filled fractures														
			364.65			throughout														
		364.65		0.28	Shale	silty; dark gray with trace plant fragments near base														
				0.53	Shale	dark gray to black; carbonaceous with abundant carbonaceous plant fragments														R2
	368.8																			
				0.85	Shale	as above; silty toward base with coaly wisps		76°										53	87	R2
			366.25			throughout; gradational contact with sandstone														
		366.25				below														
				0.66	SST	fine to medium grain; generally massive with faint bedding traces; calcareous with calcite filled fractures at base; some carbonaceous material at base														R3
	370.3																			
				1.50	SST	finely laminated; cross-bedded; calcareous with minor calcite filled fractures throughout; trace plant fragments with abundant carbonaceous material near base		75°(t) 80°										1.9	89	R3
						END OF BOX 75														
76				0.04	SST	as above														
	371.9																			
				1.61	SST	interbedded fine grain and coarse grain sandstone; cross-bedded; some soft sediment deformation; few slickensides along bedding; calcareous with minor calcite filled fractures near base; carbonaceous plant fragments near base		70° 72° 74°										2.5	100	R3
	373.4																			
				1.45	SST	as above; abundant carbonaceous plant fragments at base		71°(t)										2.8	85	R3
	374.9																			
				0.64	SST	as above; with numerous calcite filled fractures increasing in number at base	20° 06° 22° 12°	70° 83°(t)										4.8	71	R3
				0.72	SST	as above with numerous calcite filled fractures														
77						and slickensides with calcite on 3 joint surfaces broken along joint planes															
				0.32	SST	fine grain; trace bedding; calcareous with few calcite filled fractures throughout; some soft sediments deformation														
	376.4																			
				1.48	SST	fine to very fine grain; medium to dark gray; finely bedded; carbonaceous plant remains throughout; minute calcite filled fractures cut bedding at various angles; bedding wavey and inconsistent												4.7	100	R3

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE	HOLE No.	204
AREA		CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard.
	378.0			1.35	SST	as above; good stick; bedding planes wavey and deformed												4.5	98	R3
	379.5		376.60	0.56	SST	very fine grain; grading to siltstone at base;														
		376.60				dark gray; plant fragments throughout												6.0	94	R3
				0.17	SLT	medium grain; few plant fragments; shaly at top														
						END OF BOX 77														
78				0.83	SLT	medium gray; plant fragments throughout; few coaly wisps; minor calcite filled fractures at top; slightly calcareous														
	380.7			1.6	SLT	shaly in part; medium gray; few very fine grain sandstone lamina; trace carbonaceous plant material; one minor calcite filled fracture at top; minor soft sediment deformation at sandy lamina		70°(t)										1.9	97	R2
	382.2			1.14	SLT	as above; gradational contact with shale below												0	100	R2
				0.45	Shale	dark gray; slightly silty; few plant fragments; slightly calcareous														
	383.9			0.17	SLT	medium to dark gray; trace plant fragments												2.5	80	R2
						END OF BOX 78														
79				1.45	SLT	as above with minor calcite filled fractures in lower half; shaly in part												0	96	R3
	385.6			0.56	SLT	medium gray; abundant carbonaceous material														
			383.3			near base; one sandy lense near base; gradational														
		383.3				contact to shale below														
				0.87	Shale	medium gray; generally homogenous; one minor calcite filled fracture near top														
	387.1			1.49	Shale	as above; calcite filling along joint	9°											.6	100	R2
						END OF BOX 79														
80				0.10	Shale	dark gray														
	388.6			0.91	Shale	as above becoming carbonaceous at base; trace carbonaceous material at base														
		386.70		0.08	Coal	dull; stick														

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No.	204
CONTINUED	

CRC NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	× TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.03	Coal	dull with bright; stick													
				0.07	Coal	dull; stick													
	390.1																		
				0.33	Coal	dull; stick													
				0.15	Coal	dull; stick													
				0.09	Coal	dull; broken													
	391.1																		
				0.19	Coal	dull; stick													
				0.06	Coal	dull; broken													
				0.05	Coal	dull with bright													
				0.14	Coal	dull; stick													
				0.07	Coal	dull with bright													
	391.7																		
				0.17	Coal	dull; broken													
				0.33	Coal	bright with dull; broken													
				0.10	Coal	dull and bright; stick													
				0.06	Coal	bright with dull; stick			17	0.58		6.26	21.48	71.68	5.5				
				0.14	Coal	bright and dull; broken to powder													
				0.31	Coal	dull with bright; broken													
	393.2																		
				0.12	Shale	medium gray; carbonaceous and slickensides on bedding surface													
				0.03	Coal	bright and dull; broken													
				0.06	Coal	dull; broken													
				0.09	Shale	carbonaceous; black; stick													
				0.05	Coal	dull; stick													
	393.5																		
						END OF BOX 80													
81																			
				0.14	Coal	bright with dull; stick													
				0.05	Coal	bright; broken													
				0.05	Coal	dull with bright; stick													
				0.24	Coal	dull with bright; stick													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

°(t) Bedding Trace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.07	Coal	dull and bright; stick													
				0.05	Coal	dull; broken													
				0.07	Coal	bright; broken													
				0.07	Coal	bright and dull; stick													
				0.18	Coal	dull with bright; broken and powder													
	395.0			0.02	Coal	dull and bright; broken													
			391.9	0.13	Coal	dull; broken													
	395.3	391.9		0.17	Coal/Sh	mixed													
			392.6	0.48	Shale	light gray; slickensides on fracture planes													
		392.8		0.09	Coal	dull; broken													
				0.02	Shale	carbonaceous; iron staining on bedding surfaces; broken													
	396.2			0.04	Coal	dull with bright; stick													
				0.05	Coal	dull; stick													
				0.03	Coal	dull; broken													
				0.03	Coal	dull; stick													
				0.39	Coal	dull; broken stick													
				0.10	Coal	dull; stick			18	0.65		8.49	21.31	69.55	5.5				
				0.04	Shale	carbonaceous; stick													
				0.09	Coal	dull; stick													
				0.10	Coal	dull with bright; stick													
	397.8			0.19	Coal	dull; stick													
				0.21	Coal	dull with bright; stick													
				0.15	Coal	dull and bright; stick													
				0.12	Coal	dull and bright; stick													
			395.6	0.02	Coal	dull; stick													
		395.6		0.12	Shale	carbonaceous; numerous bright coaly wisps;													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

CK S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard
82				0.26	Shale	carbonaceous with plant fragments													
	399.3																6.3	57	R1
				0.68	Shale	dark gray; slickensides on fracture surfaces; trace carbonaceous material throughout	30°												
				0.03	Shale	as above; broken													
				0.12	Shale	as above; stick; slicked on base													
	400.2																		
				0.15	Shale	as above; coaly wisps throughout; slickensided along fracture surfaces											2.5	56	R1
				0.40	Shale	powdered													
				1.02	Shale	medium-dark gray; abundant plant fragments throughout; grades to siltstone; fine grain													
			399.5																
		399.5				sandstone at base													
	401.7																		
				0.52	SST	fine grain; finely laminated; cross-bedded; dark lamina accentuates bedding	0° 9°	72°(t)									9.7	20	R3
				0.06	SST	as above; broken	19°												
				0.19	SST	as above; stick; abundant calcite along joints; iron stained along joints													
	403.3																		
				0.06	SST	as above; broken; calcite filled fracture surfaces	22°										8.6	0	R3
				0.22	SST	as above; stick	17°												
						END OF BOX 82													
83																			
				0.10	SST	as above; broken; rubble													
	403.9																		
				0.60	SST	light to medium gray; fine grain; finely laminated calcite filling on fractures; broken stick; some carbonaceous material; slickensides on joint surfaces	30° 10°	73° 61°									3.2	63	R3
				0.09	SST	as above; broken													
				2.03	SST	as above													
					SST	as above; with more carbonaceous material													
	406.9																		
				0.88	SST	as above; stick; grading into a generally massive sandstone		2x82°									3.3	92	
				0.18	SST	fine to medium grain; generally massive; well sorted													
						END OF BOX 83													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) - Bedding Trace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT / AREA	HORSESHOE RIDGE

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	× TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	ROD	Hard
84				1.95	SST	medium to coarse grain; generally massive with some dark	68°												
						lamin a in middle; trace carbonaceous wisps; slickensides	2x75°												
						on bedding surfaces; calcite filled fractures throughout	79°										1.7	80	R3
	410.0																		
				0.56	SST	as above	67°												
				0.21	SST	medium grain; generally massive with abundant siltstone	71°												
						rip up clasts	74°												
				1.32	SST	fine grain; finely laminated; dark lamin a accentuates	79°										1.6	86	R3
						bedding; minor calcite weathering near top; few carbonaceous													
						plant fragments throughout													
				0.28	SST	salt and pepper medium grain; well sorted													
						END OF BOX 84													
85																			
				0.08	SST	as above; slightly carbonaceous with slickensides on carbonaceous bedding surfaces	86°												
	413.0																		
				0.38	SST	as above													
				0.22	SST	fine to medium grain; abundant carbonaceous material;													
			410.3			carbonaceous blebs up to .005 m. thick													
		410.3	411.2	0.61	Shale	carbonaceous; slickensides on bedding surfaces													
		411.2		0.09	Coal	dull with bright; broken													
				0.07	Coal	dull; broken													
				0.09	Coal	dull with bright; broken													
				0.14	Coal	dull; stick													
				0.09	Coal	dull; broken													
				0.06	Coal	dull; stick													
				0.04	Coal	dull with bright; stick													
				0.07	Coal	dull; stick			19	0.52		8.57	23.73	67.18	7.5				
				0.24	Coal	dull; stick													
	416.0																		
				0.11	Coal	dull; broken													
				0.16	Coal	dull and bright; stick													
			413.30	0.13	Coal	dull; stick													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(†) Bedding Frace

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % o.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
		413.30		0.06	Shale	carbonaceous; slickensides on bedding surfaces													
				0.04	Shale	carbonaceous; large pyrite blebs; slickensides on bedding													
				0.13	SST	medium grain with siltstone interbedded; abundant carbon- aceous material; flame structures at sand/silt. contacts													
				0.43	SST	medium grain; abundant carbonaceous material; salt and pepper	85°												
						END OF BOX 85													
86				9.20	SST	as above													
				1.77	SST	coarse grained; generally massive with faint bed- ding trace in middle; salt and pepper; medium well sorted; minor calcite filled fractures throughout; coaly wisps throughout											3.3	79	R3
	419.1																		
				2.61	SST	as above; abrupt contact with unit below													
87			418.60																
		418.60		0.06	Shale	black; carbonaceous; broken													
				0.09	Coal	dull; stick													
	422.1																		
			419.20	0.37	Shale	black; carbonaceous; coaly wisps throughout; slickensides on bedding breaks	38°	74°									10.1	65	
								71°											
								4x82°											
		419.20		0.33	SLT	interbedded with fine grain sand; abundant carbonaceous wisps throughout;		76°											
								74°											
				0.06	SLT	as above; broken													
			420.0	0.22	SLT	as above; stick													
		420.0																	
				0.35	Shale	black; slickensides abundant throughout; carbonaceous plant fragments													
			420.4																
		420.4		0.29	Coal	dull; broken to powder; abrupt contact with sandstone below													
			420.75																
		420.75																	
				1.32	SST	coarse grain; salt and pepper; massive; carbon- aceous at top; medium well sorted; minor calcite weathering feature at base													
	425.2			0.70	SST	as above; natural fracture surfaces covered by polished carbonaceous matter	22°	77°									3.6	91	R3
						END OF BOX 87													

ALL LINEAR UNITS IN METRES

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

•RQD — ROCK QUALITY DESIGNATION (%)

FF —— FRACTURE FREQUENCY

°(t) Bedding Trace

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 204 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	
AREA	

HOLE No. CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	x TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard
88				2.36	SST	as above; bedding less massive; bedding planes		78°												
						easily distinguishable; cross-bedding abundant														
	428.2																			
				2.15	SST	as above	31° 22°	60°66°										5.2	90	R3
								62°												
						END OF BOX 88														
89																				
				0.97	SST	as above														
	431.3																			
				0.71	SST	as above		58°58°										4.2	81	
								69°												
				0.14	SLT	carbonaceous; slickedinsides on bedding breaks;		75°68°												
						coarse grain sand partings		78°												
				1.35	SST	as sandstone above		75°												
								4x68°												
				0.08	CNGL.	poorly sorted chert pebble conglomerate with		2x65°												
						a coarse grain sand matrix; calcite filled fractures														
				0.07	SST	coarse grain; massive; salt and pepper														
				0.15	CNGL.	as conglomerate above														
				0.52	SST	coarse grain at top; fining down to medium grain														
						at base; chert pebbles throughout														
	434.3																			
				0.19	SST	as above														
						END OF BOX 89														
90																				
				1.12	SST	coarse grain; salt and pepper sand; massive;	43°	56°										2,7	71	
						slickensides on fracture surfaces; vuggy at top;	39°x2	55°												
						carbonaceous throughout														
				0.38	SLT	carbonaceous; extremely distorted; no continuity		0°(t)												
						to bedding directions; laminations end abruptly at														
						fractures; fractures slickensided (slump?)														
				0.43	SST	coarse grain; massive; salt and pepper; calcite														
						filled fractures; numerous coaly wisps; minor														
			433.80			pyrite/marcacite throughout														
		433.80		0.11	Coal	dull; powder														
	437.4																			
				0.04	Coal	dull; broken														
				0.28	Coal	dull; broken														
				0.08	Coal	dull with bright; broken														
				0.33	Coal	dull; broken														

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. CONTINUED 204

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT
AREA

HOLE No.
CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS † Frac. Freq.	RQD	Hard
	438.9			0.14	Coal	dull; broken													
				0.15	Coal	dull; stick													
				0.06	Coal	dull; broken													
				0.14	Coal	dull with bright; stick													
				0.13	Coal	dull; stick													
				0.09	Coal	dull with bright; broken													
				0.27	Coal	dull; stick													
				0.11	Coal	dull; broken			20	0.85		9.70	22.02	67.43	7				
				0.06	Coal	dull with bright; broken													
				0.04	Coal	dull; broken													
				0.10	Coal	dull; broken													
				0.04	Coal	dull; stick													
	440.4					END OF BOX 90													
91				0.15	Coal	dull with bright; broken and powder													
				0.12	Coal	bright with dull; broken													
				0.23	Coal	dull; broken and powder													
				0.07	Coal	dull with bright; broken													
				0.09	Coal	dull; broken and powder													
				0.02	Coal	dull; broken													
				0.22	Shale	medium gray; silty; abundant carbonaceous fragments; slickensides at base													
	442.0			0.05	Shale	as above; more carbonaceous													
				0.11	Coal	bright; powder													
				0.29	Coal	dull and bright; powder													
				0.39	Coal	dull with bright; broken													
	443.5			0.10	Coal	bright and dull; broken													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

× measured thickness of core

HOLE No.
CONTINUED 204

CI ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 204 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS† Frac. Freq.	RQD	Hard
				0.10	Coal	bright with dull; broken													
				0.06	Coal	dull with bright; broken and powder													
				0.17	Coal	dull and bright; broken													
				0.05	Coal/Sh	broken													
				0.09	Coal	bright with dull; broken													
				0.10	Coal	dull with bright; stick													
				0.12	Coal	dull; broken													
				0.15	Coal	bright and dull; stick													
				0.06	Coal	dull with bright; powder													
				0.03	Coal/Sh	broken													
				0.10	Shale	dark gray-black carbonaceous; plant fragments; broken													
				0.11	Shale	as above; stick													
	445.0			0.78	Shale	dark gray-black; abundant carbonaceous debris													
						END OF BOX 91													
92																			
				0.59	Shale	as above; broken stick													
	446.5			0.50	Shale	as above; broken stick 9°	62°										2.4	75	
				0.48	SLT	black; abundant carbonaceous material; becoming 30°	70°												
						coarser at base	66°												
				1.22	SLT/SST	interbedded sandstone-siltstone; finely laminated	66°												
						finely cross-bedded; sandstone in fine grain													
						and coarsening towards base; calcite on													
						fracture surfaces													
				0.51	SST	medium grain; salt and pepper sand; finely													
						cross-bedded; carbonaceous material throughout													
	449.6																		
				0.87	SST	as above													
						END OF BOX 92													
93																			
				2.23	SST	as above; gradual coarsening of sand grain 21°	7x64°										2.6	100	
						size towards base													
	452.8					END OF CORE BOX 93													
						END OF HOLE #204													

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

*(t) Bedding Trace

HOLE No. 204 CONTINUED

HORSESHOE RIDGE

DRILL HOLE 205

CORING PERFORMANCE

SEAM DESIGNATION	SAMPLE NUMBER(S)	% RECOVERED ($\frac{\text{Meas. Thick.}}{\text{Geoph. Thick}}$)
6 Lower	21	7%
7 Upper	22	60%
7 Lower	23, 24, 25	60%
8 Upper	26	91%
8 Lower	27	45%
8 Lower	28	39%
8 Lower	29	63%
8 Lower	30	9%
	31 Upper	86%
	31 Lower	60%
	32	88%

Avg. Coal Core Performance = 56%

Total Rock & Coal Core Performance = 84%

CROWS 'ST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	S.E. BRITISH COLUMBIA

DATE		
BEGIN	Aug. 22/79	
END	Sept. 6/79	

HOLE No. 205

HOLE PARTICULARS

LOCATION	5 534 384.79 N 661 824.78 E		
ELEVATION	1922.46 m	HOLE BEARING (AZ°)	080°
TOTAL DEPTH	291.00 m	HOLE ANGLE (°)*	55° E

LOGGING

LOGS RUN	CCS
LOGGED BY	BPB
OTHER TESTS	NIL
	NIL

COAL CORING PERFORMANCE

CORE DIAMETER		HQ
TOTAL	CORE RECOVERED	23.28
	LENGTH CORED	41.59
	CORE RECOVERY	56 %

EXAMINATION

LOG USED	Coal Lithology
No. OF SEAMS SAMPLED	1
EXAMINER (S)	JLL
DATE	Sept. 1979

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	×TH	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints ▲ BEDDING ANGLE (°)		SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
						Casing to 12.19 m												
1		10.40																
				0.07	Coal	dull; broken to powder												
	12.19			0.10	Coal	dull; broken												
				0.04	Coal	dull with bright; powder												
				0.04	Coal	dull; peacock staining; with minor pyrite and chalcopyrite (?) blebs; stick												
	14.02					CORE LOSS												
	15.09									HS-21								
				0.05	Shale	medium-dark gray with iron staining; minor slickensides; broken												
	16.15																	
				0.05	Shale	as above; broken												
	17.07																	
				0.05	Coal	dull with bright; broken												
			16.30															
		16.30																
				0.42	Shale	slightly silty; dark gray; abundant plant fragments	12°	54°										
						iron staining along bedding and fractures; stick	32°											
				0.10	Shale	as above; broken	16°											
				0.44	Shale	as above; stick	31°	80°-73°										
								72°										
	17.98																	
				0.20	Shale	silty; carbonaceous plant fragments; bioturbated;	42°	71°										
						pyrite blebs; iron staining on joints; stick	24° 16°											
				0.34	Shale	as above; broken												
	20.12																	
			18.10	0.07	Shale	as above; broken		72°										
		18.10																
				0.33	SLT/SST	silt and sand interbeds; soft sediment deformation	32°	74°										
						sand finely cross-bedded; minor rip-up clasts; few	44°	75°										
			18.50			plant fragments; iron staining on joints; quartz	19°	85°										
						filled fractures at base; stick; gradational basal		72°										
		18.50				contact with shale below												
				0.29	Shale	slightly silty; medium-dark gray; few plant fragments; iron staining on fractures and bedding												

ALL LINEAR UNITS IN METRES

× measured thickness of core

* : MEASURED FROM THE HORIZONTAL PLANE

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

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205

FILE No. 8A-211A
REVISED Nov. 1978

C S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
	21.64					END OF BOX 1											
2																	
				0.76	Shale	as above											
	23.2		19.90														
		19.90		0.35	SLT	dark gray; rusty weathering on fractures with sandy lenses towards base; broken											
	24.1																
				0.30	SST/SLT	interbedded fine grain sandstone and siltstone; sandstone coarsening towards base											
				0.18	SST	medium grain; salt and pepper; massive; thin carbonaceous siltstone interbeds; larger mud chips towards base	82°(t)										
			20.80	0.11	SLT	medium gray; broken											
		20.80		0.36	SST/SLT	interbedded fine grain sandstone and carbonaceous siltstone carbonaceous plant fragments throughout											
	25.90																
			22.20	0.67	SST/SLT	as above											
		22.20		0.18	SST	medium grain; generally massive; salt and pepper; poorly sorted; thin carbonaceous siltstone wisps throughout; iron staining on broken surfaces; broken											
				0.21	SLT	dark grey; stick											
	27.70																
				0.24	SST	coarse grain; coarsly cross-bedded; carbonaceous material throughout; heavy iron staining on fracture surfaces; calcite filled fractures	74°(t)										
						END OF BOX 2											
3																	
				0.30	SST	as above; iron staining throughout											
				0.08	SST	coarse grain; very friable due to abundant iron weathering; orange in color											
				0.89	SST	medium grain; moderately well sorted; thinly laminated with light and dark lamina coarsely cross-bedded; minor iron staining on broken surfaces; carbonaceous material throughout; minor calcareous cement; abundant calcite filled fractures; thin zone (.10 m) massive sandstone with mud chips towards base											
	29.26																
				1.31	SST	as above; contains thin zones of coarse grain, massive sandstone											
	30.78																
				0.64	SST	as above											
				0.67	SST	coarse grain; salt and pepper sand; moderately well sorted coarsely laminated with light and dark lamina ; planar											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. /S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
						bedding at 34° to core axis; calcite filled fractures;											
						calcareous cement											
						END OF BOX 3											
4																	
				0.21	SST	as above; with thin zones of rusty weathering											
	32.31																
				0.10	SST	as above											
				0.76	SST/SLT	interbedded medium grain sandstone and carbonaceous silt-											
						stone; finely laminated; minor cross-bedding; thin coaly											
						wisps towards base											
				0.57	SST	medium-coarse grain; poorly sorted; faint laminations;											
						generally massive; abundant calcite filled fractures											
	33.83																
				0.05	SST	as above; with thin coaly wisps											
				1.49	SST	coarse grain; predominantly dark grains; moderately well											
	35.36					sorted; abundant calcite filled fractures; vuggy in places											
						due to weathering out of calcite; abundant coaly wisps;											
						carbonaceous material throughout; pyrite blebs on fracture											
						surfaces; contains zones of heavy iron staining											
				0.57	SST	as above; broken stick											
						END OF BOX 4											
5																	
				0.09	SST	as above											
	36.12																
				0.05	SST	as above; broken											
				0.26	SST	as above; broken stick											
				1.16	SST	as above; increasing amount of disseminated pyrite through-											
						out											
	37.80																
				0.30	SST	as above											
	38.10																
				0.33	SST	as above; broken stick											
				0.58	SST	as above; stick											
	39.01																
				0.79	SST	as above; broken stick											
	39.93																
						END OF BOX 5											
6																	
			39.95	1.03	SST	as above											
		39.95		0.35	Shale	dark gray; slickensides on fracture surfaces											
	41.45																

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. ...S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.22	Shale	as above; with iron staining on fractures											
				0.19	Shale	as above; broken											
			42.75	0.48	Shale	as above; broken stick											
		42.75	43.70	0.36	SST	medium grain; poorly laminated at top; becoming massive at base; coaly wisps at base; broken stick											
	42.98		46.25	0.56	Shale	black; carbonaceous plant fragments throughout; slickensides on fractures and bedding breaks; iron staining on bedding breaks											
		46.25		0.11	SST	coarse grain; poorly sorted; numerous coaly wisps; slickensides on breaks; contains pyrite in blebs and disseminated carbonaceous material throughout; calcite filled fractures											
						END OF BOX 6											
7																	
			47.20	0.29	SST	as above; rip-up clasts at base											
		47.20		0.12	SLT	dark gray; carbonaceous; slickensides on bedding breaks; calcite filled fractures; minor sandy lenses											
	44.50																
				0.16	SLT	as above											
				0.15	SST	fine grain; finely cross-bedded; abundant carbonaceous material throughout											
				0.20	SLT	black; carbonaceous; calcite filled fractures; calcite and slickensides on fracture surfaces; broken stick											
				0.15	SLT	as above; stick											
	45.11																
				0.26	Shale	dark gray-black; stick											
				0.18	Shale	as above; broken											
				0.42	Shale	as above; with slickensides on fractures											
	46.02																
			50.40	1.36	Shale	as above; with calcite filled fractures											
		50.40		0.32	SST	fine grain; with abundant carbonaceous lamina ; lamina disturbed by minor movement along fractures											
	47.55																
				0.16	SST	fine grain; finely laminated with thin carbonaceous siltstone interbeds											
						END OF BOX 7											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
8			51.55	0.37	SST	as above; calcite on fractures											
		51.55		0.86	Shale	black; abundant carbonaceous plant fragments											
	49.07																
			52.80	0.03	Shale	as above											
		52.80		0.24	SST	medium grain; coarsening towards base; carbonaceous materia											
			53.25			throughout; cross-bedded calcite filled fractures											
		53.25		1.22	Shale	dark gray-black; abundant plant fragments throughout;											
						calcite on fractures towards base; becoming silty towards											
						base											
	50.60																
				0.64	Shale	as above; silty											
				0.61	SLT	gray; with abundant plant fragments throughout; numerous											
						sandy lenses; calcite filled fractures; slickensides on											
						fracture surfaces											
				0.21	Shale	silty; carbonaceous; abundant plant fragments; calcite											
						filled fractures											
						END OF BOX 8											
9																	
	52.12			0.28	Shale	as above											
				0.16	SST/SLT	interbedded fine grain sandstone and siltstone;											
						bioturbated calcite on fracture surfaces											
				0.73	SLT	dark gray-black; with abundant plant fragments; calcite											
						filled fractures at top											
				0.42	SLT	as above; with thin sandy lenses											
	53.64																
				0.71	SLT	as above											
				0.82	Shale	dark gray-black; amount of carbonaceous material increasing											
						towards base; calcite filled fractures at base											
	55.17																
				0.44	Shale	as above; with large pyrite/marcasite nodules at base;											
						broken stick											
				0.56	Shale	coaly; broken											
						END OF BOX 9											
10																	
				0.35	Shale	dark gray with plant fragments; trace of coaly wisps											
	56.69						Joints										
				0.08	Shale	medium gray; slickensides on bedding; broken	35°	66°60°									
				0.24	Shale	as above; stick; no slickensides	5°										

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.03	Shale	as above; broken	0°										
				0.07	Shale	as above; stick	61°										
				0.16	Shale	as above; broken											
				0.40	Shale	as above; slickensides on joints; minor calcite on joints											
				0.14	Shale	as above; no slickensides; broken											
				0.07	Shale	as above; stick											
	58.22																
				0.35	Shale	as above; broken											
		57.70							↑								
				0.16	Coal	dull with bright; stick											
				0.28	Coal	dull; stick											
				0.10	Coal	dull with bright; broken											
				0.03	Coal	dull; powder											
			58.30														
		58.30		0.22	Shale	dark gray; numerous coaly wisps											
			58.50														
		58.50		0.23	Coal	dull; powder			HS-22								
	59.74																
				0.06	Coal	dull with bright; broken											
				0.17	Coal	dull; powder											
				0.15	Coal	dull; stick											
				0.03	Coal	dull; powder											
						END OF BOX 10											
11																	
				0.10	Coal	dull; broken											
				0.28	Coal	dull; powder											
	61.26																
				0.27	Coal	dull; broken to powder											
				0.05	Coal	dull; stick											
				0.07	Coal	dull; powder											
				0.06	Coal	dull with bright; stick											
				0.15	Coal	dull; powder											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C 'S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE	HOLE No.	205
AREA		CONTINUED	

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.26	Coal	dull with bright; broken												
	62.79																	
				0.21	Coal	dull; broken												
				0.05	Coal	dull; powder												
				0.13	Coal	dull with bright; broken												
				0.05	Coal	dull; stick												
				0.22	Coal	dull with bright; trace pyrite; stick												
	64.31																	
				0.44	Coal	dull; broken; trace pyrite												
	65.84																	
				0.33	Coal	dull; stick; trace pyrite												
				0.03	Coal	bright with dull; stick; trace pyrite												
				0.22	Coal	dull; stick; trace pyrite												
				0.04	Coal	dull; broken; trace pyrite												
				0.30	Coal	dull; stick												
				0.10	Coal	dull with bright; stick				HS-22								
				0.09	Coal	dull; stick												
				0.19	Coal	dull; broken												
				0.04	Coal	dull; stick												
						END OF BOX 11												
12																		
				0.12	Coal	dull; stick												
			66.50	0.03	Coal	dull with bright; broken												
	67.36	66.50								↓								
				0.14	Shale	silty; dark gray; abundant plant fragments;												
						slickensides; broken												
	67.67																	
				0.11	SST/SLT	brecciated by minor faults												
	67.82																	
				0.10	SST	with silt interbeds; slickensides along sand-	40°	44°										
						silt contacts; quartz filling along fractures	36°	63°										
						with minor pyrite blebs		37°		FAULT ZONE								
				0.31	SST/SLT	brecciated by minor faults; slickensides; quartz	30°	27°										
						and calcite filled fractures	57° 42°											

ALL LINEAR UNITS IN METRES

X MEASURED THICKNESS OF CORE

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR , NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.26	SLT	medium gray; abundant slickensides; calcite filled fractures; minor carbonaceous debris; stick												
	68.58			0.08	SLT	as above; broken												
				0.21	SLT	shaly; abundant calcite filled fractures; slickensides along bedding; stick	56° 32°											
				0.05	SLT	as above; broken	29°	49°										
				0.13	SLT	as above; stick		55°										
				0.06	SLT	as above; broken												
				0.07	Shale	dark gray; slickensided; broken												
	69.39																	
			69.2	0.34	Shale	dark gray; slickenside along coaly wisp												
		69.2								↑								
				0.14	Coal	dull; stick												
	70.14																	
				0.16	Coal	dull; broken; stick												
				0.04	Coal	dull with bright; stick				HS-23								
				0.10	Coal	dull with bright; stick												
				0.11	Coal	dull with bright; stick												
						END OF BOX 12												
13				0.17	Coal	bright with dull; stick												
				0.03	Coal	dull; broken												
			70.50	0.08	Coal	bright with dull; broken				↓								
	71.32	70.50																
				0.17	Shale	medium gray; abundant plant fragments												
	71.48																	
			71.50	0.57	Shale	with silt and fine grain sand; interbeds plant fragments; stick	2x60°											
		71.50		0.24	SLT	with fine grain sand interbeds; some cross-bedding minor soft sediment deformation on sand-silt contact; minor calcite filled fractures												
				0.66	SLT	as above; no calcite												
	73.15		73.50															
		73.50		1.31	Shale	with silty and sand interbeds; sand is cross-bedded; minor soft sediment deformation; plant fragments throughout; pyrite blebs near base; minor calcite filled fractures in shale; stick		68°										

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CI 5 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
				0.06	Shale	as above; broken												
				0.14	Coal	dull; powder												
	74.68																	
				0.36	Shale	medium gray; trace plant fragments; homogenous throughout	22° 2x19°											
						END OF BOX 13												
14																		
				0.35	Shale	as above; stick												
	75.74																	
				0.12	Shale	as above; stick												
				0.08	Shale	as above; broken												
			75.3	0.19	Shale	medium gray; abundant fragments; few coaly wisps; iron	Iron											
		75.3				iron staining on coal												
				0.03	Coal	dull; stick				↑								
				0.08	Shale	with abundant coaly wisps; with peacock stain												
				0.18	Coal	dull; stick				HS-24								
	76.50																	
			76.20	0.32	Coal	dull; stick; iron and peacock staining				↓								
	76.96	76.20																
				0.07	Shale	abundant plant fragments; slickensided; broken	40°	70°										
				0.16	SLT	heavily bioturbated; abundant pyrite calcite filled fractures; stick												
				0.29	SLT	light gray; abundant calcite filled fractures; grading downward into a fine grain sand												
				0.64	SST	fine grain; with silty interbeds; medium - dark gray; finely cross-bedded; minor calcite filled fractures; abrupt basal contact												
				0.18	SLT	medium - dark gray; trace plant fragments; abrupt contact at base												
				0.12	SST	fine grain; cross-bedded with minor calcite filled fractures; slickensides on bedding												
	78.63																	
				0.64	SST	fine - medium grain; cross-bedded; minor plant fragments; poorly sorted; salt and pepper; pyrite stains near base; minor calcite filled fracture at top		60° 69° 67° 73°										
				0.05	Coal	dull; broken												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR : NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.04	SST	as above; slickensides; abrupt top and basal contacts												
	79.55					END OF BOX 14												
15		78.6																
				0.25	Coal	bright and dull; stick				↑								
				0.25	Coal	bright with dull; stick				HS-25								
				0.06	Coal	dull; powder				↓								
			79.90															
		79.90		0.09	Shale	dark gray; carbonaceous; plant fragments with pyrite blebs												
			80.20															
		80.20		0.42	SLT	medium gray; trace plant fragments; slickensided along coaly wisps; minor calcite filled fractures at base												
				0.21	SLT	as above with abrupt basal contact; no slickensides		73°										
				1.32	SST	fine grain with silty interbeds; cross-bedded; few rip-up clasts near top; soft sediment deformation; minor calcite filled fractures; vuggy in middle		65° 71°										
	82.6			0.21	SLT	plant fragments throughout; minor calcite filled fractures	8°											
	82.91		82.50															
		82.50		1.18	SST	salt and pepper; medium-coarse grain; poorly sorted; slickensides on bedding; coaly wisps increasing towards base; non-destinct bedding; minor calcite filled fractures	42° 5°	65°										
						END OF BOX 15												
16																		
				0.36	SST	as above												
	84.43																	
				0.57	SST	as above; with rip-up clasts at base; undulating contact with silt below	19°	74°										
			85.20	0.73	SST	fine grain with some silty interbeds; calcite on fracture surfaces												
	85.65	85.20																
				0.39	SLT	dark gray; stick		54°										
				0.88	Shale	black; carbonaceous; some thin coaly partings becoming silty towards base	30°											
			86.40															
		86.40																

ALL LINEAR UNITS IN METRES

x measured thickness of core

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.30	SST	fine grain with thin coaly partings; carbonaceous material throughout; contains small pods of coarse grain sand											
	87.17																
				0.41	SST	medium grain; generally massive; carbonaceous material throughout											
			87.10														
		87.10		0.24	SLT	dark gray; sandy; minor carbonaceous plant fragments											
						END OF BOX 16											
17																	
				0.70	SLT	as above											
	88.70																
				1.54	SLT	as above											
	90.22																
				0.97	SLT	as above											
				0.65	SLT	as above with thin fine grain sandy partings											
	91.74																
				0.39	SLT	as above; minor calcite filled fractures											
						END OF BOX 17											
18																	
				1.20	SLT	as above											
	93.27																
				0.46	SLT	as above											
				0.67	SST	fine to medium grain; cross-bedded at top; planar lamina at base; very irregular contact with siltstone below	65°										
				0.29	SLT/SST	interbedded sandstone and siltstone; calcite filled fractures; carbonaceous throughout											
	94.79																
			94.50	0.71	SLT/SST	as above											
		94.50															
				0.48	SST	medium grain; cross-bedded at top; more massive at base; calcite filled fractures throughout											
				0.35	SST	medium grain; abundant carbonaceous material on bedding surfaces; finely cross-bedded; abundant calcite filled fractures											
						END OF BOX 18											
19																	
	96.31			1.33	SST	as above; becoming coarser at base											
				0.16	SST	coarse grain; salt and pepper; massive; abundant coaly wisps; calcite filled fractures throughout											
	97.84																

ALL LINEAR UNITS IN METRES

x measured thickness of core

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C: S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG	SAMPLE No.	ANALYTICAL DATA MOIST % o.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				1.42	SST	as above; slickensides on bedding surfaces	45°	68°(†)										
	99.36																	
				1.10	SST	as above												
						END OF BOX 19												
20																		
				1.52	SST	as above		72°65° 70°75°										
	102.41							65°										
				1.51	SST	coarse grain; massive sandstone; poorly sorted; carbonaceous material throughout; large and small mud chips throughout; numerous coaly partings and calcite filled fractures												
	103.94																	
			103.7	0.56	SST	as above												
		103.70		0.15	SLT	dark gray-black carbonaceous; slickensides on breaks												
						END OF BOX 20												
21																		
				0.30	SLT	as above		68°										
				0.47	SLT/SST	interbedded sandstone and siltstone; fine grain sandstone; cross-bedded; carbonaceous material throughout												
	105.46																	
			104.80	0.07	SLT/SST	as above	31°	78°										
		104.80		0.68	SST	coarse grain; abundant coaly partings; small mud chips throughout; disseminated pyrite throughout; broken stick												
				0.37	SST	medium grain; massive; salt and pepper; sand well sorted												
	106.98																	
				1.01	SST	as above; with calcite filled fractures at base												
	107.90																	
				0.42	SST	as above												
				0.62	SST	as above; with few mud chips at the top and increasing in number and size towards base		79°										
						END OF BOX 21												
22																		
				0.20	SST	as above												
	109.42																	
				0.26	SST	as above												
				0.46	SST	as above with fewer mud chips; numerous calcite filled fractures												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CLYDE NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
	110.03					Joints											
qq				0.37	SST	as above											
				1.16	SST	medium grain; generally massive; salt and pepper;	46°	64°									
						numerous mudchips of various size throughout		65°									
	111.56																
				0.86	SLT	carbonaceous material throughout; calcite filled		68°									
						fractures at base		65°									
				0.47	SST	fine grain; cross-bedded; carbonaceous material											
						throughout											
				0.18	SST	coarse grain; massive; coaly wisps; and carbon-											
						aceous material throughout											
						END OF BOX 22											
23																	
	113.08			0.58	SST	as above; coaly wisps increasing in number											
						towards base; broken stick											
	113.69																
				1.41	SST	medium grain; cross-bedded and coarsly laminated;	26°	81°									
						coaly wisps; few calcite filled fractures; broken		2x75°									
						stick											
	116.13																
				1.30	SST	as above with more coaly wisps and breaks on coaly		70°									
						partings											
	117.50																
			116.70	0.27	SST	as above											
		116.70		0.08	SLT	abundant carbonaceous material throughout											
						END OF BOX 23											
24																	
	117.96			1.32	SLT/SST	interbedded fine grain sandstone and siltstone;											
						sandstone is crosss-bedded; irregular bedding											
						contacts; carbonaceous material throughout											
	119.18																
				0.09	SLT/SST	as above											
				1.44	SLT	dark gray with minor carbonaceous material	23°	64°									
						throughout; thin fine grain sandy pods											
	120.70																
				1.31	SLT/SST	interbedded fine grain; sandstone and siltstone;	55°	76°									
						sandstone is cross-bedded; siltstone is carbon-	30°										
						aceous; minor calcite filled fractures											
						END OF BOX 24											
25																	
				0.04	SST/SLT	as above											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSEHSOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
	122.22					Joints											
				0.32	SST	fine grain; cross-bedded; thin carbonaceous silty interbeds; abundant calcite filled fractures; soft sediment deformation	32°	62°									
				0.37	SLT	dark gray with carbonaceous material; calcite on fracture surfaces; movement is evident on fractures											
				0.09	SST	fine grain; cross-bedded; calcite infilling of burrows (?) truncated sharply by overlying siltstone											
				0.87	SST/SLT	interbedded sandstone-siltstone; sandstone is cross-bedded; calcite on fractures; soft sediment deformation											
	123.75																
				0.41	SST/SLT	as above; movement evident along fractures	16°										
				0.38	SST/SLT	as above; broken	18°										
				0.18	SST/SLT	as above; stick	9°										
				0.60	SST/SLT	as above; sandstone becoming massive											
	125.27																
				0.58	SST/SLT	as above; increasing number of fractures	18° 9°										
						END OF BOX 25											
26																	
				1.01	SST/SLT	as above	8° 13° 37° 37° 23°										
	126.80																
				1.48	SST/SLT	mostly siltstone with interbeds of cross-bedded sandstone; abundant calcite filled fractures; minor movement along fractures	3x45° 53° 54°	73°62° 65°65° 50°									
	128.32																
				0.11	SLT	dark gray-black; carbonaceous material throughout; broken	43° 12°	61°									
				0.12	SLT	as above; stick	14°										
				0.07	SLT	as above with calcite filled fractures	0°										
				0.28	SLT	as above with 0.02 calcite filled fracture; brecciated zone; siltstone chips in calcite filled fracture											
				0.96	SST	very fine grain; almost silty with fine grain sandy lenses; minor carbonaceous plant material											
	129.84																
						END OF BOX 26											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CF ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
27																		
				1.31	SST	as above with abundant carbonaceous material	46°	70°										
						throughout	43°	59°										
	131.37																	
				0.05	SLT	black carbonaceous	6°	72°										
				0.06	SST	medium grain; cross-bedded carbonaceous material	21°	3x66°										
						throughout	55°	62°										
				0.52	SLT	black; coaly material on bedding breaks; carbon-	0°											
						aceous material throughout; calcite on fractures												
				0.15	SST	medium grain; coarsening towards base; mud chips												
						at base; carbonaceous material throughout												
				0.11	SLT	black carbonaceous												
				0.07	SST	coarse grain; cross-bedded												
				0.26	SLT	dark gray-black; abundant plant fragments; calcite												
			132.00			on fracture surfaces												
		132.00		0.10	SST	medium grain; cross-bedded; carbonaceous material												
						throughout; calcite and pyrite on fracture												
						surfaces												
	132.89																	
				1.36	SST	medium grain; finely cross-bedded; salt and pepper		5x65°										
						grains; carbonaceous material throughout; minor		3x40°										
						coaly partings												
	134.11																	
				0.05	SST	as above; slickensides on coaly partings												
						END OF BOX 27												
28																		
				0.10	SST	as above												
				0.54	SST	medium grain; thin planar lamina ; carbonaceous		3x68°										
						mateiral throughout		6x74°										
				0.18	SST	coarse grain; massive; salt and pepper; minor												
						calcite filled fractures												
				0.73	SST	medium grain; thin planar lamina ; carbonaceous												
						material throughout												
	135.60																	
				0.56	SST	as above with mud chips at base	4°	55°72°										
	136.25																	
				1.23	SST	as above		2x55°										
	137.48																	
				0.70	SST	as above; becoming more massive												
						END OF BOX 28												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CI 5 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
29																		
				0.43	SST	as above; with numerous coaly partings		2x72°										
	138.68																	
				1.18	SST	medium grain; generally massive; faint lamina; calcite filled fractures; carbonaceous material throughout; few coaly partings	2x6°	3x72°										
	139.90																	
				1.50	SST	as above; with numerous coaly partings												
	141.42																	
				0.89	SST	as above; fewer coaly partings; bedding becoming more distinct		4x62° 73°										
						END OF BOX 29												
30																		
				0.16	SST	as above												
				0.31	SST	medium-coarse grain; massive; numerous coaly wisps and partings; easily broken along coaly partings												
	142.98																	
				0.52	SST	as above; undulating contact with underlying sediments												
			142.80															
		142.80		0.22	SST/SLT	interbedded fine grain sandstone with carbonaceous siltstone; sandstone is finely cross-bedded												
	143.56																	
				0.91	SST/SLT	as above												
	144.47																	
				1.56	SST/SLT	as above with minor calcite filled fractures		3x75°										
	146.00							60°										
				0.41	SST/SLT	as above												
						END OF BOX 30												
31																		
				1.21	SST/SLT	as above; minor bioturbation	6° 12°51°	66°										
	147.61																	
				1.60	SST/SLT	as above; increase in number of zones where bedding lamina have been disturbed due to bioturbation		2x68°										
				1.43	SST/SLT	as above with more calcite filled fractures												
			150.60															
						END OF BOX 31												
32		150.60																
				0.17	Shale	dark gray; minor carbonaceous plant fragments; stick												
	150.88																	
				0.23	Shale	as above with slickensides on bedding		74°										
				0.18	SST/SLT	interbedded; sandstone is cross-bedded		2x62°										

ALL LINEAR UNITS IN METRES

x measured thickness of core

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FF —— FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CE S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
				1.03	SLT	shaly; abundant carbonaceous plant fragments; slickensides on bedding; few minor sandy lenses												
	152.40		152.10	0.03	SLT	as above; broken												
		152.10	152.60	0.25	Coal	dull; broken												
		152.60		0.03	Shale	carbonaceous; slickensides on bedding; minor coaly wisps; broken												
	153.31																	
				0.09	Shale	as above; stick												
			152.80															
		152.80		0.04	Coal	dull; broken				↑								
				0.06	Coal	dull and bright; large pyrite blebs; stick												
				0.06	Coal	dull with bright; stick												
				0.04	Coal	dull; powder												
				0.10	Coal	dull with bright; stick												
				0.06	Coal	dull; broken												
				0.05	Coal	dull with bright; broken												
				0.08	Coal	dull; stick												
				0.06	Coal	dull with bright; stick												
				0.07	Coal	dull; stick												
				0.11	Coal	dull with bright; stick												
				0.03	Coal	dull and bright; stick												
				0.04	Coal	dull; stick												
				0.04	Coal	dull with bright; stick												
				0.10	Coal	dull with bright; broken												
	154.53																	
				0.08	Coal	dull; broken				HS-26								
				0.04	Coal	dull; stick												
			154.20															
		154.20		0.09	Shale	black; carbonaceous; numerous coaly wisps												
			154.50															
		154.50		0.12	Coal	dull; stick												
						END OF BOX 32												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
33				0.09	Coal	dull with bright; stick												
				0.07	Coal	dull; broken												
				0.11	Coal	dull with bright; stick												
				0.16	Coal	dull; powder												
				0.16	Coal	dull and bright; stick												
				0.06	Coal	dull; stick												
	155.75																	
				0.04	Coal	dull; broken												
				0.07	Coal	dull and bright; stick												
				0.10	Coal	dull; broken												
				0.23	Coal	dull with bright; stick												
				0.04	Coal	dull; broken												
				0.12	Coal	dull; stick				HS 26								
				0.27	Coal	dull with bright; stick												
				0.11	Coal	dull; stick												
	156.97																	
				0.14	Coal	dull with bright; broken												
				0.04	Shale	dark gray; carbonaceous												
				0.57	Coal	dull; stick; (soft and crumbles)												
	157.58																	
				0.14	Coal	dull with bright; broken												
				0.03	Shale	carbonaceous												
				0.19	Coal	dull; broken												
				0.03	Coal	dull; stick												
				0.04	Coal	dull; powder												
				0.03	Coal	dull; pyrite blebs throughout												
				0.06	Coal	dull with bright; stick												
				0.05	Coal	dull; broken												
				0.12	Coal	dull and bright; stick												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CI S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT / AREA: HORSESHOE RIDGE

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.09	Coal	bright with dull; stick Joints											
				0.05	Coal	dull and bright; minor pyrite throughout											
				0.21	Coal	bright; stick											
	158.80					END OF BOX 33											
34				0.09	Coal	bright with dull; stick											
				0.05	Coal	dull and bright; broken			HS-26								
				0.09	Coal	bright with dull; stick											
				0.12	Coal	dull with bright; stick; minor pyrite blebs											
				0.05	Coal	dull and bright; broken											
				0.17	Coal	bright with dull; stick											
				0.03	Coal	bright; broken											
				0.19	Coal	dull with bright; stick											
				0.12	Coal	dull with bright; broken											
				0.08	SLT	lacks laminations; minor coaly wisps; abrupt contact above and below	68°(t)										
	159.80																
				0.03	Coal	bright with dull; pyrite blebs; stick											
				0.02	coal	dull and bright; broken											
				0.09	Coal	bright; stick											
				0.22	Coal	dull and bright; stick											
				0.09	Coal	dull and bright; stick											
				0.06	Coal	dull; stick											
				0.04	Coal	bright with dull bands; stick											
				0.07	Coal	dull; stick											
				0.17	Coal	bright with dull bands; stick											
				0.27	Coal	dull with bright bands; stick											
				0.04	Shale	dark gray; numerous coaly wisps											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR) NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
				0.15	Coal	dull and bright; broken	Joints											
				0.07	Coal	dull and bright; stick												
				0.11	Coal	dull and bright; stick												
				0.06	Coal	dull; broken												
	161.39									HS-26								
				0.09	Coal	dull; broken												
				0.05	Coal	dull; stick												
				0.21	Shale	dark gray to black; carbonaceous; stick												
				0.09	Coal	dull; stick												
	161.85		161.20															
		161.20		0.16	Shale	dark gray; numerous coaly wisps; slickensides on bedding; breaks		53° 55°71°										
				0.43	SST/SLT	interbedded sandstone and siltstone; sandstone is finely cross-bedded; abundant plant fragments; calcite filled fractures; minor coaly wisps at base; stick												
						END OF BOX 34												
35																		
				0.66	SST/SLT	as above; stick												
	163.37							72°										
				0.18	SST/SLT	as above; stick		64°										
				0.49	Shale	black; numerous coal partings; slickensides on bedding; breaks		64° 63°										
				0.35	SST/SH	interbedded fine grain sandstone; shale minor soft sediment deformation; abundant carbonaceous material; stick	41°	63° 71°										
				0.13	Shale	carbonaceous with coal partings												
				0.20	Shale	as above; vuggy; minor calcite filling; stick												
				0.28	Shale	as above; broken												
				0.35	Shale	as above; stick												
			165.10	0.06	SH/Coal	broken												
		165.10		0.14	Coal	dull with bright bands; stick												
	166.42			0.13	Coal	bright with dull bands; stick												

ALL LINEAR UNITS IN METRES

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

▲ ANGLE MEASURED FROM CORE AXIS

x measured thickness of core

HOLE No. 205 CONTINUED

CK 3 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
			166.30	0.12	Coal	dull and bright; broken				HS-27								
	167.03	166.30		0.09	Shale	black; abundant carbonaceous material; broken				↓								
				0.21	Sh/Coal	dull; shaly coal with bright bands; broken												
				0.18	Shale	black; abundant carbonaceous material; broken												
	167.64			0.11	Shale	as above; stick												
						END OF BOX 35												
36				1.50	Shale	as above; stick												
				0.42	Shale	as above; broken												
				0.06	Coal	dull; stick												
				0.25	Shale	coaly; broken												
	169.70			0.05	Coal	dull; broken												
			168.35	0.31	Shale	carbonaceous; abundant plant fragments; coaly partings throughout												
		168.35		0.38	Coal	dull; broken stick				↑								
				0.08	Shale	as shale above												
				0.15	Coal	dull with bright bands; broken				HS-28								
			170.35	0.14	Coal	dull with bright bands; stick				↓								
		170.35		0.24	Shale	black; abundant plant fragments; coaly partings; slickensides; stick												
			171.50															
			171.50	0.72	Shale	as above; with minor calcite filled fractures												
	172.52																	
		171.50		0.22	Coal	dull; broken				↑								
				0.02	Shale	coaly; broken				HS-29								
				0.22	Coal	dull with bright bands; broken												
						END OF BOX 36												
37				0.11	Coal	dull; stick												
				0.04	Coal	bright; stick												
				0.05	Shale	coaly; stick												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CANADA NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.12	Coal	dull with bright; stick												
				0.05	Coal	dull; stick												
				0.08	Coal	dull and bright; stick												
				0.07	Coal	dull with bright; broken												
	174.04									HS-29								
				0.06	Coal	dull and bright; stick												
				0.09	Coal	dull; stick												
				0.08	Coal	dull with bright; stick												
0.				0.04	Coal	dull; stick												
				0.14	Coal	dull; broken												
				0.05	Coal	dull; stick												
				0.15	Coal	dull; broken and powder												
				0.19	Coal	dull with bright; oolitic ; texture; stick												
				0.27	Coal	dull with bright; broken and powder												
	175.56																	
				0.12	Coal	dull; broken												
				0.09	Coal	dull; stick												
				0.06	Coal	dull; broken												
				0.03	Coal	dull with bright; broken												
				0.04	Coal	dull; broken stick												
				0.11	Coal	dull; stick												
				0.04	Coal	dull and bright; stick												
				0.15	Coal	dull; broken												
			175.90	0.06	Coal	dull and bright; broken												
		175.90		0.07	Shale	dark gray; carbonaceous with minor coaly wisps; slickensides on fractures												
	176.78																	
				0.12	Shale	as above; broken												
				0.32	Shale	as above; stick												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT: HORSESHOE RIDGE
AREA:

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.08	Shale	as above; broken												
				0.20	Shale	as above; stick												
				0.05	Shale	as above; broken												
	178.00																	
			178.80	0.06	Shale	as above; stick												
		178.80		0.13	Coal	dull; oolitic; stick				↑								
						END OF BOX 37												
38																		
			181.15	0.08	Coal	dull; powder				HS-30 ↓								
	179.22																	
		181.15		0.21	Shale	black; carbonaceous with coaly wisps; broken stick												
	180.44																	
				0.18	Shale	as above; broken stick												
	181.66																	
				0.73	Shale	as above; slickensides on bedding and fractures;	58° 2x48°	66°										
						broken stick	34°	84°										
	182.57																	
				1.11	Shale	as above with calcite filled fractures; stick												
				0.08	Shale	as above; broken	58°	71°										
			183.70	0.20	Shale	as above; stick	41°	81°										
		183.70		0.42	SST	fine grain; cross-bedded; fine silty interbeds;	54°	66°										
						calcite filled fractures		71°										
				0.11	SLT	dark gray; carbonaceous; minor coaly wisps;		76°										
			184.20			slickensides on fractures; calcite filled fractures		58°64°										
	184.76	184.20																
				0.59	Shale	dark gray-black; carbonaceous; slickensides on	51°	58°										
						bedding and fractures; thin coaly partings; stick	60°	63°75°										
						END OF BOX 38												
39																		
			185.60	0.82	Shale	as above												
		185.60		0.53	SH/SST	interbedded fine grain sandstone and shale;												
						shale is carbonaceous; calcite filled fractures												
				0.49	SLT	dark gray-black; minor carbonaceous plant												
						fragments; slickensides on minor coaly partings												
	187.45																	
			187.20	0.52	SLT	as above												
		187.20		0.97	SST	fine grain; massive; carbonaceous plant fragments		57°										
						throughout; calcite filled fractures												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	JOINTS	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % o.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				8.91	SST	fine-medium grain; thinly laminated; finely cross-bedded; calcite filled fractures		60°										
						END OF BOX 39												
40																		
				0.67	SST	as above												
	190.50																	
			190.40	0.64	SST	as above		2x61°										
		190.40		0.08	SLT	dark gray-black; carbonaceous plant fragments throughout; slickensides on bedding breaks		3x71°										
				0.43	SLT	as above; becoming shaly; minor thin sandy interbeds; slickensides on bedding breaks												
	191.87																	
				2.23	SST	fine-medium grain; cross-bedded sandstone with thin silty interbeds; carbonaceous material throughout; calcite filled fractures		2x68° 2x59°										
	193.85																	
						END OF BOX 40												
41																		
				2.09	SLT	dark gray-black; carbonaceous; thin sandy lenses;		70°										
			195.20			abundant carbonaceous plant fragments; slickensides on bedding breaks		65° 70°										
		195.20																
				0.91	SST	fine grain; cross-bedded with thin silty interbeds		70°										
	196.90							2x64°										
				1.20	SST	as above with calcite filled fractures; sandstone becoming more massive at base												
						END OF BOX 41												
42			197.30															
		197.30		1.87	SST/SLT	interbedded fine-medium grain sandstone and carbonaceous siltstone; sandstone is generally massive with minor cross-bedding towards base; minor calcite filled fractures; slickensides on bedding breaks; carbonaceous plant fragments throughout		64° 60° 3x63°										
	198.12																	
			199.60	0.14	SST/SLT	as above; broken; stick		64°										
		199.60		0.76	SST	medium grain; generally massive; minor zones of coarse cross-bedding; coaly partings; minor siltstone interbeds; small mud chips throughout		6x62°										
			200.40															
		200.40																
				0.51	SST/SLT	interbedded medium grain sandstone and carbonaceous siltstone; sandstone beds are massive												
			200.90															
		200.90		0.91	SST	medium grain; salt and pepper sand; massive; thin coaly partings increasing in frequency towards base; large mud chips towards base; sand becoming												

ALL LINEAR UNITS IN METRES

× measured thickness of core

† :*RB/OR S — GOLDER ASSOCIATES HARDNESS CODE
*RQD — ROCK QUALITY DESIGNATION (%)
FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CI S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH ×	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
						coarser towards base; minor calcite filled fractures	Joints											
						END OF BOX 42												
43																		
				0.67	SST	coarse grain; massive; salt and pepper; numerous coaly wisps and partings; easily broken along coaly partings												
	202.99																	
				0.42	SST	as above with few coaly partings; faint laminations												
				1.22	SST	as above with numerous coaly partings												
				1.43	SST	as above becoming coarser grained; minor pyrite blebs												
	206.04																	
				0.37	SST	as above	39°											
						END OF BOX 43												
44																		
				0.21	SST	as above												
				0.22	SST	coarse grain; massive with abundant mud chips												
				1.32	SST	coarse grain; salt and pepper; massive; abundant large coaly partings; small mud chips throughout												
				0.83	SST	coarse grain; salt and pepper; massive; few coaly partings												
	209.09																	
				1.43	SST	as above												
						END OF BOX 44												
45																		
				0.44	SST	as above												
				0.71	SST	as above; increasing number of coaly partings												
				0.42	SST	as above; few coaly partings												
	212.14																	
				1.75	SST	as above												
				0.84	SST	as above; increasing number of coaly partings												
						END OF BOX 45												
46																		
				0.35	SST	as above												
	215.18																	
				0.34	SST	as above												
				0.87	SST	as above; faint laminations; few coaly partings												

ALL LINEAR UNITS IN METRES

× measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CANEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % o.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.22	SST	as above; vuggy (weathered out calcite?)	Joints											
				0.37	SST	as above; abundant small mud chips throughout												
				0.73	SST	as above; few mud chips												
				0.38	SST	as above with large mud chips; vuggy at base												
	218.24																	
				0.82	SST	as above; vuggy at base												
						END OF BOX 46												
47																		
				0.37	SST	coarse grain; salt and pepper; massive		72°										
				0.45	SST	as above with coaly partings												
				1.42	SST	as above; few coaly partings												
	221.28																	
				1.31	SST	as above												
				0.33	SST	as above with abundant coaly partings	22°											
				0.21	SSt	as above; few coaly partings; abundant calcite filled fractures												
						END OF BOX 47												
48																		
				0.94	SST	as above; increasing number of coaly partings towards base	2x0° 22°	78°										
	224.33																	
				3.06	SST	as above; faint laminations visible; becoming coarser at base												
	227.38																	
						END OF BOX 48												
49																		
				0.60	SST	as above; with mud chips at base	33°	3x60°										
				2.43	SST	medium-coarse grain; salt and pepper sand; planar laminations; light and dark lamina ; thin coaly wisps; abundant calcite filled fractures		58° 2x55° 3x60°										
	230.43																	
				1.17	SST	as above	23° 35° 41° 38°	61° 55°										
						END OF BOX 49		6x57°										
50																		
				0.17	SST	as above												
	233.47																	
				1.41	SST	as above	44°	60°										
				0.75	SST	as above; becoming more massive	45°	66°										
						END OF BOX 50		4x64° 6x55°										

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
51				0.83	SST	as above; few mud chips throughout	Joints											
	238.52																	
				1.08	SST	as above	50°	55°										
				0.19	SST	as above with large mud chips and coaly partings		60°										
				1.01	SST	as above with few coaly partings; small mud chips throughout												
				0.08	SST	as above with very large mud chips												
				0.43	SST	as above; few mud chips; few coaly partings												
	239.57																	
				0.58	SST	as above		60°										
						END OF BOX 51												
52																		
				1.36	SST	as above; few mud chips towards base		3x63°										
				0.16	SST	as above with abundant large mud chips												
				0.59	SST	as above; abundant coaly wisps												
	242.62																	
				0.51	SST	as above												
				0.31	SST	as above with abundant large mud chips												
				0.81	SST	as above; few mud chips; minor pyrite												
						END OF 52												
53																		
				1.27	SST	coarse grain; massive; salt and pepper; numerous coaly wisps; stick												
	245.67																	
			245.85	0.48	SST	as above; stick												
		245.85		0.19	Coal	dull; broken				↑								
				0.25	Coal	dull; powder												
				0.08	Coal	dull with bright; stick												
				0.16	Coal	dull; stick				HS-31 upper								
				0.14	Coal	dull; powder												
				0.11	Coal	dull; stick												
			247.00	0.10	Coal	dull; broken				↓								
	247.49																	

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSEHSOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
		247.00		0.37	Shale	black; carbonaceous; numerous coaly wisps; slick-ensides on bedding and fractures												
				0.06	Coal	dull; shaly; powder												
			247.45	0.13	Shale	as shale above												
		247.45		0.06	Coal	dull; broken				↑								
				0.14	Coal	bright with dull; stick												
				0.12	Coal	dull and bright; stick				HS-31 lower								
				0.04	Coal	dull and bright; broken												
				0.07	Coal	dull with bright; stick												
						END OF BOX 53												
54																		
				0.09	Coal	dull with bright; stick												
	248.72																	
				0.05	Coal	dull and bright; stick												
			248.55	0.09	Coal	dull with bright; stick				↓								
		248.55		0.67	Shale	black; carbonaceous; numerous coaly partings; broken stick												
				0.23	SST/SLT	siltstone with interbedded fine grain sandstone; abundant plant fragments												
				0.15	Shale	carbonaceous with numerous coaly partings; broken												
				0.22	Shale	as above; stick												
				0.07	Shale	as above; broken												
				0.08	Shale	as above; stick												
				0.10	Shale	as above; broken												
				0.13	Shale	as above; stick												
				0.07	Shale	as above; broken												
				0.35	Shale	as above; stick												
	251.76																	
				0.36	Shale	as above; stick												
				0.09	Shale	as above; broken												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CR ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.06	Shale	as above; stick	Joints											
				0.08	Shale	as above; broken												
				0.39	Shale	as above; broken stick												
	253.29																	
						END OF BOX 54												
55																		
				1.52	Shale	black; carbonaceous; plant fragments throughout;	40°	68°										
			254.50			thin fine grain sandy interbeds; calcite filled	25°	3x65°										
		254.50				fractures												
				1.49	SST/SLT	interbedded fine grain sandstone and siltstone;		4x68°										
						sandstone is finely cross-bedded; undulating												
						contacts between sandstone and siltstone; calcite												
						filled fractures showing minor movement; slick-												
						ensides on fracture surfaces												
	256.34																	
				1.14	SST/SLT	as above	37°	3x58°										
						END OF BOX 55	28°	3x62°										
56																		
				1.97	SST/SLT	as above												
	259.38																	
			260.20	1.07	SST/SLT	as above; increasing percentage of silt towards	60°	74°										
		260.20				base	55°											
				0.06	Coal	dull; broken												
				1.08	SLT	black; abundant plant fragments throughout; few												
						sandy interbeds; cross-bedded												
						END OF BOX 56												
57																		
			261.60	0.25	SLT	as above												
		261.60		0.63	Shale	black; carbonaceous; abundant coaly wisps; slick-												
						ensides on bedding breaks												
	262.59			3.17	Shale	as above; massive; homogeneous; thin sandy lense												
						near base												
	265.79																	
						END OF BOX 57												
58																		
			265.20	0.06	Shale	as above												
		265.20		0.57	SST	fine grain; cross-bedded; soft sediment deformation												
						calcite filled fractures												
				0.23	SST	fine grain; finely cross-bedded												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CK ; NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
			266.45	0.68	SST/SLT	interbedded fine grain sandstone and siltstone; minor soft sediment deformation; calcite filled fractures												
		266.45		1.55	Shale	black; carbonaceous; abundant plant fragments												
	268.83																	
				1.09	Shale	as above												
						END OF BOX 58												
59																		
				0.21	Shale	black; carbonaceous; thin coaly wisps; slickensides on bedding breaks; stick	64°											
				0.19	Shale	as above; broken												
	270.51																	
				0.12	Shale	dark gray with minor plant fragments; broken												
				0.47	Shale	as above; slickensides on bedding breaks; stick												
				0.18	Shale	black; carbonaceous; powder												
				0.08	Shale	as above; stick												
	271.88																	
				0.35	Shale	as above; broken stick												
			272.00															
		272.00		0.65	Coal	dull; stick												
	273.1																	
				0.16	Coal	dull; broken stick; fissile												
				0.34	Coal	dull; fissile; broken stick												
				0.37	Coal	dull; stick												
				0.27	Coal	dull; broken stick				HS-32								
	274.17																	
				0.19	Coal	dull; broken												
				0.13	Coal	dull; stick												
						END OF BOX 59												
60																		
				0.27	Coal	dull; fissile; broken stick												
			274.70															
		274.70		0.81	SST	fine-medium grain; abundant carbonaceous material on bedding; planer; numerous calcite filled fractures showing minor displacement; minor pyrite marcasite on fractures; slickensides on bedding and fractures; stick												
				0.07	SST	as above; broken												
	276.15																	

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

CI S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.02	SST	as above; broken	Joints											
				2.47	SST/SLT	finely laminated; interbedded fine grain sandstone and siltstone; soft sediment deformation distorts lamina in zones; calcite filled fractures; slickensides on bedding breaks; stick	50° 64°	2x48° 48°										
				0.07	SST	fine grain; cross-bedded; stick		32°										
				0.28	SST/SLT	as above; stick		48°										
						END OF BOX 60												
61				0.17	SST/SLT	as above												
	279.20			0.46	SLT	dark gray; slickensides on bedding; braks; homogeneous	45°	50°										
			279.40															
		279.40		0.35	SST	fine grain; finely cross-bedded		7x57°										
				0.81	SST	medium grain; massive at top becoming faintly laminated at base; planar laminations												
			280.50															
		280.50		0.37	SLT	dark gray-black; homogeneous; slickensides on bedding breaks												
			280.90															
		280.90		0.98	SST	medium grain sandstone; planar laminations; thin coaly partings; minor calcite filled fractures; easily broken on coaly partings; slickensides on bedding breaks												
	282.24																	
			282.40	0.53	SST	as above; becoming massive at base	54°	2x55°										
		282.40		0.21	SLT	black; carbonaceous; slickensides on bedding surfaces	38°	2x58°										
				0.31	SST	medium grain; planar bedding; carbonaceous material throughout												
						END OF BOX 61												
62				0.79	SST	medium grain; massive with minor silty interbeds												
				0.47	SLT	black; carbonaceous; minor sandy lenses; slickensides on bedding breaks												
				0.36	SST	coarse grain; massive; abundant coaly wisps; abundant mud chips												
				0.74	SST	medium grain; planar laminations; coaly partings throughout												
	285.29																	

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

C. S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. 205 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (▲)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				1.37	SST	as above	joints 52°										
				0.08	Coal	dull; broken	4x58°										
				0.23	SST	as sandstone above coal											
				0.21	SST	very fine grain; carbonaceous material throughout massive											
						END OF BOX 62											
63				0.75	SST	as above; abundant calcite filled fractures at base											
	288.34			0.36	SST	as above	65°	68°									
			290.00	0.42	SST	medium grain; cross-bedded becoming massive at base	42°										
				2.26	SST	fine grain; massive; carbonaceous material throughout; soft sediment deformation at base		3x58°									
	291.30			0.35	SST	as above											
						END OF BOX 63											
64				1.28	SST	as above; planar lamiantions at top; becoming massive at base											
						END OF BOX 64											
						END OF CORE DDH # 205											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. 205 CONTINUED

HORSESHOE RIDGE

DRILL HOLE 210

CORING PERFORMANCE

SEAM DESIGNATIONS	SAMPLE NUMBERS	% RECOVERED (Meas. Thick) / Geoph. Thick/
?	1	59%
?	2	33%
?	3	52%

Average Coal Core Performance = 51%

Total Rock & Coal Core Performance = 75%

CROW'S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSE RIDGE
AREA	S.E. BRITISH COLUMBIA

DATE		
BEGIN	OCT. 17, 1979	
END	OCT. 24, 1979	

HOLE No. DDH-210 — E 1 of 9

HOLE PARTICULARS

LOCATION	5 534 384.79 N 551 373.16 E		
ELEVATION	1699.17 m	HOLE BEARING (AZ°)	-
TOTAL DEPTH	92.00 m	HOLE ANGLE (°)	90°

LOGGING

LOGS RUN	GR: Density, Neutron
LOGGED BY	BPB
OTHER TESTS	NIL
	NIL

COAL CORING PERFORMANCE

CORE DIAMETER		HQ
TOTAL	CORE RECOVERED	2.15
	LENGTH CORED	4.20
	CORE RECOVERY	51 %

EXAMINATION

LOG USED	Coal Lithology
No. OF SEAMS SAMPLED	3
EXAMINER (S)	GS
DATE	Oct. 17, 1979

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
1	3.05			0.55	Shale	dark gray; broken to rubble	Joints										
	4.88																
				0.03	Shale	gradational below											
				0.32	SLST	medium gray; minor soft sediment deformation; some iron staining; broken to rubble											
	5.64																
				0.27	SST	very fine grain; light to medium gray; iron stains along fractures; broken stick	51° 35° 25°										
				0.14	SST	concretionary bedding; silty; broken to broken stick											
				0.62	SST	very fine grain to silty; medium to dark gray; iron staining along fractures; minor sulphides along fractures	27° 43° 15°										
	7.01																
				0.02	SST	as above; with red stained concretionary band											
				0.16	Mud	appears to be fault gouge with badly broken dark shale and fine grained, finely laminated dark gray sandstone											
				0.04	SLST	dark gray; slickensided at top with calcite along fractures; iron staining along fracture; grading to fine grain sandstone below	30°										
				1.10	SST	medium to dark gray with calcite and iron staining along fractures; minor soft sediment deformation with light gray sandstone; stick	45° 55° 30°										
2	8.53			0.07	SST	fine grain; finely laminated; light gray; light brown; rubble											
				0.03	SLST	dark gray											
				0.38	SST	fine grained; light to medium gray; stick; calcite along fracture											
				0.09	Shale	silty; dark gray; calcite and iron staining along fractures	33°										
		9.80		0.38	SST	as above											
	9.45																

ALL LINEAR UNITS IN METRES

x measured thickness of core

* : MEASURED FROM THE HORIZONTAL PLANE

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

• RQD — ROCK QUALITY DESIGNATION (%)

FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210

FILE No. BA-211A
REVISED Nov. 1978

CR NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
				0.60	SS T	fine sand; broken; badly weathered; shale trace	Joints										
2	9.51			0.05	MST	badly weathered; possibly fault gouge											
				1.03	SST	as above; slickensided at top and base; broken	3x30°										
						to broken stick; silty	2x40°										
	10.61																
				0.08	SLST	sandy; medium gray; minor calcite along fractures											
						iron stain along fractures; broken											
				0.92	SLST	stick	2x27°										
							45° 41°										
				0.10	SLST	grading to fine sand; broken; one slickenside											
3	12.04																
				0.20	SST	fine; medium gray											
				0.27	SST	very fine grain; dark gray; grading to silt-	36°										
						stone below; broken stick	2x30°										
				0.74	SLST	medium gray; broken to stick; calcite along	55°,30°,20°										
						slickensides; sandy	2x45° 2x40°										
	13.26																
				1.36	SST	very fine; medium gray; calcite along fractures;	22°,50°,40°										
						stick	70° 45°										
	14.78		19.10														
		19.10		0.86	SST	as above	35°,70°	40°									
	15.54																
				0.53	SST	as above; calcite along slickensides	30°,26°	47°									
4																	
				1.02	SST	as above	26° 21°										
	17.07						2x65°										
				1.50	SST	as above; minor soft sediment deformation; stick	25°,37°,35°										
	18.59																
				1.45	SST	as above; stick; coarsening at base	37°,32°,30°,40°										
	20.12						26°,34°,40°										
				0.15	SST	medium grained; medium gray											
5																	
				0.08	SST	fine to medium; dark gray; calcite along	55° 57°										
						fracture; fine scale cross-bedding											
				0.47	SST	medium grained; light and dark gray; finely		42°									
						laminated; turbitity current deformation; rip-up	2x60°	35°									
						clasts (< .01m) some coal along fracture; calcite											
						and iron staining along fracture; red weathering											
						along fracture; minor fine scale cross-bedding;											
						slickensides along fracture; broken stick;											
						pyrite along fractures											
				0.38	SST	rubble; muddy; some calcite; coaly (faulty?)											
	21.49																

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

•RQD — ROCK QUALITY DESIGNATION (%)

/ FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210 CONTINUED

C S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.77	SST	no mud; slickensdies with pyrite; graphite; coal	Joints											
	22.10																	
				0.12	SST	as above; broken stick; disturbed bedding; badly fractured	24°	23°										
				0.79	SST	fault rubble?; badly disturbed slickensides; coal on fracture; lots of mud												
	23.77																	
				0.23	SST	broken to broken stick		28°42°										
				0.21	SST	broken												
	24.69			0.28	SST	as above												
6				0.66	SST	as above												
				0.58	SST	coarse grain; abundant carbonaceous material throughout; iron stain around specific grians; pyrite on slicksided fracture surfaces; calcite filled fractures throughout moderately well sorted; stick	38°	45°										
	26.37																	
				0.91	SST	as above; stick	44°, 35°, 12° 35°											
				0.32	SST	as above; broken												
	27.74																	
				0.34	SST	as above; broken; stick												
				0.21	SST	as above; stick												
				0.32	SST	medium grain; finely lamianted; minor cross-beds; carbonaceous material throughout; calcite filled fractures; slickensided on bedding breaks iron stain with calcite on fractures; stick												
				0.23	SST	as above; broken												
7				0.14	SST	as above stick												
				0.26	SST	as above; broken												
	29.26																	
				0.42	SST	as above; broken stick; becomming massive; towards base; lamina becoming less distinct; increase in iron weathering												
				0.28	SST	as above; broken												
				0.16	SST	as above; massive; no visible lamina, slick-ensides on fractures												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210 CONTINUED

CR › NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. ODH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.21	SST	as above; broken												
	30.78																	
				0.36	SST	as above; porous due to weathering of selected grains												
				0.43	SST	as above; broken												
				0.51	SST	as above; broken stick												
	32.31																	
				0.56	SST	as above; broken stick												
8	33.53			1.49	SST	as above; stick												
	35.05			0.21	SST	as above; stick	11°,46°,38°,41°											
							46°,54°,52°											
				0.37	SST	as above; broken												
				0.24	SST	as above; coarsening towards base; stick												
	36.27																	
				0.38	SST	coarse grain; numerous coaly partings; abundant iron staining throughout; easily broken along coaly partings; carbonate cement	52°	61°										
			36.20															
		36.20		0.83	Shale	black; carbonaceous; iron staining on fracture surfaces; slickensides on bedding; abundant coaly material throughout; stick	2x30° 46°											
							2x36°											
	37.49																	
				0.06	Shale	as above; stick												
9																		
				0.54	Shale	as above; stick	21°,22°,21°											
							35°,47°,50°											
	38.10																	
				1.45	Shale	as above; stick	40°,2x64°,	41°(†)										
	39.62						35°,48°,54°,											
				1.10	Shale	as above; stick	60°,42°,44°											
							40°,48°,46°											
	40.70						8°,45°,30°											
				0.21	Shale	as above; stick	32°											
				0.17	Shale	as above; broken												
10																		
				0.83	Shale	as above; stick	25°,30°,29°											
							33°,30°,56°											
	41.91						48°,0°25°											
				0.19	Shale	as above; stick	33°,40°,3°,	58°										
				0.36	Shale	as above; broken stick												
				0.27	Shale	as above; stick												
	42.82																	

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. ODH-210 CONTINUED

C /S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % o.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
				0.69	Shale	as above; stick	40°,38°,45°										
							41°,28°38°40°										
			43.50	0.57	Shale	as above; stick	2x26°, 34°,										
							25°, 45°										
		43.50		0.28	SST	fine grain; finely laminated; fine cross-bedding											
						calcite filled fractures; iron staining on	44° 15°										
						fracture surfaces											
	44.35																
				0.21	SST	as above; lamina becoming planar near base											
				0.11	SLST	dark gray; carbonaceous material throughout;	23°										
			44.40			calcite filled fractures											
11		44.40															
				0.95	Shale	as above; stick	36°,32°,37°										
	46.02						2x38°										
				1.16	Shale	as above; stick; becoming silty towards base	27°,30°,36°										
							23°,51°,35°										
	47.24						42°										
				0.23	SLST	as above; iron staining on fractures; broken		35°(↕)									
						stick											
				0.12	SLST	as above; becoming shaly; stick	18°,47°,35°										
							42°										
				0.32	Shale	as above; stick	21°										
				0.18	Shale	as above; broken											
				0.64	Shale	as above; sticky; pyrite beebs at base											
	48.77																
12			48.90	0.24	Shale	as above; stick		2x62°									
		48.90		0.39	SST	fine grain; cross-bedded; finely laminated	12°										
				0.64	SST/SLST	interbedded; fine grain; cross-bedded sand-		58°									
						stone with black carbonaceous siltstone; very		56°									
						irregular contacts; calcite filled fractures	26°	52°									
				0.29	SLST	carbonaceous with thin sandy interbeds; calcite	18°										
						filled fractures											
	50.32																
				1.32	SLST	as above; iron staining on fractures near base	30°,35°,28°										
	51.82						34°										
				0.19	SLST	as above; broken											
				0.11	Shale	black; carbonaceous; slickensides on breaks											
				0.21	Shale	as above; broken											

ALL LINEAR UNITS IN METRES

x measured thickness of core

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

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-220 CONTINUED

FILE No BA-212A
REVISED Nov 1978

CI 5 NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	BEDDING ANGLE (°) ▲	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
				0.36	Shale	as above; stick; calcite filled fractures Joints											
				0.12	Shale	as above; broken											
	52.73																
13																	
				0.38	Shale	as above; stick	60°										
				0.92	Shale	black; carbonaceous with numerous thin sandy	33°	62°									
						interbeds; sandstone is fine grain and generally	36°	48°									
						massive											
	54.10																
				1.51	Shale	as above	28°36°60°28°	29°									
	55.63																
				1.08	Shale	as above											
	56.85																
				0.15	Shale	as above	38°10° 43°										
							2x14°										
14																	
				0.51	Shale	as above											
			56.30	0.79	SST/Shale	interbedded fine grain sandstone with carbon-	25°	45°									
		56.30				aceous shale; thick beds at top and thin inter-		45°									
	58.22					beds at base											
			58.60	0.94	SST/Shale	as above	21°	3x45°									
								2x48°									
		58.60		0.72	Shale	black; carbonaceous with minor sandy partings;	18° 21°										
			59.20			calcite and pyrite throughout; slickensides on	31°	48°									
						breaks											
	59.74	59.20															
				1.08	SST/SLST	interbedded medium grain sandstone and siltstone	15°	30°31°									
						sandstone is cross-bedded; siltstone is carbon-		2x27°									
						aceous; soft sediment deformation; slickensides		31°35°									
						on fractures; calcite filled fractures		36°									
15																	
			60.60	0.32	SST/SLST	as above		43°24°									
	61.27	60.60															
				0.55	Shale	black; slickensides on breaks; pyrite; massive;	43° 37°										
						no visible bedding	30° 28°										
	61.87																
				1.49	SST/Shale	interbedded fine grain sandstone with carbon-		45°(t)									
						aceous shale; sandstone becoming minor towards		50°46°									
						base; large pyrite blob in shale at base;		64°									
						calcite and slickensides on breaks		53°									
	63.39																
				0.43	Shale	black; carbonaceous; slickensides and pyrite											
						on breaks; broken stick											
	64.33																
			64.30	0.33	Shale	as above; broken		60°									

ALL LINEAR UNITS IN METRES

x measured thickness of core

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210 CONTINUED

C S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS†
		64.30		0.35	Coal	disturbed by weathering; freeze-thaw; contains pyrite blebs				↑								
										1								
16				0.18	Coal	as above				↓								
	65.84		65.20															
		65.20	65.80	0.23	Shale	black; carbonaceous; broken				↑								
										2								
		65.80		0.13	Coal	dull; broken				↓								
	66.75		66.30															
		66.30	67.30	0.40	Coal/Sh	intermixed; broken core				↑								
		67.30		0.13	Coal													
	68.28									↓								
				0.85	Coal	soft; disturbed by freezing (?)				3								
	69.80									↓								
				0.61	Coal													
	70.41		70.10															
		70.10		0.17	SLST	light gray with minor coarse sand; badly broken												
				0.36	Shale	black; carbonaceous; slickensides on breaks; calcite on fractures												
	71.63																	
				0.10	Shale	as above												
17																		
				0.30	Shale	as above; stick		64°										
				0.16	Shale	as above; broken												
	72.39																	
				0.41	Shale	as above; broken												
				0.02	Mud	gouge (?)												
				0.16	Shale	as shale above; stick												
				0.14	Shale	soft; muddy; broken												
	73.46																	
				0.01	Shale	as above												
				0.03	Coal	powder												
				0.31	Shale	with abundant dissemenated pyrite												
	74.98																	
				0.05	Mud	gouge (?)												
				0.18	SLST	calcite on fractures; broken stick to broken												
				0.03		Gouge Zone												
				0.19	SLST	grading to shale at base; abundant calcite filled fractures												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210 CONTINUED

C /S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)	Joints	▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.04	Gouge													
				0.15	Shale	black; silty; broken												
	75.90																	
				0.13	Shale	silty; badly broken; calcite filled fractures												
	76.05																	
				0.27	Shale	black with thin sandy lamina ; calcite along		43°										
			73.30			fractures; slickensides at base												
		73.30																
				0.12	SST/SLST	interbedded fine grain sandstone with siltstone												
				0.20	SST	thick calcite filled fractures at top; minor movement on fractures; light and dark lamina												
				0.04	SLST	calcite filled fractures; black; disturbed bedding												
	76.96																	
18				0.76	SLST	with minor sandy lamina ; broken												
	77.72																	
				0.84	SLST	as above; broken												
	78.79																	
			79.10	0.27	SLST	as above; becomming shaly towards base; badly broken												
	78.94	79.10																
				0.29	SLST/Sh	interbedded siltstone and shale; broken												
	80.16																	
				0.37	SLST/Sh	as above; broken												
	81.53																	
				0.03	SLST/Sh	as above; broken												
				0.10		SHEAR ZONE; coaly												
				0.24	SLST/SST	with calcite along fractures; broken												
	82.45																	
19				0.11	SLST	black with light gray lamina abundant calcite filled fractures												
				0.12	Shale	coaly; sheared												
				0.05	SLST	as siltstone above												
	83.06																	
				0.43	SLST	black; slickensides along bedding breaks; calcite on breaks												
				0.45	SLST	as above; badly broken												
				0.05	SST/SLST	interbedded fine grain sandstone and siltstone; broken												
*	84.12																	

ALL LINEAR UNITS IN METRES

x measured thickness of core

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▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210 CONTINUED

C /S NEST RESOURCES LIMITED

CORE & COAL CORE DESCRIPTION

PROJECT	HORSESHOE RIDGE
AREA	

HOLE No. DDH-210 CONTINUED

BOX No.	DEPTH AT TOP OF BOX	DEPTH FROM	DEPTH TO	TH x	LITHO DESCRIPTION MAIN	LITHO DESCRIPTION AMPLIFIED (INCLUDE COAL RECOVERY FOR EACH SEAM)		▲ BEDDING ANGLE (°)	SEAM DESIG.	SAMPLE No.	ANALYTICAL DATA MOIST % a.r.b.	MOIST % residual	ASH % d.b.	V.M. % d.b.	F.C. % d.b.	F.S.I.	C.V.	REMARKS †
				0.10	SST/SLST	as above; broken	Joints											
				0.42	SLST	badly broken; intermixed coal; slickensides on bedding; calcite filled fractures		12°										
	85.65			0.71	SLST	as above; badly broken												
	86.72			0.7'	SST/SLST	interbedded sandstone and siltstone; disturbed bedding; calcite filled fractures; broken		0°										
	87.48			0.38	SST/SLST	as above; badly broken												
20				0.16	SST/SLST	as above; badly broken; fining towards base												
	88.24			0.35	SLST	light and dark lamina; abundant calcite filled fractures												
	89.46			0.04	SLST	as above; broken												
				0.03	SLST/Sh	interbedded siltstone with shale; broken												
				0.19	SLST/Sh	coal along bedding; broken		13°										
				0.23	SLST	black												
	90.68			0.44	SST/SLST	light gray; fine grain sandstone with siltstone; abundant calcite filled fractures; minor displacement on fractures; slickensides		30°(f) 25°(f) 35°(f)										
	91.74					END OF CORE DDH #210												

ALL LINEAR UNITS IN METRES

x measured thickness of core

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FF — FRACTURE FREQUENCY

▲ ANGLE MEASURED FROM CORE AXIS

HOLE No. DDH-210 CONTINUED

Depth (m)	Lithology	
	Main	Description
0 - 6		Overburden
6 - 10	Sandstone	Fine grained, light brown to orange, with iron staining, moderately hard
10 - 14	Coal	Bright
14 - 16	Shale	Coaly, Light brown, slickensided, moderately hard
16 - 26	Coal	Badly Pulverized
26 - 28	Coal	As above with Shale band
28 - 36	Sandstone	Brown to gray, fine grained at top, coarsening towards base, moderately hard, iron staining at top
36 - 38	Sandstone	As above, grading into coarse grained salt and pepper, moderately hard sandstone
38 - 48	Sandstone	Medium to coarse grained salt and pepper, moderately hard
48 - 50	Sandstone	Fine grained, dark gray, moderately hard, carbonaceous material throughout. Slickensided
50 - 52	Sandstone	Medium to coarse grained salt and pepper
52 - 54	Shale/ Sandstone	Interbedded dark gray to black shale and medium to coarse grained, salt & pepper sandstone. Minor coal
54 - 56	Coal	Bright
56 - 60	Coal	Bright & dull
60 - 62	Coal	Dull
62 - 64	Coal	Bright & dull
64 - 66	Coal	Bright with dull bands
66 - 70	Coal	Bright & dull
70 - 72	Coal	Bright & dull, some slickensides
72 - 74	Coal	Dull with shale stringers

Depth (m)	Lithology	
	Main	Description
74 - 76	Shale	Coaly
76 - 78	Coal	Dull & bright
78 - 80	Shale	Coaly, gray to dark brown, slickensided
80 - 86	Shale	Gray to dark brown, slickensided, pyrite towards base
86 - 88	Sandstone	Fine to medium grained light brown, carbonaceous material, trace of coal
88 - 90	Shale	Gray to dark brown
90 - 92	Sandstone	Fine grained, small coal stringers
92 - 96	Sandstone	As above with rusty weathering zones
96-100	Sandstone	Fine grained salt and pepper
100-104	Sandstone	As above with small calcite veins and minor iron staining
104-106	Sandstone	Fine grain, dark brown
106-110	Sandstone	Salt and pepper, abundant iron staining
110-112	Sandstone	As above, with minor coal stringers
112-114	Sandstone	As above, carbonaceous material throughout
114-116		Lost Sample
116-120	Sandstone	As above
120-122	Sandstone	As above; minor coal stringers
122-132	Sandstone	As above
132-136	Sandstone	Fine to medium grained, dark gray, salt & pepper
136-144	Sandstone	Medium to coarse grained, salt & pepper
144-150	Sandstone	Fine grained, dark gray, with small calcite veins towards base
150-158	Sandstone	Medium to coarse grained, salt & pepper, calcite veins, finer at base

Depth (m)	Lithology	
	Main	Description
158-166	Sandstone	Fine grained, light brown to dark gray
166-174	Sandstone	Medium grained salt & pepper with coaly stringers towards base.
174-176		Lost Sample
176-178	Sandstone	Fine grained, salt & pepper
178-180	Sandstone	As above with Minor Calcite veins
180-182		No Sample
182-186	Siltstone	Fine grained, dark brown to gray
186-196		Lost Sample
196-198	Shale	Trace of siltstone
198-200	Siltstone	
200-202	Shale	Trace of calcite
202-204	Shale	Minor fine grained sandstone
204-206	Shale	Soft, trace of calcite
206-208	Shale	trace of fine sandstone
208-212	Shale	
212-214	Shale	Silty, trace of fine grained sandstone
214-216	Shale/ Siltstone	
216-218	Siltstone	Trace of calcite
218-220	Shale	Carbonaceous, with pyrite, trace of light brown very fine grained Sandstone, minor Coal
222-224	Shale/Coal	
224-228	Shale	becoming silty at base
228-232	Siltstone	with minor calcite at base
232-234	Shale/ Siltstone	

Depth (m)	Lithology	
	Main	Description
234-235	Siltstone/ Sandstone	very fine grained
235-237	Shale	light gray to dark brown
237-239	Shale	becoming siltier, minor calcite veins
239-241		Lost Sample
241-250	Shale	Silty slickensides and calcite vein, towards base
250-252	Shale	As above with minor sandstone beds
252-260	Shale	becoming siltier towards base, minor calcite at base
260-263	Shale	Slickensided, with minor coal bands
263-265	Coal	Dull with bright bands
265-266	Shale	Coaly
266-266.5	Shale	
266.5-267	Coal	
267-268	Coal	Slightly shaly
268-268.5	Coal	Shaly
268.5-272	Coal	
272-273	Shale	Dark brown to gray
273-274	Coal	Dull
274-283	Shale	with minor coal stringers
283-285		Lost Sample
285-291	Sandstone	Fine grained, brown to gray, some calcite
291-296.75	Sandstone	Medium to coarse grained, salt & pepper calcite at base

End of Hole #201

Depth (m)	Lithology	
	Main	Description
0 - 6	Sandstone	Fine, weathered
8 - 10	Sandstone	Fine to coarse, weathered
10 - 12	Sandstone	As above, coarse
12 - 14	Sandstone	As above
14 - 18	Sandstone	Fine, minor carbonaceous plant debris, minor coarse sandstone
18 - 20	Sandstone	As above, trace of coarse sandstone
20 - 26	Sandstone	Fine, minor carbonaceous plant debris, trace coarse sandstone
26 - 28	Sandstone	As above with trace of pyrite
28 - 30	Shale/ Sandstone	Fine
30 - 32	Sandstone	Fine
32 - 34	Shale/ Sandstone	Fine
34 - 36	Sandstone/ Siltstone	Brown
36 - 38	Shale/ Siltstone	
38 - 39.5	Shale	Brown
39.5- 40	Coal/ Shale	
40 - 40.5	Coal	Trace of dark shale
40.5-41.8	Coal/ Sandstone	Shale
41.8-42.3	Coal	Trace of light brown, fine sandstone
42.3-42.8	Coal/ Shale	Dark
42.8-43.3	Coal	Trace of sandstone, light brown, fine
43.3-43.8	Coal	

Depth (m)	Lithology	
	Main	Description
43.8-44.3	Coal	Trace of shale
44.3-44.8	Coal	Trace of sandstone
44.8-45.3	Coal	Minor sandstone
45.3-45.8	Coal	Trace of light brown, fine sandstone
45.8-46.3	Coal	Trace of pyritic shale
46.3-46.8	Coal	Trace of pyritic shale
46.8-47.3	Coal	Trace of light brown, fine sandstone
47.3-49.3	Coal	
49.3-50.3	Coal	Sulphur smell, trace of light brown, fine sandstone
50.3-51.3	Coal	
51.3-53.5	Coal	Sulphur smell
53.5-54.5	Coal	
54.5-55.5	Coal	Trace of light brown, fine sandstone
55.5-56	Coal	Trace of pyrite, shale
56 - 57	Coal	
57 - 58	Coal	Trace of pyritic shale
58 - 60	Coal	Sulphur smell
60 - 61	Coal	
61 - 62	Coal	Trace of light brown, fine sandstone
62 - 63	Coal	
63 - 64	Coal	Trace of light brown, fine sandstone
64 - 66	Coal	
66 - 68	Coal	Trace of Shale
68 - 70	Coal/ Shale	Medium brown

Depth (m)	Lithology	
	Main	Description
70 - 80	Shale	Medium brown
80 - 82	Sandstone	Fine medium brown to gray
82 - 84	Sandstone/ Siltstone	As above, trace of calcite
84 - 86	Sandstone	Trace calcite
86 - 90	Sandstone/ Siltstone	Fine, medium, brown to gray
90 - 91	Coal	Trace of fine sandstone/siltstone
91 - 94	Coal	
94 - 98	Shale	Medium, brown to gray
98 - 100	Shale	Dark, trace of coal
100-101	Coal	Trace of shale
101-102	Coal	
102-103	Coal	Minor shale
103-105	Shale/ Siltstone	Medium brown to gray
105-107	Siltstone	Shaly, medium - gray, trace of calcite, slightly carbonaceous
107-111	Siltstone	Shaly, medium - gray
111-113	Coal	Hard, trace of dark shaly siltstone
113-118	Coal	Hard
118-120	Sandstone	Fine, slightly carbonaceous, black, trace calcite
120-122	Sandstone	As above, trace fine, light brown sandstone
122-126	Sandstone	Fine, black, trace of calcite
126-156	Sandstone	Fine to medium, black, calcite
156-180	Sandstone	Medium, black, calcite

Depth (m)	Lithology	
	Main	Description
180-194	Sandstone	Fine to medium, black, calcite
194-198	Sandstone	As above with trace of Coal & carbonaceous shale
198-204	Sandstone	Fine, dark gray, trace of calcite
204-206	Sandstone	As above with minor coal
206-206.5	Coal	Slightly shaly
206.5-207	Shale	Minor coal
207-210	Coal	Shaly
210-210.9	Sandstone	Fine, dark gray, carbonaceous streaks, trace of Coal

End of Hole #202

Depth (m)	Lithology	
	Main	Description
0 - 6		Overburden
6 - 8	Sandstone	Fine, Shale, medium - gray
8 - 12	Sandstone/ Siltstone	Fine
12 - 14	Sandstone	As above with trace of medium gray shale
14 - 16	Shale/ Siltstone	
16 - 18	Siltstone	Dark gray, trace of pyrite
18 - 20	Shale	Slightly carbonaceous, trace of siltstone dark gray, trace of pyrite
20 - 22	Shale/ Siltstone	
22 - 24	Shale/ Siltstone	light to medium - gray
24 - 26	Siltstone/ Sandstone	Fine
26 - 28	Shale	Medium gray, trace of siltstone, fine sandstone
28 - 30	Siltstone	Medium gray, trace of shale
30 - 34	Siltstone	Medium gray
34 - 36	Siltstone/ Sandstone	Very fine grained
36 - 38	Siltstone	
38 - 40	Siltstone/ Sandstone	Very fine to coarse grained
40 - 42	Siltstone	As above, trace of calcite
42 - 44	Siltstone	Minor carbonaceous shale
44 - 50	Shale	Light gray
50 - 52	Siltstone	Minor light gray shale
52 - 54	Siltstone	Light gray, fine
54 - 56	Shale	Medium gray

Depth (m)	Lithology	
	Main	Description
56 - 58	Shale	Medium gray, slightly carbonaceous
58 - 60	Shale/ Siltstone/ Sandstone	Very fine grained
60 - 62	Shale	Medium - dark gray, trace of pyrite, slightly carbonaceous
62 - 64	Shale	Light gray, minor - fine to medium sandstone
64 - 66	Shale	As above with slicks, iron staining
66 - 68	Sandstone	Very fine to medium, iron stain
68 - 68.5		Sample Missing
68.5-69.5	Coal	
69.5-70.5	Shale	Carbonaceous, pyrite, trace of coal
70.5-71	Shale	Carbonaceous, trace of pyrite
71 - 72.5	Shale	As above, trace of fine sandstone
72.5-73	Shale/ Coal	As above
73 - 73.5	Shale	Dark gray, slightly carbonaceous
73.5-74.5	Shale	As above with a trace of pyrite
74.5 - 75	Shale	As above with minor coal
75 - 75.5	Shale	As above, trace of coal
75.5-76.5	Shale	As above, trace of coal
76 - 77	Shale/ Coal	As above
77 - 77.5	Shale	As above, trace of coal
77.5 - 78	Shale	As above, minor coal
78 - 78.5	Shale	Dark gray, slightly carbonaceous
78.5 - 79	Shale	As above, minor coal
79 - 79.5	Shale	Dark gray, slightly carbonaceous
79.5 - 80	Coal	Minor Shale

Depth (m)	Lithology	
	Main	Description
80 - 80.5	Coal	Minor shale
80.5 - 81	Shale	Medium to dark gray, slightly carbonaceous, iron staining, trace pyrite, trace coal
81 - 81.5		Sample Missing
81.5 - 82	Shale/ Coal	As above
82 - 82.5	Shale	As above, minor coal
82.5 - 83.5	Shale/ Coal	
83.5-84.5		Sample Missing
84.5-87.5	Shale	Minor coal
87.5-88	Coal	Trace shale
88 - 88.5	Siltstone/ Sandstone	Trace of coal
88.5-89	Shale/ Sandstone	Fine to coarse grained
89 - 93	Sandstone	Medium grained, salt and pepper, trace shale
93 - 95	Sandstone	As above, sandstone fining, coal stringer at 94.5 - 94.8
95 - 96.5	Sandstone	Fine grained, trace coal
96.5-97	Coal	Shaly
97 - 103	Sandstone/ Conglomerate	Salt & Pepper
103-105	Sandstone/ Conglomerate	Salt & Pepper, minor shale
105-109	Sandstone	Medium grained, salt and pepper
109-111	Sandstone	As above, quartz or Chert pebbles
111-208	Sandstone	Medium grained salt and pepper

END OF HOLE # 203

Depth (m)	Lithology	
	Main	Description
0 - 83		No Samples taken
83 - 85	Shale/ Sandstone	Grey to black shale mixed with coarse grained salt & pepper sandstone, coaly stringers
85 - 87	Shale/ Sandstone	As above with more coal
87 - 89	Shale	Coaly, trace of coarse grained sandstone
89 - 91	Shale	Gray - black with coarse grained sandtone
91 - 97	Sandstone	Coarse grained salt & pepper, with minor coaly shale stringers
97 - 99	Sandstone	As above mixed with orange-brown sandstone
99 - 103	Sandstone	As above mixed with 20% shale
103-107	Shale	Brown to gray with minor coarse grained sandstone
107-115	Sandstone	Coarse grained, salt & pepper with minor shale
115-117	Sandstone	As above with minor coal stringers
117-119	Sandstone	As above with coal stringers, minor siltstone
119-126	Sandstone	As above with iron oxidization
126-128	Sandstone	As above with gray shale and minor coal
128-132	Sandstone	As above
132-134	Sandstone	As above with dull coal and siltstone bands
134-136	Sandstone	As above with 20% coal, slickensided
136-138	Sandstone	As above with carbonaceous shale
138-140	Sandstone	As above with shale and coal
140-146	Sandstone	As above
146-148	Sandstone	As above, becoming finer grained,orangey

Depth (m)	Lithology	
	Main	Description
148-150	Sandstone	Coarse grained, salt and pepper with minor shale
150-152	Sandstone	As above with interbedded shale and sandstone
152-156	Sandstone	As above
156-158	Sandstone	Coarse grained with coal/shale interbeds
158-160	Sandstone	As above
160-162	Sandstone	Coarse grained sandstone with coal stringers
162-164	Sandstone	As above with fine grained sand
164-166	Sandstone	As above
166-168	Sandstone	As above with Shale and plant debris
168-172		Samples Missing
172-174	Sandstone	As above with orange brown sandstone, shale and coal
174-178	Sandstone	Coarse grained salt & pepper with shale & coal
178-180	Sandstone	As above with 20% shale/coal
180-182	Shale	With 10% coal and 30% sandstone as above
182-186	Shale	Light brown to dark gray with a trace of sandstone
186-188	Shale	Minor Coal
188-197	Shale	As above

End of Hole #207

Depth (m)	Lithology	
	Main	Description
0 - 20		Overburden
20 - 22	Sandstone	Fine to medium grained alternating brown to light gray
22 - 40		Samples Missing
40 - 42	Shale	Light gray to black with salt & pepper sandstone with Iron staining
42 - 44	Shale	As above with sandstone and siltstone
44 - 48	Sandstone	Brown and gray, trace of medium to coarse grained sandstone
48 - 50	Coal	with Shale stringers
50 - 52	Shale	Light brown to dark gray
52 - 54	Shale	As above with coaly stringer
54 - 56	Shale	
56 - 58	Shale	Mixed with 20% orange brown - siltstone
58 - 60	Shale	Gray to brown mixed with 10% orange-brown siltstone
60 - 62		Sample Missing
52 - 64	Shale	
64 - 66	Sandstone	Fine grained light brown, trace of gray shale
66 - 68	Sandstone	Fine to medium grained, trace of shale
68 - 70	Shale	Trace of siltstone and coal
70 - 72		Sample Missing
72 - 74	Shale	Coal traces
74 - 76	Shale	Dark carbonaceous
76 - 80	Shale	becoming coaly towards base
80 - 94	Sandstone	Medium to coarse grained salt and pepper

Depth (m)	Lithology	
	Main	Description
94 - 96	Sandstone	Coarse grained salt and pepper
96 - 106	Sandstone	Medium to coarse grained salt and pepper with traces of coal at base
106-108	Shale	
108-118	Sandstone	Coarse grained salt and pepper

End of Hole #208

Depth (m)	Lithology	
	Main	Description
0 - 6		Overburden
6 - 14	Sandstone	Medium to coarse grained, dark gray, hard
14 - 18	Sandstone	Fine grained, salt and pepper
18 - 20	Sandstone	As above with 20% shale content
20 - 26	Sandstone	Interbedded dark gray sandstone with orange salt and pepper sandstone
26 - 32	Sandstone	Medium to coarse grained, dark gray
32 - 36	Sandstone	As above with minor orange salt and pepper beds
36 - 38	Sandstone	Fine to medium grained, dark gray
38 - 42	Sandstone	As above with minor salt and pepper sand
42 - 46	Sandstone	Coarse grained salt and pepper
46 - 48	Sandstone	Fine to medium grained orange to brown slightly carbonaceous
48 - 50	Sandstone	Fine to medium grained, orange to brown
50 - 54	Siltstone	Orange to dark gray, hard
54 - 56	Sandstone	Fine to medium grained dark gray
56 - 58	Sandstone	Banded orange and gray, fine to medium grained
58 - 60	Sandstone	Fine to medium grained, gray
60 - 62	Sandstone	Fine to medium grained, dark gray and orange
62 - 66	Sandstone	fine to medium grained, dark gray
66 - 68	Sandstone	As above with minor orange bands
68 - 74	Sandstone	fine to medium grained dark gray, moderately hard
74 - 80	Siltstone	Fine grained, dark gray
80 - 82	Siltstone	As above with minor orange bands

Depth (m)	Lithology	
	Main	Description
82 - 84	Siltstone	Fine grained, dark gray with minor carbonaceous material
84 - 86	Siltstone	As above
86 - 88	Siltstone	As above with minor carbonaceous material
88 - 90	Siltstone	As above
90 - 92	Siltstone	As above minor orange bands
92 - 98	Siltstone	Fine grained dark gray
98 - 110	Siltstone	Fine grained, gray to black, moderately hard
110-112	Sandstone	Fine to medium grained, light gray slightly salt and pepper sandstone
112-114	Sandstone	As above with minor alternating bands of orange brown sand
114-120	Siltstone	Light brown to gray
120-122	Siltstone	As above, minor slickensides, abundant calcite veins
122-124	Siltstone	As above with minor calcite
124-130	Siltstone	As above
130-132	Siltstone	As above with minor calcite veins, hard
132-138	Siltstone	As above
138-140	Coal	Badly pulverized
140-141	Shale	Coaly
141-142	Coal	Bright, slightly shaly
142-143	Coal	Bright
143-144	Coal	Bright and Dull
144-145	Coal	Badly pulverized
145-146	Coal	Bright and Dull

Depth (m)	Lithology	
	Main	Description
146-147	Coal	Bright and dull with minor mudstone
147-148	Coal	Increase in shale content
148-149	Shale	Coaly
149-150	Coal	Dull, trace of pyrite
150-151	Coal	Dull, trace of shale
151-152	Coal	Dull minor bright bands
152-156	Coal	Dull
156-158	Siltstone	Light brown, fine grained
158-160	Siltstone	As above except coaly
160-162	Coal	Dull
162-166	Sandstone	Medium to coarse grained, salt and pepper, light gray, hard
166-167.5	Sandstone	As above contains minor coal stringers, coal is slickensided
167.5-170	Siltstone	Fine grained light gray, coal stringers throughout
170-171	Shale	Light gray, slickensided, coaly towards base
171-173	Sandstone	Medium to coarse grained salt and pepper

End of Hole #209