PR-BELCOURT 76(10)A

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BELCOURT COAL LIMITED

1976 EXPLORATION REPORT

Coal Licences: 2822 - 2850

N.T.S. Reference: 93-1-9 - 93-1-8

Operator: Denison Coal Limited

Georgia Hoffman
January, 1977

TABLE OF CONTENTS

LIST OF TABLES AND APPENDICES

LIST OF ENCLOSED MAPS AND FIGURES

LIST OF TEXT MAPS AND FIGURES

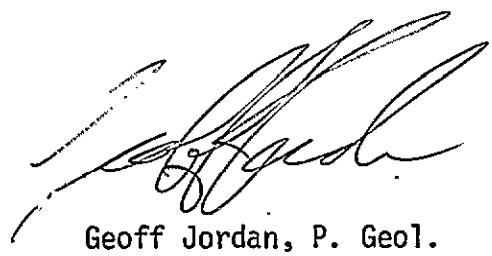
STATEMENT OF QUALIFICATIONS

I, Georgia Lynne Hoffman, having completed a Bachelor of Arts degree majoring in geology at the University of Pennsylvania in the United States in 1970, have been involved with numerous exploration programs and mapping projects in Canada and the United States. I have also engaged in further study and research work toward a Master of Science degree at the University of Alberta.

I have been employed as a geologist by Denison Coal Limited since May, 1975, and have been involved in coal exploration activities, particularly on the Belcourt property, since that date.

Georgia Hoffman
Geologist

I, Geoff Jordan have known Georgia Hoffman since May of 1975 in her position of coal geologist with Denison Coal Limited. I have found her performance both in the field and in data compilation to be of a highly professional standard.



Geoff Jordan, P. Geol.
Denison Mines (B.C.) Limited

As part of Denison Coal Limited's program of metrification, this report has been prepared primarily in accordance with the International System of Units (S.I.). The most significant exception is that angular degrees have been retained rather than introducing grads at this time.

1.0 SUMMARY

Denison Coal Limited's Belcourt property is located in the Province of British Columbia approximately 105 kilometres south of Dawson Creek, B.C. The property consists of Coal Licenses numbers 2822 to 2850 inclusive, an area of about 5 261 hectares, and is situated along the Rocky Mountain foothills coal belt just west of the border between the provinces of British Columbia and Alberta.

The Belcourt property contains Lower Cretaceous strata, with sediments of the Minnes Group forming the base of the geologic section and a portion of the Shaftesbury Formation lying at the top of the sequence. The intervening sediments are a continuous and complete sequence from Cadomin Formation through Commotion Formation, with an overall thickness of some 900 metres. The Gates Member of the Commotion Formation is the major coal bearing unit of the property, and the Gething Formation also contains coal.

The Belcourt property has been divided into four blocks on the basis of topographic setting and differences in geologic structure. All four blocks contain large areas underlain by coal-bearing Gates Member strata, and inferred reserves have been calculated for three of those blocks. Total inferred reserves for the entire Belcourt property have been calculated at 509 million metric tonnes of raw coal in place. A large part of this reserve is suitable for exploitation by hydraulic mining techniques. There is also potential for surface mining in the central two blocks, where about 67 million tonnes may be available at a theoretical overburden ratio of about 7.9 cubic metres per tonne. In addition, there may be potential for surface mining in the Red Deer block, but the magnitude of these reserves remains to be calculated.

Because very little drilling has been done on the Belcourt property to date, the reserves fall into the inferred category. More exploration work will be required to increase confidence in these figures.

The first coal quality information for the Belcourt property is being obtained as a result of the 1976 program. The main seam of the Belcourt property, the Ptarmigan seam, is being analysed. Proximate analysis, Free Swelling tests, and petrographic data show that this seam consists of good quality medium volatile coking coal with a low ash, sulphur, and phosphorus content.

There are three potential rail routes which could provide coal transportation for the Belcourt property. One route involves construction of approximately 80 km. of railroad to link the northern part of Belcourt property with the rail system proposed for Denison

Coal Limited's Quintette project. Another route, which could also serve Saxon Coal Limited's property to the south, would require construction of about 146 km. of railroad, or a 122 km. pipeline, from Belcourt Creek through Gray Pass to reach the Canadian National Railway at Bend, B.C., although this area is difficult for rail construction, particularly in the vicinity of Gray Pass itself. The coal would ultimately arrive at the port of Prince Rupert, B.C. by either of the above routes. The third alternative would require about 100 km. of rail construction between the Belcourt property and the Canadian National Railway near Grande Prairie, Alberta. This route could serve eastern Canadian markets.

2.0 INTRODUCTION

This report summarizes exploration work undertaken on the Belcourt coal property during both the 1975 and 1976 programs. The geologic mapping, stratigraphic observations, and structural interpretations were carried out primarily during 1975 as reported in the Denison Coal Limited 1975 Data Summary for Belcourt Coal Limited. Based on the results of the 1975 program, the 1976 exploration program was designed to achieve the following additional objectives:

(i) to prepare a series of well-controlled 1:5 000 metric base maps of the Belcourt property which would be suitable for mine design studies and preparation of final geological maps;

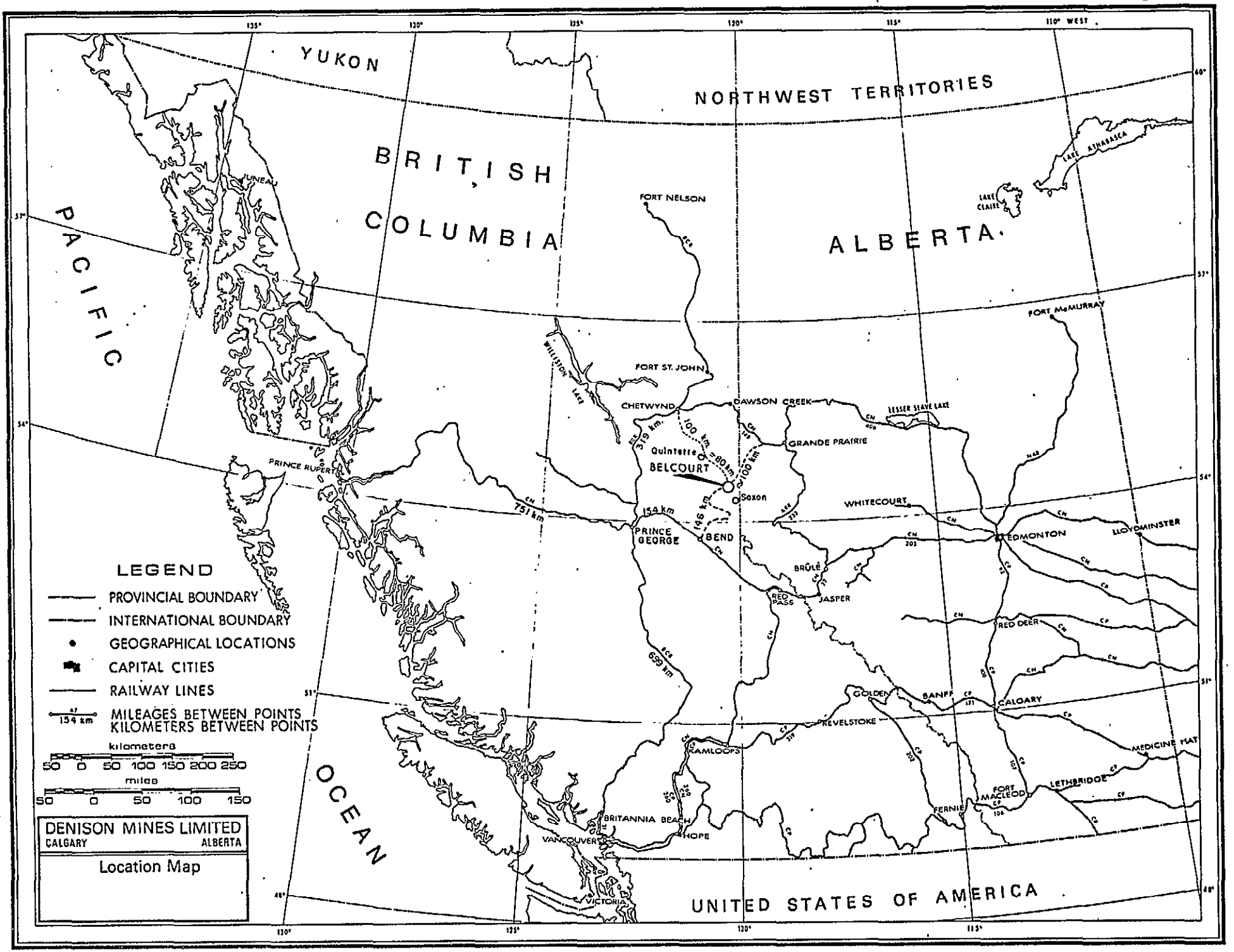
(ii) to obtain an unweathered sample of a major seam for coal quality analysis, including ash, volatiles, Free Swelling Index, specific gravity, and coking tests; and

(iii) to recalculate reserve potential.

To achieve these objectives, base map preparation was undertaken for Denison Coal Limited by Burnett Resource Surveys Limited during the first months of 1976, following which a small drilling program was carried out by helicoptor during October, 1976. Reserve calculations were then undertaken in December, 1976.

The base maps were prepared on the basis of a 1975 aerial photographic survey and accompanying ground control survey as described in detail in Appendix I. The drilling program involved the selection and preparation of three drill sites and landing areas, and the drilling of two holes which are shown on the geological maps and illustrated by Drawings No. 76-0687-R01.

As a result of the 1976 program the first coal quality information is now available for the Belcourt Property. This information is presented and discussed in the section on coal quality. Detailed discussion of the coal reserves of the Belcourt property is also included in this report.


YUKON
NORTHWEST TERRITORIES
BRITISH COLUMBIA
ALBERTA
PACIFIC OCEAN
UNITED STATES OF AMERICA
FORT NELSON
LAKE ATHABASCA
LAKE CLAIRE
FORT McMURRAY
FORT ST. JOHN
WILLISTON LAKE
CHETWYND
DAWSON CREEK
LESSER SLAVE LAKE
GRANDE PRAIRIE
319 km.
100 km.
80 km.
100 km.
Quintette
BELCOURT
Saxon
PRINCE RUPERT
751 km
154 km
146 km
PRINCE GEORGE
BEND
WHITECOURT
EDMONTON
LLOYDMINSTER
BRÛLÉ
RED PASS
JASPER
RED DEER
699 km
GOLDEN
BANFF
CALGARY
REVELSTOKE
KAMLOOPS
MEDICINE HAT
LETHBRIDGE
FORT MACLEOD
FERNIE
BRITANNIA BEACH
HOPE
VANCOUVER
VICTORIA
LEGEND
PROVINCIAL BOUNDARY
INTERNATIONAL BOUNDARY
GEOGRAPHICAL LOCATIONS
CAPITAL CITIES
RAILWAY LINES
MILEAGES BETWEEN POINTS
KILOMETERS BETWEEN POINTS
154 km
kilometers
50 0 50 100 150 200 250
miles
50 0 50 100 150
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Location Map

3.0 PROPERTY, LOCATION AND ACCESS

The current Belcourt property consists of Coal Licenses numbers 2822 to 2850 inclusive, covering an area of approximately 5 261 hectares. The licenses lie about 105 km. south of Dawson Creek, B.C., and were located to cover known exposures of the Lower Cretaceous Commotion and Gething Formations, which are the main coal bearing horizons in that part of the Rocky Mountain foothills coal belt.

The only access to the Belcourt property area at present is by the road from Stony Lake to Little Prairie Creek which passes close to the northernmost end of the Belcourt property, and by a number of poor quality exploration trails which exist in the valley of Red Deer Creek and in the flat land east of the property. Thus, access to the ridges of the Belcourt property is achieved by helicoptor at this time.

There are three potential rail routes being considered for transportation of coal from the Belcourt property. These routes are shown on the location map on the preceeding page. Most of these potential routes have not yet been surveyed.

The route which may be the least difficult for rail construction would require construction of about 80 km. of new railroad to Flatbed Creek to the northwest, to link the northern end of the Belcourt property with the rail system being planned for Denison Coal Limited's Quintette project. The Quintette rail system, which may go into operation by early 1980, would probably join the existing railroad at Chetwynd, B.C., a further distance of 100 km. From Chetwynd, the coal would be transported to the port of Prince Rupert, B.C., a distance of 1 070 km. by rail.

A second possible route, which could also serve Denison Coal Limited's Saxon project, would involve construction of 146 km. of railroad south-westward through the valleys of Belcourt Creek and the Narraway River to Gray Pass, and through the valleys of Jarvis Creek, the McGregor River, and Walker Creek to reach the Canadian National Railway at Bend, B.C. From Bend, this route would also continue to Prince Rupert, a distance of 905 km. by rail. The route from the Belcourt property to Bend is particularly difficult for rail construction, and Gray Pass forms a significant obstacle which may require construction of a tunnel or an extra 24 km. of rail construction compared to a pipeline following the same route.

The third potential rail route could serve eastern Canadian markets, and would involve construction of about 100 km. of railway to the northeast, crossing the Wapiti and Redwillow Rivers to reach the Canadian National Railway between the towns of Beaverlodge and Huallen, about 40 km. west of Grande Prairie, Alberta. The river crossings on this route would require the construction of major bridges.

4.0 SUMMARY OF EXPLORATION WORK

On the basis of published regional geology which outlined Cretaceous stratigraphy but did not document the existence of significant coal deposits, Denison Mines Limited acquired 55 coal licenses in the fall of 1970. During the brief preliminary examination of these licenses in the summer of 1971, the first major discoveries of potentially mineable coal resources were made. The area of acquisition was reduced in 1974, and the present Belcourt property consists of 29 coal licenses under the British Columbia Coal Act of 1974, as listed in Appendix II.

4.1 Base Maps

An aerial photographic survey was flown in 1972. A series of metric maps based on the coal license grid was produced from those air photos during early 1975, using government survey stations and existing N.T.S. maps for control. Because more accurate maps were required, a second aerial photographic survey and an accompanying ground survey were made during the summer of 1975. A series of well-controlled metric maps covering the licenses between Belcourt and Red Deer Creeks was produced on the basis of these surveys during 1976. Similar maps for the other areas will be prepared during 1977. The surveying and mapping procedures are described in detail in Appendix I.

4.2 Geological Maps

The geological mapping of the Belcourt project was accomplished during the 1975 exploration project, which centred around a seven week program of detailed geologic mapping carried out by two teams of geologists. Data collection was undertaken at a scale of 1:2 500 and this information was later transferred to the 1:5 000 scale base maps. Control of traverse lines was achieved using chain and compass, with corrections for slope variation being incorporated. Data points were plotted directly onto 1:2 500 maps in the field by orienting the maps with a Silva compass on a portable map board. Points such as creek confluences or survey control points shown on the base maps were used to locate the beginning and end of each traverse.

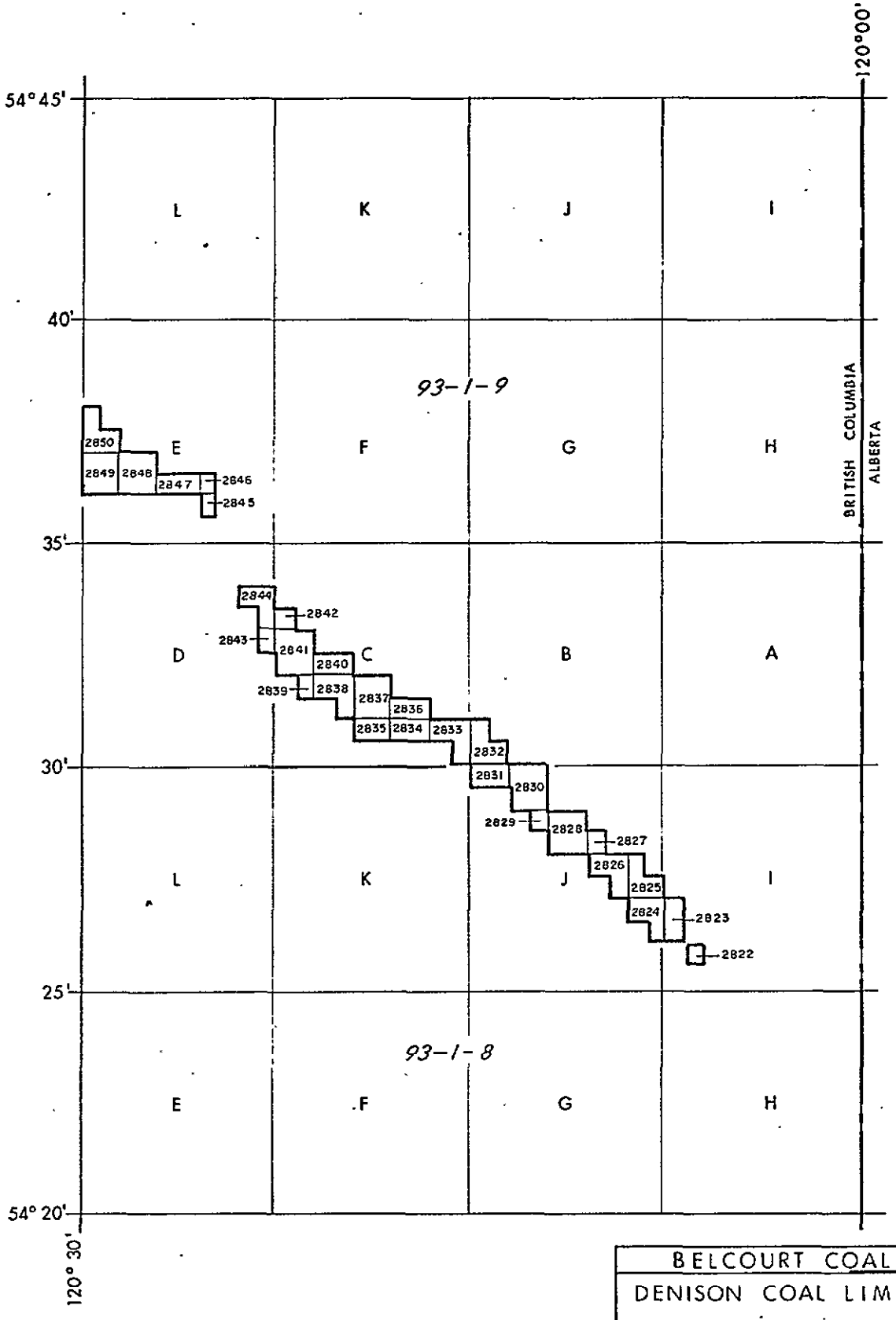
4.3 The 1976 Field Program

The primary objective of the 1976 field program was to obtain unweathered coal from a major seam for quality analysis. All work was carried out by helicoptor due to

the absence of roads on the licenses. Three drill sites and landing areas were chosen and prepared, but only two holes could be drilled during the 1976 program. Plastic casing remains in hole B-RD-D 7602 so that it can be geophysically logged during the 1977 program.

The first diamond drill hole, B-HS-D 7601, was drilled to a depth of 58.5 metres on Coal License No. 2832 and was complicated by faulting. The second hold, B-RD-D 7602, was drilled to a depth of 53.6 metres on License No. 2849 and sampled a complete section of the Ptarmigan seam, which attained a thickness of 9.3 metres in that hole. The resulting analytical data are presented and discussed in the section on coal quality. The drill hole locations are shown on the geological maps, and the drill core lithologies are described in Appendix III and illustrated by Drawings No. 76-0687-R01. Reserve figures and calculations are presented in Section 7.0 titled "Reserves" and in Appendix IV.

All geologic mapping and interpretation, calculation of reserves, and supervision of exploration was carried out by the staff of Denison Coal Limited. All cartography, surveying, and aerial photography was executed by Burnett Resource Surveys Limited. The diamond drilling was done by Tonto Drilling Limited of Vancouver. The coal quality analyses were undertaken by Warnock Hersey Professional Services Limited, and the coal petrography was done by Cascade Coal Petrography of Calgary. Helicopter services were contracted from Terr-Air Limited, Nahanni Helicopters Limited, and Ed Darvill Copters Limited as required. The drafting of the accompanying maps and figures was carried out by staff of Denison Coal Limited, plus a variety of outside drafting services.



BELCOURT COAL LIMITED

DENISON COAL LIMITED

CALGARY ALBERTA

BELCOURT COAL LICENSES

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APPROVED BY.	DRAWING NO BLCR 75-0607-R01	

5.0 STRATIGRAPHY

Within the Belcourt property, sediments of the Minnes Group (Nikanassin Formation) form the base of the geologic section, and a portion of the Shaftesbury Formation lies at the top of the sequence.

The intervening sedimentary rocks are a continuous and complete sequence from Cadomin Formation at the bottom to Commotion Formation at the top, with an overall thickness of some 900 metres as is illustrated on Table 1 and on the Belcourt stratigraphic section (Drawing No. 71-0194-R03). A detailed description of each formation and member follows below:

5.1 Minnes Group (Nikanassin Formation)

The upper portion of the Minnes Group sometimes is referred to as the Nikanassin Formation. The name "Nikanassin Formation" is not universally applied to these strata in British Columbia, however; D.F. Stott, in G.S.C. Bulletin No. 152 (1968) and later papers gives these beds no formation name and refers to them only as "Minnes Group".

The upper portion of the Minnes Group consists of a thick sequence of thin-bedded medium-grained lithic and micaceous brown sandstone, interlayered with dark grey to brown shale, siltstone and mudstone. This sequence of sedimentary rocks is usually much more highly deformed that the overlying sequence. This deformation and the rather monotonous nature of the Minnes Group as a whole tends to mask the presence of marker beds which would assist in defining the geologic structures and stratigraphy of this unit.

Numerous coal seams, usually less than one metre thick, appear to be present throughout the Minnes Group. Some of these seams may be seen in old trenches in the core of the anticline on the northernmost Belcourt licenses. Many of these seams are also well exposed on Ptarmigan Mountain south of the Belcourt property, where the Minnes Group is more arenaceous and contains several thick massive sandstone units. Since these seams are both thin and structurally deformed, they are not considered to be of economic significance at the present time. Therefore, little of the Minnes Group has been included within the boundaries of the Belcourt property.

5.2 Cadomin Formation

The Cadomin Formation, a series of quartizite and chert pebble-coglomerates and quartzite sandstones, unconformably

overlies the Minnes Group. The sand particles, which form beds, lenses, and the matrix of the conglomerate, consist of the same chert and quartz material as the conglomerate pebbles.

The thickness of the Cadomin Formation is extremely variable throughout the foothills region. D.F. Stott, in G.S.C. Bulletin No. 152 (1968) reports thicknesses of 63.9 metres for the Cadomin Formation at the Wapiti River just north of the Belcourt property, 161.5 metres at Mt. Belcourt to the west, and 9.4 metres at Mt. Torrens to the south. Most exposures of Cadomin Formation on the Belcourt property do not exceed 30 metres in thickness, except in the area around and to the north of Red Deer Creek where thicknesses of 100 metres have been noted and are shown on the accompanying 1:5 000 geological maps, included as Drawings No. 75-0620-R01.

5.3 Gething Formation

The sediments of the Gething Formation conformably overlie those of the Cadomin Formation. The essentially non-marine Gething Formation consists of brown calcareous lithic sandstone ranging from fine to coarse in grain size, interbedded with conglomerate, carbonaceous shale, and coal seams. A very coarse conglomerate of variable thickness containing quartzite cobbles up to 15 cm. in diameter exists within the Gething Formation in the central portion of the property.

The average thickness of the Gething Formation on the Belcourt property is 60 metres, and this formation thickens in a northerly direction. Stott, in G.S.C. Bulletin No. 152 (1968), has reported a thickness of 102.6 metres for the Gething Formation at the Wapiti River just northwest of the Belcourt property.

The coal seams of the Gething Formation have attracted the attention of commercial interests in the foothills north of the Belcourt property. Three coal seams have been identified in the Gething Formation on the property, and since one of those seams has a measured thickness of 9.5 metres locally just south of Holtslander Creek, it appears that the Gething Formation may also prove to have some economic potential on the Belcourt property.

The Gething coal seams and lithologies are shown on the Belcourt stratigraphic section (Drawing No. 71-0194-R03).

5.4 Moosebar Formation

The Moosebar Formation consists of a monotonous sequence of dark grey marine shale, which becomes silty in the transition zone near the top of the unit. The stratigraphy of the Moosebar Formation on the Belcourt property has not yet been studied in detail.

TABLE OF FORMATIONS

Series	Group	Formation (Member)		Lithology	Average Unit Thickness (metres)
Lower Cretaceous	Fort St. John	Shaftesbury		Dark grey marine shale with sideritic concretions, some sandstone grading to silty dark grey marine shale; some siltstone and sandstone in lower part.	450+
		Commotion	Boulder Creek Member	Well-sorted sandstone, with conglomerate, minor mudstone and carbonaceous shale, few thin coal seams.	60
			Hulcross Member	Dark grey marine shale and siltstone.	40
			Gates Member	Fine to coarse lithic sandstone, conglomerate, coal shale, and mudstone.	580
		Moosebar		Dark grey marine shale with sideritic concretions, grading into interlayered siltstone and sandstone at top.	70
	Bullhead	Gething		Fine to coarse brown calcareous sandstone, with coal, carbonaceous shale, and conglomerate.	60
		Cadomin		Massive conglomerate containing chert and quartzite pebbles, some quartzose sandstone.	30
	Unconformity				
	Minnes	Nikanassin		Thin-bedded grey to brown shale and brown sandstone, containing numerous thin coal seams.	700+

The Moosebar Formation conformably overlies the Gething Formation and is gradational into the non-marine sandstones of the overlying Gates Member of the Commotion Formation. A glauconitic sandstone lying at the base of the Moosebar Formation is considered to be equivalent to the Bluesky Formation to the east, as discussed by Stott in G.S.C. Bulletin No. 152 (1968). On the Belcourt property, the contact between the Moosebar Formation and the Gates Member is considered to lie at the base of the first sandstone unit and two metres or more in thickness within the silty transition zone.

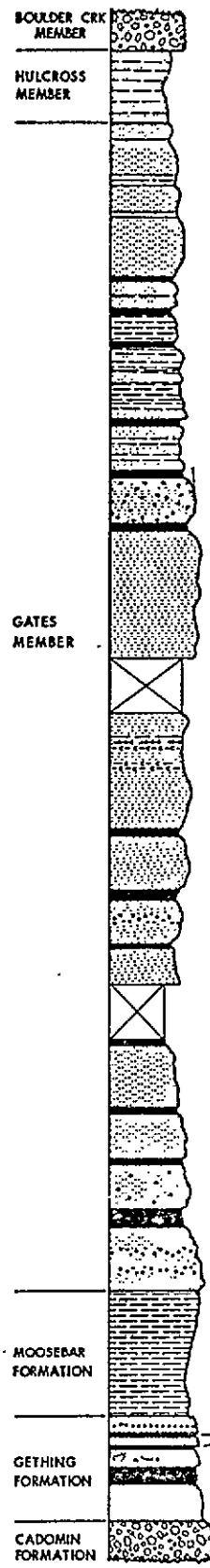
In some areas along the main ridge north of Belcourt Creek a brown sandstone unit about two metres thick has been observed within the shales of the Moosebar Formation. However, since the Moosebar Formation is complicated by both folding and faulting in that region, the position of that sandstone unit within the formation has not yet been determined.

5.5 Gates Member, Commotion Formation

The section of the stratigraphy on the Belcourt property with the greatest economic potential is the Gates Member of the Commotion Formation. This mainly non-marine unit, consisting of lithic sandstone, conglomerate, coal, shale and mudstone, has an average thickness of 580 metres on the Belcourt property.

Surface mapping indicates that the average cumulative total of coal seam thicknesses in the Gates Member may be as great as 46 metres. The four largest seams, which have been named the Ptarmigan, Holtslander, Belcourt and Red Deer seams, contain an average of 24.5 metres of this coal. The major stratigraphic problem of the Belcourt property is the identification of more marker horizons within the Gates Member which will allow precise coal seam correlation.

Throughout the Belcourt property the Gates Member contains a very prominent basal sandstone about 35 metres thick, which is resistant, grey weathering, well indurated, and sometimes coarse-grained or conglomeratic. This sandstone is overlain by the Ptarmigan seam, which is the thickest coal seam in the Gates Member section. The Ptarmigan seam is overlain by a series of sandstones and three smaller seams, each seam being about 3 metres thick. Another prominent sandstone occurs higher in the section between the Belcourt and Red Deer seams. This sandstone is similar to the basal sandstone in appearance and composition. At present, these sandstones and coal seams are the main horizons used for correlation within the Gates Member on the Belcourt property.



85 M. SANDSTONE, SOME SILTSTONE

2 M COAL SEAM
15M SANDSTONE, THIN COAL SEAMS
3 M. COAL SEAM
15M SHALE
3M. COAL SEAM

40 M. INTERBEDDED SANDSTONE & SHALE CONTAINING THIN COAL SEAMS

3M. COAL SEAM

25M SANDSTONE & SHALE

4M COAL SEAM, RED DEER SEAM

25M. COARSE GRAINED OR PEBBLY SANDSTONE

4.5M COAL SEAM, BELCOURT SEAM

70 M. SANDSTONE

30M. COVERED

65M. SANDSTONE CONTAINING SOME THIN COAL SEAMS & CARBONACEOUS SHALES

3M. COAL SEAM

30M. SANDSTONE

6M COAL SEAM, HOLTSLANDER SEAM

25M. SANDSTONE, SOMETIMES CONGLOMERATIC

2M. COAL SEAM

20M. SANDSTONE

30 M. COVERED

3M. COAL SEAM

35M. SANDSTONE

3M. COAL SEAM

25M SANDSTONE

3M. COAL SEAM

25M. SANDSTONE, SOMETIMES COARSE GRAINED, PEBBLEY

10M COAL SEAM, PTARMIGAN SEAM

35M SANDSTONE, SOMETIMES COARSE GRAINED OR CONGLOMERATIC

70M. SHALE

9M. SANDSTONE, SOMETIMES CONGLOMERATIC
COAL SEAMS, UP TO 2M THICK
5M SANDSTONE
10M SANDSTONE, SOMETIMES CONTAINING VERY COARSE CONGLOMERATE
COAL SEAM, UP TO 9M THICK

20M SANDSTONE

460

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BELCOURT
STRATIGRAPHIC SECTION

DRAWN J W K	DATE NOV., 75	SCALE 1CM = 40M
APPROVED	DRAWING NO. BLCT75-0194-E 03	

5.5.1. The Ptarmigan seam

The Ptarmigan seam, unlike other seams of the Belcourt property, is fairly well exposed. This seam is the lowermost seam of the Gates Member. The seam occurs at an average of 40 metres above the contact between the Gates Member and the Moosebar Formation, overlying the resistant basal coarse-grained or conglomeratic sandstone. The Ptarmigan seam has been drilled on the licenses north of Red Deer Creek, where this seam was found to be 9.3 metres thick, as shown on Drawing No. 76-0687-R01. At an exposure on Pika spur, the northeast flank of the main ridge north of Belcourt Creek, this seam is 10 metres thick. Immediately to the southeast of this exposure, the Ptarmigan seam is tectonically thickened to about 16 metres just before being cut by a fault in the vicinity of drill hole B-HS-D 7601. An impressive exposure of the Ptarmigan seam may be seen in a small syncline atop the main ridge just north of Belcourt Creek, where the seam is more than 12 metres thick. On a spur to the east of this exposure a thickness of 5.5 metres was measured.

5.5.2 The Holtslander seam

The Holtslander seam outcrops on the ridge south of the Holtslander Creek. At this location the seam is 8.5 metres thick. The seam has been tentatively correlated with a seam 3 metres thick on the northeast flank of the main ridge north of Belcourt Creek. The Holtslander seam occurs at a height of about 220 metres above the contact between the Gates Member and the Moosebar Formation and is presently considered to have an average thickness of 6 metres on the Belcourt property.

5.5.3 The Belcourt and Red Deer seams

The Belcourt and Red Deer seams also outcrop on the ridge southeast of Holtslander Creek. The Belcourt seam is 4.5 metres thick and lies about 220 metres below the base of the Hulcross Member at this location. The Red Deer seam is 4 metres thick and lies about 200 metres below the base of the Hulcross Member. These two seams are separated by a resistant coarse-grained and sometimes conglomeratic sandstone of variable thickness. This sandstone forms the easternmost edge of the main ridge north of Belcourt Creek, providing a marker horizon which facilitiates the correlation of these seams through that region.

5.5.4 Other seams

In addition to the four largest seams, field traverses near Holtslander Creek have located seven other seams ranging from 3 to 3.5 metres in thickness as well as a number of seam outcrops less than 3 metres thick. The correlation of these seams and their variation in thickness remain uncertain. All seams and lithologies as presently correlated are shown on the Belcourt stratigraphic section (Drawing No. 71-0194-R03) and the two drill holes are illustrated by Drawings No. 76-0687-R01.

5.6 Hulcross Member, Commotion Formation

The Hulcross Member of the Commotion Formation is well exposed on the Belcourt licenses only in the valley of a small steep creek immediately south of Holtslander Creek. There it can be seen that the sandstones of the Gates Member are gradational into the marine siltstones and shales of the Hulcross Member. This exposure indicates that the Hulcross Member is about 40 metres thick.

The position of the Hulcross Member is less precisely known on the remainder of the property. In those areas the Hulcross Member has been mapped principally on the basis of its tendency to form a narrow valley between the resistant sandstones of the upper portion of the Gates Member and the lower portion of the Boulder Creek Member.

5.7 Boulder Creek Member, Commotion Formation

In the Belcourt property area the Boulder Creek Member of the Commotion Formation consists mainly of sandstone, with conglomerate, shale, and a few thin coal seams. The Boulder Creek Member can be seen in exposures which lie at the base of the ridge immediately south of the Holtslander Creek. There this unit is about 60 metres thick. In other areas the Boulder Creek Member is not well exposed, and has been mapped on the basis of topography and of a few outcrops of sandstone.

5.8 Shaftesbury Formation

The youngest sediments on the Belcourt property are the dark grey marine shales of the Shaftesbury Formation. These shales are rarely exposed on the Belcourt licenses, but are presumed to conformably overlie the sandstones of the Boulder Creek Member.

6.0 STRUCTURE

The structure of the Belcourt property can be considered in terms of four main blocks. These blocks have each been subjected to different degrees of tectonic deformation. As a result, each block is characterized by a different overall structural style which controls the coal reserves and potential for mining.

The four blocks, named Red Deer, Holtslander North, Holtslander South, and Huguenot after nearby creeks, are shown on the map following this section. These blocks are discussed individually below:

6.1 Red Deer Block

The Red Deer block lies to the north of Red Deer Creek. The geologic structure of this block is characterized by a number of large folds which expose rocks of the Minnes Group in the southwest through Hulcross Member strata in the northeast. A large area of the coal-bearing Gates Member is brought to the surface by these folds.

To the southeast the folds are faulted against an area underlain by Minnes Group strata. This area of Minnes Group is complicated by further faulting and contains only small remnants of younger strata.

6.2 Holtslander North Block

The Holtslander North block, lying between Red Deer and Holtslander Creeks, contains a sequence of mildly deformed northeasterly dipping strata. Included is a sequence from Minnes Group to Shaftesbury Formation. The strata of the Cadomin Formation through Gates Member form a ridge parallel to strike, with the Gates Member forming prominent dip slopes along the northeastern edge of that ridge. The dip of this sequence is about 25^{0} near Red Deer Creek, but the angle of dip increases rapidly southward. The average dip of the rest of the block is approximately 55^{0}.

Although a small few folds and a reverse fault have been mapped, the Holtslander North Block is for the most part only mildly deformed.

6.3 Holtslander South Block

The Holtslander South Block, which lies between Holtslander and Belcourt Creeks, is structurally continuous with the Holtslander North block but has been more strongly deformed. As a result, the seam thicknesses in this block are quite variable, the seams having been tectonically thickened and thinned.

The overall structure within the Holtslander South block is that of a broad anticline modified by smaller scale folding and faulting. The anticline has been breached by erosion along the southwestern edge of the property, exposing folded Moosebar Formation through Minnes Group strata. In the remainder of the Holtslander South block, a large area of folder Gates Member strata is exposed on this anticline.

In the central area of the Holtslander South block the lower portion of the Gates Member has been repeated by a thrust fault prior to folding. This thrust fault lies at a low angle to bedding and dies out in the lower portion of the Gates Member to the south and in the shales of the Moosebar Formation to the north.

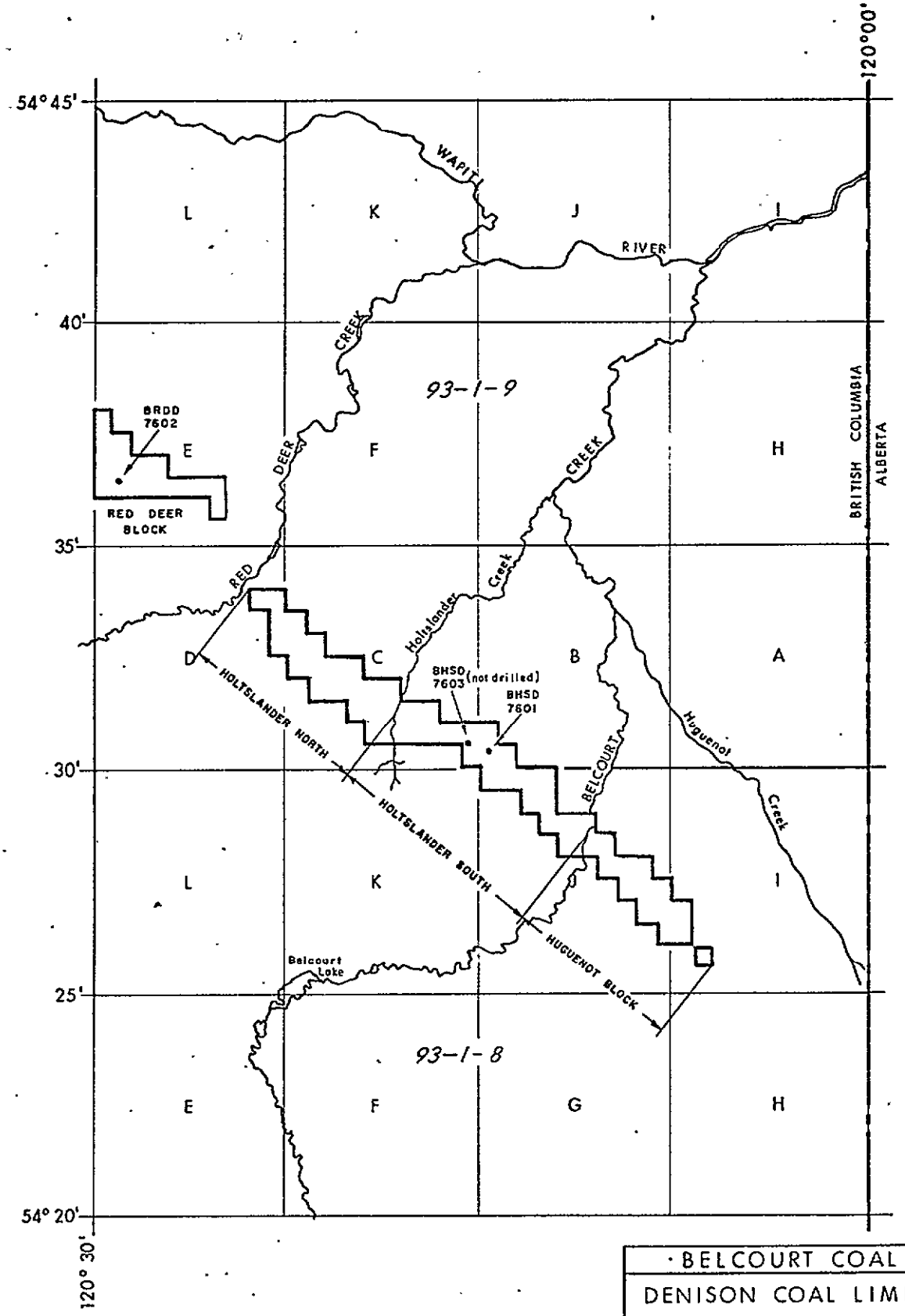
The above period of deformation culminated in the development of a major reverse fault along the southwestern property boundary. The development of this structure is related to the bending of the strata in this area around an axis lying near the first major creek south of Holtslander Creek. At this creek the regional strike changes from 110^{o} in the north to 125^{o} in the south. The reverse fault similarly changes strike. The area near this axis will undeoubtedly be subject to residual tectonic stresses which will have to be taken into consideration in the planning of any underground mining operations in that area.

6.4 Huguenot Block

The southernmost block, which last year was referred to as the Belcourt block, has been renamed the Huguenot block to avoid confusion. This block lies south of Belcourt Creek and runs parallel to Huguenot Creek.

Unlike the other blocks, the Huguenot block is characterized by southwest dipping strata. These strata, which are often poorly exposed, have been mapped as Gething Formation through to Gates Member. It has also been suggested, however, that they may be an overturned sequence of Gates through to Boulder Creek Member. At present, only the coal-bearing Gates Member has been positively identified. Detailed examination of these strata will be required to further resolve the stratigraphy and structure.

The strata of the Huguenot block have been complicated by folding and thrust faulting. In the southwest the southern extension of the Holtslander South block is faulted upon the Huguenot block. To the northeast the Huguenot block is similarly faulted upon dark grey shales which are thought to belong to the Shaftesbury Formation.



· BELCOURT COAL LIMITED

DENISON COAL LIMITED

CALGARY ALBERTA

BELCOURT

RESERVE AREAS AND DRILL HOLES

DRAWN BY J.W.K.	DATE NOV., 75.	SCALE 1: 250,000
APPROVED BY	DRAWING NO. BLCR 75-0629-R01	

7.0 RESERVES

As previously described, the Belcourt Property has been divided into four blocks on the basis of differences in geologic structure. These blocks are shown on the map preceding this section. Reserves have been calculated for the Holtslander North, Holtslander South, and Red Deer blocks. Because little drilling has been done on the Belcourt property to date, and because geologic and topographic maps are still preliminary, these reserves have been assigned to the inferred category. A rough estimate of the potential of the Huguenot block has also been made. The results of the calculations are summarized in the tables in this section. The total inferred reserves of the Belcourt property, excluding the Huguenot block, have been calculated at 509 million metric tonnes.

The calculation of total inferred reserves in place was based on the average seam thicknesses of the main seams in each block. Reserves for underground mining were calculated to a depth of 500 metres cover. A calculation was also made to estimate the portion of the reserves of the Holtslander blocks that might be suitable for open pit mining. A portion of the reserves of the Red Deer block may also be suitable for open pit mining, but the magnitude of this portion remains to be calculated.

7.1 Method of Calculation

The method of calculation was based upon measurement of areas of coal by planimetry, correcting for the dip by multiplying the areas as measured by the secant of the regional dip, and then multiplying by the average seam thickness to determine the coal volume. The measurement of the areas and dip angles was carried out on the structure contour maps which included in this report as Drawings No. 76-0632-R01 and 76-0707-R01. Coal volumes were converted to metric tonnes by multiplying the number of cubic metres by the specific gravity, which was assumed to be 1.5. This method of calculation is described in full in Appendix IV, where the actual calculations are also included.

7.2 Red Deer Block

The reserves of the Red Deer Block were calculated only on the basis of the Ptarmigan seam. This seam was sampled in the Red Deer block by drill hole B-RD-D 7602, where the seam was 9.3 metres thick.

This thickness was taken to be the average thickness for the block and was used as such in the reserve calculation. Several smaller seams have also been noted on the Red Deer

licenses during geological mapping, but these seams were not included in the reserve calculation because their correlations remain uncertain.

On this basis, total inferred reserves in place to 500 metres cover in the Red Deer block have been calculated at 67.8 million tonnes. Of these reserves, 27.8 million tonnes lie above drainage level with the remainder lying below drainage. Possible open pit reserves remain to be calculated for the Red Deer block.

7.3 The Holtslander Blocks

The reserves of the Holtslander blocks were calculated on the basis of the four thickest seams mapped in these blocks, which have been named the Ptarmigan, Holtslander, Belcourt, and Red Deer seams. These seams were assigned average thicknesses of 10 metres, 6.5 metres, 4.5 metres, and 4 metres respectively, based on outcrops which have been described in the section on stratigraphy. Seven smaller coal seams about 3 metres in thickness are also known in the Holtslander blocks, but these were not included in the present calculation because their correlations and variations in thickness are not well established.

Inferred reserves of 441.3 million tonnes in place to 500 metres cover have been calculated for the Holtslander blocks on the above basis. Of these reserves, 204.4 million tonnes lie above drainage level. To estimate the portion of the Holtslander reserves that might be suitable for open pit mining, the amount of coal lying above an elevation of 1500 metres was calculated and found to be 67 million tonnes at a theoretical overburden ratio of about 7.9/1 (cubic metres of overburden per tonne of coal). Because of the inferred nature of the reserves, only 60 percent confidence should be placed in these figures at this time: the actual open pit reserves could be as low as 40.5 million metric tonnes, for example, which would raise the overburden ratio to 13.6/1.

7.4 Huguenot Block

As previously described, some major details of the stratigraphy and structure of the Huguenot block remain to be resolved. For this reason, only rough calculations were made to determine an exploration potential for this block. The calculation included two seams which have been measured in this block, one of which is 12 metres thick and may be the Ptarmigan seam, and the other of which is 3 metres thick. On this basis, the exploration potential of the Huguenot block was found to be 40 to 50 millions tonnes.

TABLE NO. 2

TOTAL

INFERRED RESERVES OF THE BELCOURT PROPERTY

BLOCK	Inferred Reserves Above Drainage	Inferred Reserves Below Drainage	Total Inferred Reserves
RED DEER	27.8	40.0	67.8
HOLTSLANDER SOUTH	47.2	147.8	195.0
HOLTSLANDER NORTH	157.2	89.1	246.3
TOTAL	232.2	276.9	509.1

Inferred reserve figures are given in millions of tonnes.

An exploration potential of an additional 40 to 50 million tonnes has been estimated for the Huguenot block.

TABLE NO. 2

TOTAL
INFERRED RESERVES OF THE BELCOURT PROPERTY

BLOCK	INFERRED RESERVES ABOVE DRAINAGE	INFERRED RESERVES BELOW DRAINAGE	TOTAL INFERRED RESERVES
Red Deer	27.8	40.0	67.8
Holtslander North	47.4	147.7	195.1
Holtslander South	157.0	89.1	246.1
TOTAL	232.2	276.8	509.0

Inferred reserve figures are given in millions of tonnes.

An exploration potential of an additional 40 to 50 million tonnes has been estimated for the Huguenot block.

REVISED COPY

TABLE NO. 3

SUMMARY OF INFERRED RESERVES

RED DEER BLOCK

(Drawing No. 76-0707-R01)

BLOCK	SEAM	SEAM THICKNESS	AREA (millions of square metres)	AVERAGE DIP	RESERVES ABOVE DRAINAGE (millions of tonnes)	RESERVES BELOW DRAINAGE (millions of tonnes)	TOTAL RESERVES (millions of tonnes)
Red Deer #1	Ptarmigan	9.3m	1.22	61.39	5.0	30.4	35.4
Red Deer #2	Ptarmigan	9.3m	0.77	45.00	5.7	9.6	15.3
Red Deer #3	Ptarmigan	9.3m	0.36	0	5.1	0	5.1
Red Deer #4	Ptarmigan	9.3m	0.10	26.56	1.5	0	1.5
Red Deer #5	Ptarmigan	9.3m	0.60	36.87	10.5	0	10.5
				TOTAL	27.8	40.0	67.8

TABLE NO. 4

SUMMARY OF INFERRED RESERVES

HOLTSLANDER BLOCKS

BLOCK	SEAM	SEAM THICKNESS	AREA (millions of square metres)	AVERAGE DIP	RESERVES ABOVE DRAINAGE (millions of tonnes)	RESERVES BELOW DRAINAGE (millions of tonnes)	TOTAL RESERVES (millions of tonnes)
Holtslander North #1	Ptarmigan	10m,	3.88	26	4.8	59.8	64.6
#2	Ptarmigan	10m	1.29	53.5	15.6	17.2	32.8
Holtslander South #1	Ptarmigan	10m	2.11	53.5	24.3	28.9	53.2
#2	Ptarmigan	10m	3.68	36	61.9	6.3	68.2
Holtslander North #1	Holtslander	6m	2.58	20	1.9	22.9	24.8
#2	Holtslander	6m	1.35	57.5	12.1	10.6	22.7
Holtslander South #1	Holtslander	6m	2.41	57.5	23.4	17.3	40.7
#2	Holtslander	6m	2.30	37	23.1	2.8	25.9
Holtslander North #1	Belcourt	4.5m	1.98	22.5	1.8	12.7	14.5
#2	Belcourt	4.5m	1.38	49	5.5	8.7	14.2
Holtslander South #1	Belcourt	4.5m	2.05	49	5.5	5.2	10.7
#2	Belcourt	4.5m	1.05	49	5.7	15.3	21.0
Holtslander North #1	Red Deer	4m	1.63	26.5	1.3	9.6	10.9
#2	Red Deer	4m	1.29	45	4.5	6.2	10.7
Holtslander South #1	Red Deer	4m	1.03	45	4.4	4.3	8.7
#2	Red Deer	4m	1.89	50	8.6	9.1	17.7
				TOTAL	204.4	236.9	441.3

Of the total inferred reserves of the Holtslander blocks (441.3 million tonnes), 67 million tonnes, which lie above an elevation of 1,500 metres, may be mineable by surface methods at a theoretical overburden ratio of about 7.9/1 metric. It is expected that further exploration work on additional smaller seams will reduce this overburden ratio. The blocks listed above are shown on Drawings No. 76-0632-R02.

ANALYSES AND TESTS

The analyses and tests reported below were carried out by Warnock Hessey Professional Services Limited on the Ptarmigan seam as sampled in drill hole B-RD-D 7602.

PROXIMATE ANALYSIS OF CLEAN COAL*

	MOISTURE	ASH	VOLATILE MATTER	FIXED CARBON	SULPHUR	PHOSPHOROUS
run as received	0.95%	6.4%	24.4%	68.2%	0.36%	0.011%
dry basis	0	6.5%	24.7%	68.8%		
dry ash free basis	0	0	26.4%	73.6%		

ASH ANALYSIS

SiO_2	62.0%
TiO_2	1.6%
Al_2O_3	23.5%
Fe_2O_3	3.5%
Mn_3O_4	0.02%
MgO	1.1%
CaO	2.1%
Na_2O	1.9%
K_2O	0.5%
P_2O_5	0.80%
V_2O_5	0.02%
SO_3	2.2%

OTHER TESTS

Free Swelling Index	6
Hardgove Grindability Index	92.6
Specific Gravity, raw coal	1.33
Specific Gravity, clean coal	1.31
Float Tests:	
wt.% float at S.G.=1.50	82.0
wt.% float, combined tests *	85.8
Ruhr Dilatation:	
softening temperature	367 °C
maximum dilatation	-6%, 434° C
maximum contraction	18%
A factor	0.857

* Coal cleaned as follows:

3/8 x 28 mesh fraction - float at S.G. = 1.60
28 x 100 mesh fraction - float at S.G. = 1.80
100 x 0 mesh fraction - float at 90 sec. froth

TABLE NO. 6

PETROGRAPHIC DATA

The petrographic analysis reported below was carried out by Cascade Coal Petrography on coal from the Ptarmigan seam in drill hole B-RD-D 7602.

Maceral	
Vitrinite	52.2%
Exinite	12.2%
Semi-fusinite	17.1%
Macrinite	7.6%
Micrinite	3.0%
Fusinite	5.4%
Mineral Matter	2.5%
Total % Reactives (1/3 semi-fusinite added to Reactives)	72.37%
Total % Inerts	27.63%

REFLECTANCE DATA

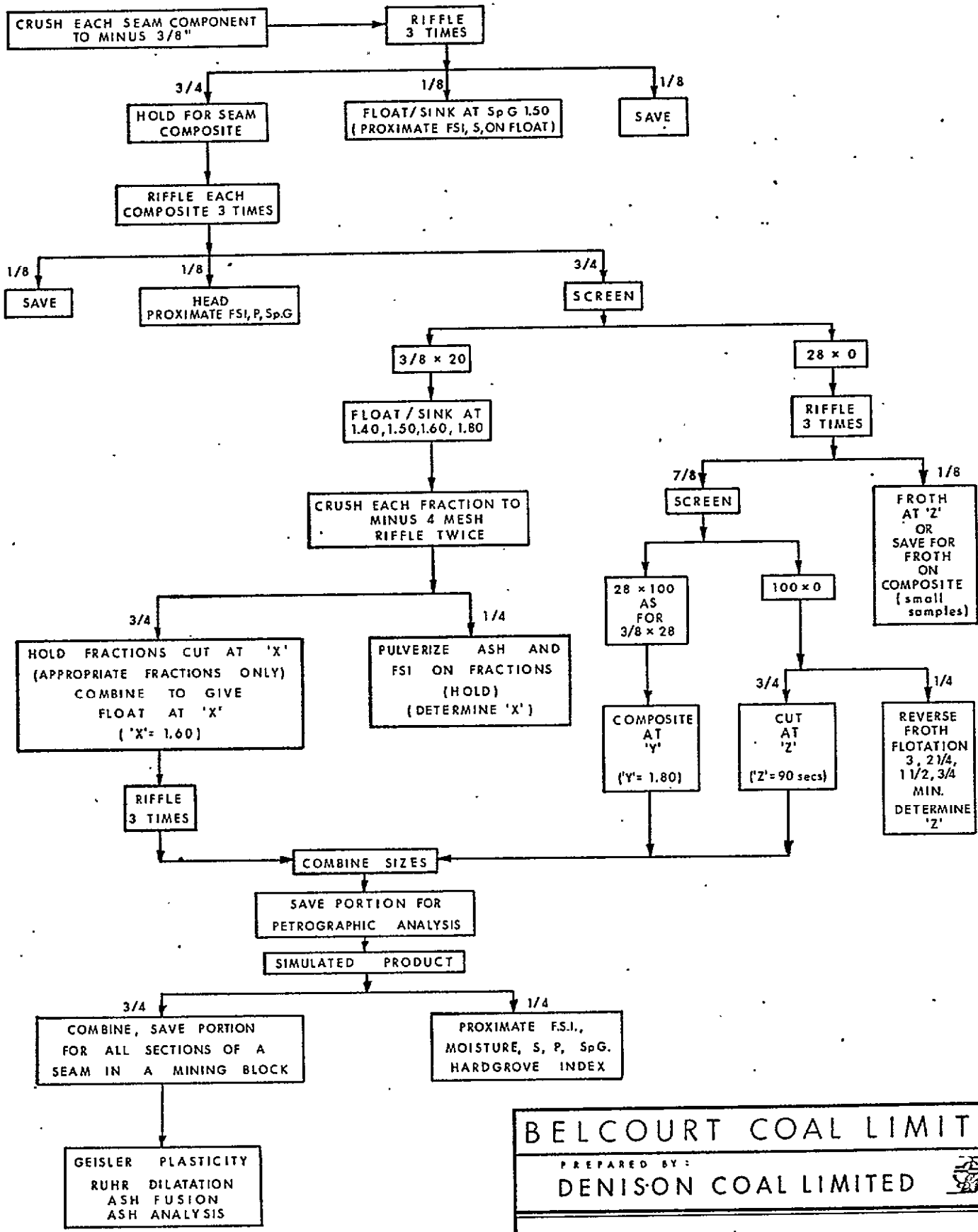
Mean Maximum Reflectance	1.094 ± 0.06%
Vitrinoid Types;	
V9	1.32%
V10	34.96%
V11	25.06%
V12	5.20%
Balance Index	0.952
Strength Index	4.27
Calculated Coke Stability	59.

8.0 COAL QUALITY

The first coal quality analyses for the Belcourt property are now being run on coal samples obtained during the 1976 drilling program. The results that have been obtained to date for coal core samples of the Ptarmigan seam from drill hole B-RD-D 7602 are shown on the tables following this section. These include proximate analysis, ash analysis, Ruhr dilatation and petrographic analysis. Analyses of coal core from drill hole B-HS-D 7601 are also in progress.

The results of the petrographic examination, chemical analyses, and Free Swelling tests demonstrate that the Ptarmigan seam consists of good quality coking coal, and is low in ahs, sulphur and phosphorus content. It is expected that the other seams of the Belcourt property will also prove to consist of good quality coking coal. It is worthy of note, however, that the results of the Ruhr dilatometer test are less encouraging than might be anticipated for a good quality coking coal such as is indicated by the other test results. Since the roof of the seam was intersected at a depth of no more than 16.5 metres and since the overlying sandstones showed signs of oxidation, it is reasonable to assume that the seam is partially oxidized at this near-surface depth, thus producing the relatively poor results from the sensitive dilatometer test. Further tests are in progress to determine the extent to which this seam sample is oxidized.

The results of these Ruhr dilatometer and Free Swelling tests indicate that the base of the level of oxidation on the Belcourt property must lie at a depth of about 20 metres.



BELCOURT COAL LIMITED

PREPARED BY:
DENISON COAL LIMITED

PROCEDURE FOR ANALYSIS of COAL CORE SAMPLES

DRAWN BY: C.A.M.	DATE: JAN., 1977	SCALE:
PREP'D BY:	DATE:	DRAWING NUMBER: BLCR 77-0719-R01

9.0 CONCLUSION

Total inferred coal reserves have been calculated at 509 million metric tonnes in place for the major seams in the portion of the Belcourt property lying north of Belcourt Creek. Of these reserves, 232 million metric tonnes lie above drainage level, and about 67 million metric tonnes in the central portion of the property may prove to be mineable by surface mining methods. Because little drilling has been done on the Belcourt property to date, and because the topographic and geological maps are still preliminary, these reserves must be placed in the inferred category at this time.

The first coal quality information for the Belcourt property is now being obtained from analysis of the drill core samples from the 1976 exploration program. The results of proximate analysis, Free Swelling tests, and petrographic tests indicate that the main seam of the Belcourt property, the Ptarmigan seam, consists of good quality medium volatile coking coal, and is low in ash, sulphur, and phosphorous content. The depth at which this sample was obtained, as well as some of the test results also suggest that this sample may be partially oxidized. This would place the base of the level of oxidation at the Belcourt property at a depth of about 20 metres. Further coal analyses and coking tests are in progress.

APPENDIX I

BURNETT RESOURCE SURVEYS LTD.

METHODS AND PROCEDURES OF AERIAL PHOTO SURVEY,
CONTROL SURVEY AND MAPPING CARRIED OUT DURING
1975 AND 1976

ON THE BELCOURT COAL PROPERTY

ON BEHALF OF

DENISON COAL LIMITED

At the request of Denison Coal Limited, Burnett Resources Surveys Ltd. undertook a program of aerial photography and photogrammetric mapping aimed at assisting exploration on the Belcourt Coal property, in coordination with similar programs for the Saxon and Quintette properties. This program began in 1975 and is still continuing.

1975 Photogrammetric Mapping

In the first quarter of 1975, Burnett Resource Surveys Ltd. undertook photogrammetric mapping of the coal properties, based on 1972 aerial phtographs. The scale chosen was 1:5 000 with a 5 metre contour interval. Belcourt map sheets were laid out in such a manner that each sheet consisted of four coal licenses. All maps were produced to the highest standards with regard to photogrammetry and cartography as could be gained from the existing data. For Belcourt, this consisted of utilizing government survey stations and existing N.T.S. maps for control. The metric maps were then used by the geologists during the 1975 program.

A program of 1:25 000 scale preliminary map preparation was then carried out to cover the Belcourt property (3 maps sheets). A contour interval of 25 metres was chosen as being suitable for this scale and the topography of the property.

1975 Control Survey

During the summer, ground crews undertook survey control work on the coal properties. In early spring, targets which would be identifiable on aerial photographs were laid on the ground. This work required a helicopter to provide transport to points of difficult access. In all, approximately 200 targets were set throughout the region of all three properties to control the topographic mapping. The ground parties surveyed the location of targets. The surveyors employed modern E.D.M. electronic survey equipment in addition to conventional equipment.

All surveys are now based on U.T.M. coordinates (geodetic datum), and all coordinates are tabulated in the metric system.

1975 Aerial Photography

The aerial photography was designed to achieve the following immediate results:

1) A semi-controlled mosaic which included the three coal properties could be prepared; and

2) The photography could be utilized to carry out photogrammetric mapping.

In addition, the topographic maps and aerial photographs could be utilized for the following purposes:

1) Aerial photography could be used to assist future environmental surveys;

2) Photo-geological studies could be carried out;

3) Transportation routes for rail or pipeline systems could be detailed and refined; and

4) Assistance could be given to the study of various problems concerning plant site, infrastructure, and pit design.

Keeping the above in mind, a program of high level photography at a scale of 1:25 000 was designed to cover the Belcourt area. The photo scale was selected to be suitable for various purposes, especially compilation of metric photogrammetric maps.

The photography was carried out in the months of August and September of 1975, at a time when much of the ground work was completed and target locations could be documented. Several sets of prints were dispatched immediately after photography to Denison Coal Limited, so that these could be utilized in the field by the geologists as well as the survey crews for the remainder of the season.

1976 Photogrammetric Mapping

During the first quarter of 1976 a series of nine 1:5 000 metric maps were prepared for the portion of the Belcourt property lying between Belcourt and Red Deer Creeks on the basis of the above 1975 photography and control survey. Like the older 1975 1:5 000 maps, each of these maps covered four coal licenses. The 1976 maps were produced to the highest standards of photogrammetry and cartography possible on the basis of the 1975 photography and control survey. The replacement of the older 1:5,000 and 1:25,000 maps is in progress and should be completed for the Belcourt property during 1977.

APPENDIX II

CURRENT SCHEDULE OF LICENCES

BELCOURT PROPERTY

BELCOURT

Licence No.	Date Issued	Acreage	Land Description		
			Series	Block	Units
2822	Oct 16/74	186	93-I-8	I	19
2823	"	372	93-I-8	I	30, 40
2824	"	558	93-I-8	J	21, 31, 32
2825	"	558	93-I-8	J	41, 42, 52
2826	"	558	93-I-8	J	43, 53, 54
2827	"	186	93-I-8	J	64
2828	"	744	93-I-8	J	65, 66, 75, 76
2829	"	186	93-I-8	J	77
2830	"	743	93-I-8	J	87, 88, 97, 98
2831	"	372	93-I-8	J	99, 100
2832	"	557	93-I-9	B	9, 10, 20
2833	"	557	93-I-9	C	1, 11, 12
2834	"	372	93-I-9	C	13, 14
2835	"	372	93-I-9	C	15, 16
2836	"	372	93-I-9	C	23, 24
2837	"	743	93-I-9	C	25, 26, 35, 36
2838	"	557	93-I-9	C	27, 37, 38
2839	"	186	93-I-9	C	39
2840	"	371	93-I-9	C	47, 48
2841	"	742	93-I-9	C	49, 50, 59, 60
2842	"	186	93-I-9	C	70
2843	"	186	93-I-9	D	51
2844	"	557	93-I-9	D	61, 71, 72
2845	"	186	93-I-9	E	14
2846	"	186	93-I-9	E	24
2847	"	371	93-I-9	E	25, 26
2848	"	741	93-I-9	E	27, 28, 37, 38
2849	"	741	93-I-9	E	29, 30, 39, 40
2850	"	556	93-I-9	E	49, 50, 60

13,002 acres
(5,261 hectares)

APPENDIX IV

BELCOURT RESERVE

CALCULATIONS

BELCOURT RESERVE CALCULATIONS

Section 7.0 of this report titled "Reserves" explains briefly the method used to calculate coal reserves on the Belcourt property. This method is outlined in detail below:

1. A series of structure contour maps covering the Red Deer, and Holtslander North and South blocks were prepared. Maps were drawn for each of the four principal coal seams in the Holtslander blocks and for the Ptarmigan seam in the Red Deer block. These maps are included in this report as Drawings No. 76-0632-R01 and 76-0707-R01.

2. Average seam thicknesses were calculated for the major seams in each block. In the Red Deer block, only the Ptarmigan seam was included in reserve calculations, and 9.3 metres, as measured in drill hole B-RD-D 7602, was used as the average seam thickness throughout the Red Deer block.

   Reserves in the Holtslander North and South blocks were calculated only for the four largest coal seams: the Ptarmigan, Holtslander, Belcourt, and Red Deer seams. The average thicknesses of these four seams have been estimated only on the basis of the measurement of a few surface exposures. A number of outcrops of the Ptarmigan seam have been measured, varying from 5.5 to 16 metres in thickness, resulting in an average thickness of 10 metres. An outcrop of the Holtslander seam measuring 8.5 metres in thickness has been tentatively correlated with another outcrop that is 3 metres thick, and an average thickness of 6 metres has been used for this seam. Only one outcrop each of the Belcourt and Red Deer seams has been measured, the Belcourt seam being 4.5 metres thick and the Red Deer seam being 4 metres thick.

3. The structure contour maps were divided into areas on the basis of consistancy of dip. The regional dip of each block was then calculated.

4. Total coal in place was calculated as detailed below, firstly to a depth of cover of 500 metres, secondly for the above drainage portion of each seam, and thirdly for probable pit areas in the Holtslander blocks. These probable pit areas were assumed to include those portions of seams lying above an elevation of 1500 metres.

   i) To determine the area occupied by each seam, a planimeter was calibrated to a standard map area, in this case 1×10^6 square metres, to give a planimeter factor.

   ii) The area of each seam was then determined by dividing the seam area as measured with the planimeter by the planimeter factor, and multiplying by the secant of the dip for each block:

$$\frac{\text{Planimeter area}}{\text{Planimeter factor}} \times \text{dip secant}$$

iii) Multiplication by the average seam thickness then gives the volume of coal in millions of cubic metres

iv) This volume is multiplied by the specific gravity of the coal to determine the weight of coal in metric tonnes. On the basis of coal analyses, a specific gravity of 1.5 was chosen.

5. Using a 50 metre contour spacing, the overburden volume in probable pit areas was calculated by measuring successive horizontal slices (dip secant = 1). These slices were taken from the base of the lowermost coal seam and extended horizontally to the topographic surface. The volume of each slice was calculated by averaging the area of the upper surface with that of the lower surface and multiplying the contour interval. The sum of these volumes was then used as the aggregate coal and rock volume in a very hypothetical pit which could be defined by the removal of these slices.

   The actual calculations were done as follows for each slice:

$$\frac{\left(\begin{array}{c}\text{Planimeter area}\\ \text{of top of slice}\end{array}\right) + \left(\begin{array}{c}\text{Planimeter area}\\ \text{of bottom of slice}\end{array}\right)}{2 \times \text{Planimeter factor}} \times \text{Contour interval}$$

6. The theoretical overburden to coal ratio was then determined according to the formula below:

$$\frac{\left(\begin{array}{c}\text{Total volume of}\\ \text{rock and coal in } m^3\end{array}\right) - \left(\begin{array}{c}\text{Volume of}\\ \text{coal in } m^3\end{array}\right)}{\text{Total volume of coal in } m^3 \times \text{S.G.}} = \frac{\text{Total overburden in } m^3}{\text{Total coal in tonnes}}$$

   This overburden ratio compares theoretical coal <u>in situ</u> to total overburden. Thus it is significantly lower than a plant feed ratio, in which the coal is reduced according to mining loss, was plant efficiency, etc.

7. The limits of accuracy of the above calculation were considered. Uncertainty in the calculation is introduced by the following facts:

   i) the revised 1:5 000 topographic maps are not yet available for all areas;

   ii) the detailed geological mapping is not yet complete; and

   iii) only two diamond drill holes have been undertaken on the property to date.

   Thus it is felt that only 60 percent confidence should be placed on the theoretical figures at this time. To calculate the effect of this confidence factor on a potential pit area, the theoretical coal volume is multiplied by .60, which results in reduction of the theoretical reserves and consequently, an increase in the overburden ratio. Complete calculations are included in the remainder of this Appendix.

APPENDIX IV - SECTION A

DETAILED CALCULATIONS
FOR THE
RED DEER BLOCK

BELCOURT RESERVES

RED DEER BLOCK

Planimeter factor:
93 = 1,000,000 sq. m.

Coal weight = $\frac{\text{planimeter area}}{\text{planimeter factor}}$ x seam thickness x S.G. x secant of dip

RED DEER BLOCK, AREA 1

Ptarmigan seam
Seam Thickness = 9.3 m
Average dip = 61.39^{o}

Coal in situ to 500m cover:

= $\frac{113}{93}$ x 9.3 x 2.0883

= 23.60×10^{6} cubic metres

= 35.39×19^{6} metric tons

Portion above drainage level:

= $\frac{16}{93}$ x 9.3 x 2.0883

= 3.34×10^{6} cubic metres

= 5.01×10^{6} metric tons

RED DEER BLOCK, AREA 2

Ptarmigan seam
Seam Thickness = 9.3m
Average dip = 45^{o}

Coal in situ to 500 m cover:

$= \frac{72}{93} \times 9.3 \times 1.4142$

$= 10.18 \times 10^{6}$ cubic metres

$= 15.27 \times 10^{6}$ metric tons

Portion above drainage level:

$= \frac{27}{93} \times 9.3 \times 1.4142$

$= 3.82 \times 10^{6}$ cubic metres

$= 5.73 \times 10^{6}$ metric tons

RED DEER BLOCK, AREA 3

Ptarmigan seam
Seam thickness = 9.3m
Average dip = 0^{o}

Coal in situ to 500 m cover:

$= \frac{34}{93} \times 9.3 \times 1.000$

$= 3.40 \times 10^{6}$ cubic metres

$= 5.10 \times 10^{6}$ metric tons

Portion above drainage level:

$= 5.10 \times 10^{6}$ metric tons

RED DEER BLOCK, AREA 4

Ptarmigan seam
Seam Thickness = 9.3m
Average dip = 26.56

Coal in situ to 500 m cover:

$= \frac{9}{93} \times 9.3 \times 1.1180$

$= 1.01 \times 10^6$ cubic metres

$= 1.51 \times 10^6$ metric tons

Portion above drainage level:

$= 1.51 \times 10^6$ metric tons

RED DEER BLOCK, AREA 5

Ptarmigan seam
Seam Thickness = 9.3 m
Average dip = 1.2500

Coal in situ to 500 m cover:

$= \frac{46}{93} \times 9.3 \times 1.2500$

$= 7.00 \times 10^6$ cubic metres

$= 10.50 \times 10^6$ metric tons

Portion above drainage level:

$= 10.50 \times 10^6$ metric tons

APPENDIX IV - SECTION B

DETAILED CALCULATIONS FOR THE HOLTSLANDER BLOCKS

BELCOURT RESERVES

HOLTSLANDER BLOCKS

Planimeter Factor:
187 = 1,000,000 sq. m.

$$\text{Coal weight} = \frac{\text{planimeter area}}{\text{planimeter factor}} \times \text{seam thickness} \times \text{S.G.} \times \text{secant of dip.}$$

HOLTSLANDER NORTH, AREA 1

Belcourt Seam
Dip = 22.6^{o}
Seam Thickness = 4.5m

In situ coal to 500 m cover:

$$= \frac{370}{187} \times 4.5 \times 1.0833$$

$$= 9.64 \times 10^{6} \text{ cubic metres}$$

(S.G. assumed 1.5) $= 14.47 \times 10^{6}$ metric tons

Portion above drainage level:

$$= \frac{045}{187} \times 4.5 \times 1.0833$$

$$= 1.17 \times 10^{6} \text{ cubic metres}$$

$$= 1.76 \times 10^{6} \text{ metric tons}$$

HOLTSLANDER NORTH, AREA 2

Belcourt Seam

Seam Thickness = 4.5 m

Dip = 48.65^{o}

In situ coal to 500 m depth

$= \frac{259}{187} \times 4.5 \times 1.5137$

$= 9.43 \times 10^{6}$ cubic metres

$= 14.15 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{101}{187} \times 4.5 \times 1.5137$

$= 3.68 \times 10^{6}$ cubic metres

$= 5.52 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 1

Belcourt Seam
Seam Thickness = 4.5 m
Dip = 48.65^{o}

In situ coal to 500 m cover

$= \frac{196}{187} \times 4.5 \times 1.5137$

$= 7.14 \times 10^{6}$ cubic metres

$= 10.71 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{100}{187} \times 4.5 \times 1.5137$

$= 3.64 \times 10^{6}$ cubic metres

$= 5.46 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 2

Belcourt Seam

Seam Thickness = 4.5 m

Dip = 48.65^{o}

In situ coal to 500 m depth

$= \frac{384}{187} \times 4.5 \times 1.5137$

$= 13.99 \times 10^{6}$ cubic metres

$= 20.98 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{105}{187} \times 4.5 \times 1.5137$

$= 3.82 \times 10^{6}$ cubic metres

$= 5.74 \times 10^{6}$ metric tons

HOLTSLANDER NORTH, AREA 1

Ptarmigan Seam
Seam Thickness = 10 m
Dip = 25.8^{o}

In situ coal to 500 m depth

$= \frac{725}{187} \times 10 \text{ m} \times 1.1109$

$= 43.07 \times 10^{6}$ cubic metres

$= 64.60 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{54}{187} \times 10 \times 1.1109$

$= 3.21 \times 10^{6}$ cubic metres

$= 4.81 \times 10^{6}$ metric tons

HOLTSLANDER NORTH, AREA 2

Ptarmigan Seam
Seam Thickness = 10 m
Dip = 53.74^{o}

In situ coal to 500 m depth

$= \frac{242}{187} \times 10 \times 1.6910$

$= 21.88 \times 10^{6}$ cubic metres

$= 32.82 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{115}{187} \times 10 \times 1.6910$

$= 10.40 \times 10^{6}$ cubic metres

$= 15.60 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 1

Ptarmigan Seam
Seam Thickness = 10m
Dip = 53.74^{o}

In situ coal to 500 m depth

$= \frac{392}{187} \times 10 \times 1.6910$

$= 35.45 \times 10^{6}$ cubic metres

$= 53.17 \times 10^{6}$ cubic tons

Portion above drainage

$= \frac{179}{187} \times 10 \times 1.6910$

$= 16.19 \times 10^{6}$ cubic metres

$= 24.28 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 2

Ptarmigan Seam
Seam Thickness = 10 m
Dip = 36^{o}

In situ coal to 500 m depth

$= \frac{688}{187} \times 10 \times 1.2361$

$= 45.48 \times 10^{6}$ cubic metres

$= 68.22 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{624}{187} \times 10 \times 1.2361$

$= 41.25 \times 10^{6}$ cubic metres

$= 61.87 \times 10^{6}$ metric tons

HOLTSLANDER NORTH, AREA 1

Holtslander Seam
Seam Thickness = 6 m
Dip = 20.14^{o}

In situ coal to 500 m depth

$= \frac{483}{187} \times 6 \times 1.0651$

$= 16.51 \times 10^{6}$ cubic metres

$= 24.76 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{37}{187} \times 6 \times 1.0651$

$= 1.26 \times 10^{6}$ cubic metres

$= 1.90 \times 10^{6}$ metric tons

HOLTSLANDER NORTH; AREA 2

Holtslander Seam
Seam Thickness = 6 m
Dip = 57.74^{o}

In situ coal to 500 m depth

$= \frac{252}{187} \times 6 \times 1.8734$

$= 15.15 \times 10^{6}$ cubic metres

$= 22.72 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{134}{187} \times 6 \times 1.8734$

$= 8.05 \times 10^{6}$ cubic metres

$= 12.08 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 1

Holtslander Seam
Seam Thickness = 6 m
Dip = 57.74^{o}

In situ coal to 500 m depth

$= \frac{451}{187} \times 6 \times 1.8734$

$= 27.11 \times 10^{6}$ cubic metres

$= 40.66 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{260}{187} \times 6 \times 1.8734$

$= 15.63 \times 10^{6}$ cubic metres

$= 23.44 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 2

Holtslander Seam
Seam Thickness = 6 m
Dip = 36.87^{o}

In situ coal to 500 m depth

$= \frac{431}{187} \times 6 \times 1.2500$

$= 17.29 \times 10^{6}$ cubic metres

$= 25.93 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{384}{187} \times 6 \times 1.2500$

$= 15.40 \times 10^{6}$ cubic metres

$= 23.10 \times 10^{6}$ metric tons

HOLTSLANDER NORTH, AREA 1

Red Deer Seam
Seam Thickness = 4 m
Dip = 26.5^{o}

In situ coal to 500 m cover

$= \frac{305}{187} \times 4.0 \times 1.1180$

$= 7.29 \times 10^{6}$ cubic metres

$= 10.94 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{36}{187} \times 4.0 \times 1.1180$

$= 0.86 \times 10^{6}$ cubic metres

$= 1.29 \times 10^{6}$ metric tons

HOLTSLANDER NORTH, AREA 2

Red Deer Seam
Seam Thickness = 4 m
Dip = 45^{o}

In situ coal to 500 m cover

$= \frac{241}{187} \times 4.0 \times 1.414$

$= 7.11 \times 10^{6}$ cubic metres

$= 10.66 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{99}{187} \times 4.0 \times 1.414$

$= 2.99 \times 10^{6}$ cubic metres

$= 4.49 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 1

Red Deer Seam
Seam Thickness = 4 m
Dip = 45^{0}

In situ coal to 500 m cover

$= \frac{192}{187} \times 4 \times 1.414$

$= 5.81 \times 10^{6}$ cubic metres

$= 8.71 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{097}{187} \times 4 \times 1.414$

$= 2.93 \times 10^{6}$ cubic metres

$= 4.40 \times 10^{6}$ metric tons

HOLTSLANDER SOUTH, AREA 2

Red Deer Seam
Seam Thickness = 4 m
Dip = 50.19^{0}

In situ coal to 500 m cover

$= \frac{353}{187} \times 4 \times 1.5620$

$= 11.79 \times 10^{6}$ cubic metres

$= 17.69 \times 10^{6}$ metric tons

Portion above drainage

$= \frac{172}{187} \times 4 \times 1.5620$

$= 5.75 \times 10^{6}$ cubic metres

$= 8.62 \times 10^{6}$ metric tons

VOLUME OF COAL ABOVE 1500 M ELEVATION

HOLTSLANDER NORTH, AREA 1 = 0

HOLTSLANDER NORTH, AREA 2

Ptarmigan Seam	=	$\frac{47}{187}$	x	10	x	1.691
	=	4.25	x	10^6	cubic metres	
(S.G. assume 1.5)	=	6.38	x	10^6	metric tons	
Holtslander Seam	=	$\frac{40}{187}$	x	6	x	1.1180
	=	1.43	x	10^6	cubic metres	
	=	2.15	x	10^6	metric tons	
Belcourt Seam	=	$\frac{37}{187}$	x	4.5	x	1.0833
	=	0.96	x	10^6	cubic metres	
	=	1.45	x	10^6	metric tons	
Red Deer Seam	=	$\frac{34}{187}$	x	4	x	1.1180
	=	0.81	x	10^6	cubic metres	
	=	1.22	x	10^6	metric tons	
TOTAL	=	11.2	x	10^6	metric tons	

HOLTSLANDER SOUTH, AREA 1

Ptarmigan Seam = $\frac{88}{187}$ x 10 x 1.1691

= 5.50 x 10^6 cubic metres

= 8.25 x 10^6 metric tons

Holtslander Seam = $\frac{107}{187}$ x 6 x 1.4140

= 4.85 x 10^6 cubic metres

= 7.28 x 10^6 metric tons

Belcourt Seam = $\frac{51}{187}$ x 4.5 cubic metres

= 1.86 x 10^6 metric tons

Red Deer Seam = $\frac{36}{187}$ x 4 x 1.4140

= 1.09 x 10^6 cubic metres

= 1.63 x 10^6 metric tons

TOTAL = 20.14 x 10^6 metric tons

HOLTSLANDER SOUTH, AREA 2

Ptarmigan Seam = $\frac{199}{187}$ x 10 x 1.2361

= 13.15 x 10^6 cubic metres

= 19.73 x 10^6 metric tons

Holtslander Seam = $\frac{142}{187}$ x 6 x 1.4140

= 6.44 x 10^6 cubic metres

= 9.66 x 10^6 metric tons

Belcourt Seam = $\frac{79}{187}$ x 4.5 x 1.5137

= 2.88 x 10^6 cubic metres

= 4.32 x 10^6 metric tons

Red Deer Seam = $\frac{48}{187}$ x 4 x 1.5620

= 1.60 x 10^6 cubic metres

= 2.41 x 10^6 metric tons

TOTAL = 36.12 x 10^6 metric tons

TOTAL INFERRED RESERVE ABOVE 1500 METRES

= 67.27 x 10^6 metric tons

= 44.82 x 10^6 cubic metres

TOTAL OVERBURDEN ABOVE 1500 METRES, HOLTSLANDER BLOCKS

$$= \frac{2152}{187} \times 50 \text{ metres}$$

$$= 575.40 \times 10^6 \text{ cubic metres}$$

THEORETICAL OVERBURDEN RATIO FOR RESERVES ABOVE 1500 METRES

$$= \frac{\text{Total coal + overburden (cubic metres)} - \text{Total coal volume (cubic metres)}}{\text{Total coal reserves (metric tons)}}$$

$$= \frac{575.40 - 44.82}{67.27}$$

$$= 7.9/1 \text{ metric}$$

OVERBURDEN RATIO: calculated for 60% confidence level

$$= \frac{\text{Total pit volume (cubic metres)} - .6 \times \text{total coal volume (cubic metres)}}{.6 \times \text{total coal reserves (metric tons)}}$$

$$= \frac{575.40 - 26.89}{40.36}$$

$$= 13.6/1 \text{ metric}$$

APPENDIX III

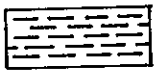
BELCOURT DRILL CORE

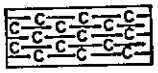
LITHOLOGICAL DESCRIPTIONS

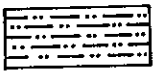
DRILL LOG LEGEND

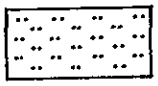
LITHOLOGIC REPRESENTATION

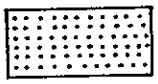

COAL

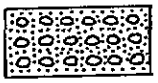

CLAYSTONE / SHALE

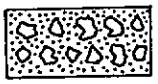

CARBONACEOUS CLAYSTONE

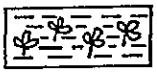

SILTY CLAYSTONE

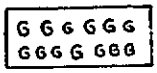

SILTSTONE


SANDSTONE


CONGLOMERATE


FAULT BRECCIA

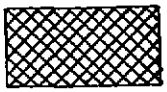
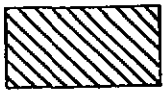

PLANT FOSSILS



SHELL BEDS


MISSING

COAL REPRESENTATION

	% BRIGHT BANDS	VISUAL APPEARANCE
	> 80	BRIGHT
	60-80	BRIGHT WITH DULL LUSTROUS BANDS
	40-60	INTERBEDDED DULL LUSTROUS & BRIGHT
	20-40	DULL LUSTROUS WITH MINOR BRIGHT BANDS
	20	DULL LUSTROUS
		OXIDIZED
		BONEY - STONEY
		SHEARED
		COAL & ROCK

GEOLOGICAL AND OTHER SYMBOLS

C — COAL

R — ROCK

M — MISSING

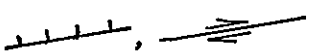
(9) — MISSING

● — KAOLINITE MARKER BED


OXIDIZED ZONE

APPARENT DIP

JOINT


NORMAL, THRUST FAULT

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BHSD 7601 SHEET No 1

DATE BEGUN: October, 3, 1976 DEPTH: BEARING: U.T.M

DATE FINISHED October 5, 1976 ELEV COLLAR: TOTAL DEPTH 192' (58.522m) COAL LICENSE 2882

LAT. 54° 30' 15", 120° 14' 30" approx. HOLE ANGLE: 90° LOGGED BY G. Hoffman CORE SIZE NQ

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC LOG	MARKER	DESCRIPTION	RECOVERY Int	m.	m. Rec.	%
							0'					
	0	3.048	3.048				3.048	CASING - triconed to 10. Top of Box 1				
50°	3.048	3.358	0.310	0.199				SANDSTONE - fine-grained, medium grey, lithic;				
	3.358	3.658	(0.300)	(0.193)	0.300		12' 3.658	numerous phases and interbeds of grey siltstone and a few phases of mudstone; core iron stained.				
	3.658	4.523	0.865	0.556			15'					
	4.523	4.573	(0.050)	(0.032)	0.050		4.572					
	4.573	6.713	2.140	1.376								
	6.713	7.010	(0.297)	(0.191)	0.297		23' 7.010					
	7.010	8.190	1.180	0.758								
	8.190	8.230	(0.040)	(0.026)	0.040		27' 8.230					
	8.230	8.275	0.045	0.029								
								SANDSTONE - medium-grained, light grey,				
	8.275	8.692	0.417	0.268				lithic; a few phases of grey siltstone				
	8.692	9.725	1.033	0.664				with reworked bedding and ochnites;				
							32'	occasional calcite filled fractures				
	9.725	9.754	(0.029)	(0.019)	0.029		9.754	30° to core axis.				
	9.754	12.994	3.240	2.083								
								Top of Box 2				
55°	12.994	13.744	0.750	0.430			44.5'	SILTSTONE - medium grey; numerous grey				
	13.744	14.279	0.535	0.307			13.564	claystone interbeds and a few carbon-				
								aceous claystone phases.				

Form 71-1150-RJ2

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BHSD 7601 SHEET No 2

DATE BEGUN: DEPTH: BEARING: UT.M

DATE FINISHED: ELEV COLLAR: TOTAL DEPTH: COAL LICENSE:

LAT.: HOLE ANGLE: LOGGED BY: CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC LOG	MARKER	DESCRIPTION	RECOVERY Int.	m.	m.Rec	%
								Top of Box 3				
	15.399	16.392	0.993	0.570			53' 16.154					
	16.392	17.792	1.400	0.803								
	17.792	17.882	0.090	0.052			58' 17.678	CARBONACEOUS CLAYSTONE - black, sheared; lystric surfaces on shear planes.				
	17.882	18.098	0.216	0.124								
	18.098	18.368	0.270	0.155			61'					
	18.368	18.593	(0.225)	(0.129)	0.225		18.593	COAL - dull and bright, sheared.				
	18.593	19.217	0.624	0.358			63' 19.202	SILTSTONE BRECCIA - Lithologies broken and irregular calcite veins throughout; fragments of carbonaceous mudstone. FAULT ZONE.				
								Top of Box 4				
	19.777	20.287	0.510	0.292								
	20.287	20.587	0.300	0.172			67' 20.421	SANDSTONE BRECCIA - medium grey fine-grained lithic sandstone, broken with irregular calcite veins; interbeds of reworked siltstone contained within the breccia fragments. FAULT ZONE.				
	20.587	21.277	0.690	0.396			69.5' 21.184					
	21.277	21.987	0.710	0.407			71' 21.641					
55°	21.987	23.307	1.320	0.757			76' 23.165					
	23.307	24.717	1.410	0.809			81' 24.689					
	24.717	25.147	0.430	0.247								
								Top of Box 5				

Form 71-1150-R02

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BHSD 7601 SHEET No 3

DATE BEGUN: DEPTH: BEARING: U.T.M

DATE FINISHED: ELEV COLLAR: TOTAL DEPTH: COAL LICENSE:

LAT.: HOLE ANGLE: LOGGED BY: CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC LOG	MARKER	DESCRIPTION	RECOVERY Int	RECOVERY m.	RECOVERY m.Rec.	RECOVERY %
85°	25.986	26.496	0.510	0.292			89'	SILTSTONE - medium grey; interbeds of medium-				
	26.496	27.127	(0.631)	(0.362)	0.631		27.127	grained, light grey sandstone with reworked bedding;				
	27.127	27.734	0.607	0.348			94'					
	27.734	29.144	1.410	0.809			28.651					
	29.144	31.289	2.145	1.230				Top of Box 6				
45°	31.289	32.029	0.740	0.424			103'	- carbonaceous mudstone and grey mudstone				
	32.029	33.138	1.109	0.636			31.394	interbedded in last 20cm.				
	33.138	33.263	0.125	0.088				SANDSTONE - medium-grained, light grey lithic;				
								black coal and carbonaceous claystone				
								interbeds, reworked bedding;				
	33.263	33.406	0.143	0.101				CARBONACEOUS CLAYSTONE - black, sheared;				
								lystric surfaces on bedding.				
	33.406	33.679	0.273	0.193			108'	SANDSTONE - as above, with carbonaceous				
	33.679	33.749	1.070	0.757			32.918	mudstone in last 20 cm.				
								SANDSTONE - medium to coarse grained, light				
40°	34.749	35.269	0.520	0.398			113'	grey, lithic; coarse-grained with large				
	35.269	36.139	0.870	0.666			34.442	irregular claystone and coal inclusions				
								toward base.				
	36.139	36.891	0.753	0.577			118'	SILTSTONE - medium grey; occasional grey				
	36.891	37.870	0.979	0.750			35.966	mudstone interbeds; grades to unit below				
								Top of Box 7				
	37.870	38.335	0.465	0.356			123'	MUDSTONE AND SILTSTONE, INTERBEDDED - grey				
	38.335	38.485	0.150	0.115			37.490	siltstone and dark grey mudstone forming				
	38.485	39.975	1.490	1.141				graded units less than 1 cm thick; a				
								lamanite.				

DENISON MINES LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BHSD 7601 SHEET No 4

DATE BEGUN: DEPTH BEARING: U.T.M

DATE FINISHED ELEV. COLLAR TOTAL DEPTH COAL LICENSE

LAT. HOLE ANGLE LOGGED BY CORE SIZE

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	COAL SHEET	DESC. LOG	MARKER	DESCRIPTION	RECOVERY Int.	m.	m. Rec.	%
	39.975	41.045	1.070	0.820			128'					
	41.405	41.175	0.130	0.099			39.014					
							133'					
							40.538					
	41.175	41.255	0.080	0.046				COAL - dull and bright, sheared with fragments of black carbonaceous claystone; core badly broken. FAULT.				
	41.255	41.350	0.050	0.038			134.5'					
	41.350	42.230	0.880	0.674			40.996	SANDSTONE - medium-grained, light grey, lithic; porous in top 30 cm., irregular coaly inclusions toward top; calcite-filled joints and fractures.				
								Top of Box 8				
	42.230	42.318	0.088	0.067			138'					
	42.318	43.598	1.280	0.980			42.062					
	43.598	43.838	0.240	0.196			143'					
							43.586					
35°	43.838	44.798	0.960	0.786								
	44.798	45.293	0.495	0.478			148'	CLAYSTONE - dark grey; phases and interbeds				
15°	45.293	46.889	1.596	1.542			45.110	of grey siltstone throughout; numerous				
	46.889	47.809	0.920	0.889			153'	near-vertical calcite-filled fractures				
							46.634	and joints at 60° to core axis FAULT ZONE.				
	47.809	48.444	0.635	0.613			158'	- core badly fractured and brecciated.				
							48.158					
45°	48.444	49.149	1.705	0.1206			163'					
	49.149	50.574	1.425	1.008			49.682					

Form 71-1150-RJ2

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BHSD 7601 SHEET No 5

DATE BEGUN: DEPTH: BEARING: UT.M:

DATE FINISHED: ELEV. COLLAR: TOTAL DEPTH: COAL LICENSE:

LAT.: HOLE ANGLE: LOGGED BY: CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	COAL SAMPLE NO.	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
50°	50.574	52.189	1.615	1.142			168' 51.206	- core badly fractured and brecciated.				
	52.189	53.487	1.278	0.821			173'					
	53.487	54.254	(0.787)	(0.506)	0.787		52.730 178' 54.254					
	54.254	54.389	0.135	0.087				COAL - bright banded.				
	54.389	54.449	0.060	0.038		Sample 1		- bright.				
	54.449	54.619	0.170	0.109				- dull banded.				
	54.619	54.844	0.225	0.145		Sample 4		CLAYSTONE - carbonaceous, black.				
	54.844	54.924	0.080	0.051			184'	COAL - dull and bright.				
	54.924	55.064	0.140	0.090		Sample 3	56.083	- dull banded.				
	55.064	55.324	0.260	0.167			192'	COAL - dull and bright; pulverized, very				
	55.324	58.522	(3.198)	(2.056)	3.198		58.522	badly broken.				
								BHSD 7601 stopped in coal; abandoned due to caving.				

Form 71-1150-R02

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 1

DATE BEGUN: October 8, 1976 DEPTH BEARING: UTM

DATE FINISHED October 10, 1976 ELEV COLLAR TOTAL DEPTH 176' (53.6m) COAL LICENSE 2849

LAT. 58° 36' 15", 120° 28' 45" (approx) HOLE ANGLE 90° LOGGED BY G. Hoffman CORE SIZE NQ

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC. LOG	MARKER	DESCRIPTION	RECOVERY Int.	m.	m-Rec.	%
								Top of Box 1				
	0	3.353	3.353				1 3.353	CASING - no core recovered; triconed.				
	3.353	3.823	0.470					SOIL.				
	3.823	4.267	(0.440)		0.440		14'					
	4.267	4.542	0.275	0.194			4.267 16'	CLAYSTONE - brown, oxidized, with black coaly inclusions; core soft and broken.				
	4.542	4.877	(0.335)	(0.237)	0.335		4.877					
	4.877	5.147	0.270	0.191								
	5.147	5.486	(0.339)	(0.240)	0.339		8'					
	5.486	5.886	0.400	0.283			5.486					
	5.886	6.096	(0.210)	(0.148)	0.210		20'					
							6.096					
	6.096	6.476	0.380	0.269								
	6.476	7.010	(0.534)	(0.378)	0.534							
							23'					
							7.010					
	7.010	7.285	0.275	0.194								
	7.285	7.620	(0.335)	(0.237)	0.335		25'					
							7.620					
	7.620	8.160	0.540	0.382				SILTSTONE - light grey, with dark grey claystone interbeds throughout; bedding reworked in part; iron staining to 31'.				
	8.160	8.230	(0.070)	(8.49)	0.070		27'					
45°	8.130	9.350	1.120	0.792			8.230					
	9.350	9.449	(0.099)	(0.070)	0.099							
							31'					
	9.449	10.359	0.910	0.640			9.449					
								Top of Box 2				
	10.359	10.459	0.100	0.071								
	10.459	10.516	(0.057)	(0.040)	0.057							

Form 71-1150-RJ2

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No: 2

DATE BEGUN: DEPTH: BEARING: U.T.M.:

DATE FINISHED: ELEV COLLAR TOTAL DEPTH COAL LICENSE:

LAT.: HOLE ANGLE LOGGED BY: CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	COAL SHEET	DESC. LOG	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
							34.5'					
							10.516					
	10.516	11.736	1.220	0.863								
							38'					
							11.582					
	11.736	12.633	0.897	0.634								
	12.633	12.802	(0.169)	(0.120)	0.169		42'					
45°							12.802					
	12.802	13.122	0.320	0.206				CLAYSTONE - dark grey; fissile; with carbonaceous inclusions.				
	13.122	13.192	0.070	0.045				COAL - bright banded.				
	13.192	13.252	0.060	0.038				- bright.				
	13.252	14.326	(0.074)	0.074			47'					
							14.326					
	14.326	14.436	0.110	0.071				CARBONACEOUS CLAYSTONE - black.				
	14.436	14.556	0.120	0.077				COAL - dull and bright				
	14.556	14.586	0.030	0.019				CLAYSTONE - carbonaceous, black.				
	14.586	14.606	0.020	0.013				COAL - dull and bright				
	14.606	14.935	(0.329)	(0.211)	0.329		49'					
							14.935					
	14.935	15.060	0.125	0.080	0.045			- dull and bright.				
	15.060	15.195	0.135	0.087				CLAYSTONE - dark grey.				
45°	15.195	15.240	(0.045)	(0.029)			50'					
	15.240	15.830	0.590	0.379			15.240					
	15.830	15.920	0.090	0.058				COAL AND CLAYSTONE - interbedded; black.				

Form 71-0150-R02

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 3

DATE BEGUN: DEPTH BEARING: U.T.M

DATE FINISHED: ELEV COLLAR: TOTAL DEPTH COAL LICENSE

LAT.: HOLE ANGLE: LOGGED BY CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	COAL SAMPLE NO	MARKER	DESCRIPTION	RECOVERY Int	RECOVERY m	RECOVERY m. Rec.	RECOVERY %
	15.920	16.154	(0.234)	(0.150)	0.234		53' 16.154					
	16.154	16.241	0.087	0.056	0.080			CARBONACEOUS CLAYSTONE - black.				
	16.241	16.376	0.135	0.087				SANDSTONE - dark grey, fine grained; numerous irregular coaly inclusions.				
45°	16.376	16.459	(0.080)	(0.051)			54' 16.459					
	16.459	16.497	0.038	0.024				SANDSTONE - as above.				
	16.497	16.637	0.140	0.090				COAL - bright banded.				
								Top of Box 3				
	16.637	16.772	0.135	0.087				- dull and bright.				
	16.772	16.879	0.107	0.069				- bright banded.				
	16.879	16.949	0.070	0.045				- bright.				
	16.949	17.069	(0.120)	(0.077)	0.120		56' 17.069					
	17.069	17.119	0.050	0.032								
	17.119	17.284	0.165	0.106				- dull and bright.				
	17.284	17.469	0.185	0.119				- dull banded.				
	17.469	17.664	0.195	0.125		Sample 1, Bag 2		- dull and bright.				
	17.664	18.593	(0.929)	(0.597)	0.929		61' 18.593					
	18.593	18.663	0.070	0.045				- bright.				
	18.663	18.816	0.153	0.098				- dull and bright.				
	18.816	18.941	0.125	0.080				- bright banded.				
	18.941	19.071	0.130	0.084				- dull and bright.				
	19.071	19.126	0.055	0.035				- dull.				
	19.126	19.291	0.165	0.106				- dull and bright.				
	19.291	19.507	(0.216)	(0.139)	0.216		64' 19.507					

Form 71-1150-R02

DENISON MINES LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 4

DATE BEGUN: DEPTH BEARING: U.T.M

DATE FINISHED: ELEV. COLLAR TOTAL DEPTH COAL LICENSE:

LAT.: HOLE ANGLE LOGGED BY CORE SIZE

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	COAL SAMPLE NO.	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
	19.507	19.687	0.180	0.116				COAL - dull.				
	19.687	19.787	0.100	0.064				contd. - dull and bright.				
	19.787	19.917	0.130	0.084				- bright.				
	19.917	20.032	0.115	0.074				- dull and bright.				
	20.032	20.152	0.120	0.077				- bright.				
	20.152	20.312	0.160	0.103								
	20.312	20.726	(0.414)	(0.266)	0.414		68' 20.726					
	20.726	20.866	0.140	0.090				- bright.				
	20.866	21.091	0.225	0.145				- bright banded.				
	21.091	21.221	0.130	0.084				- bright.				
	21.221	22.250	(1.029)	(0.661)	1.029		73' 22.250					
	22.250	22.370	0.120	0.077				- dull and bright.				
	22.370	22.500	0.130	0.084				- dull banded.				
	22.500	22.640	0.140	0.090				- dull and bright.				
	22.640	23.165	(0.525)	(0.337)	0.525		76' 23.165					
	23.165	23.205	0.040	0.026				- bright banded.				
	23.205	23.345	0.140	0.090				COAL AND CLAYSTONE - interbedded, black.				
	23.345	23.540	0.195	0.125				COAL - dull and bright.				
	23.540	23.622	(0.082)	(0.053)	0.082	Sample 1, Bag 2	77.5' 23.622					
	23.622	23.717	0.095	0.061				- dull, sheared.				
	23.717	23.932	0.215	0.138				- dull.				
	23.932	24.132	0.200	0.128				- dull banded.				
	24.132	24.384	(0.252)	(0.162)	0.252							

Form 71-1150-R02

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 5

DATE BEGUN: DEPTH BEARING: U.T.M

DATE FINISHED: ELEV COLLAR TOTAL DEPTH COAL LICENSE

LAT. HOLE ANGLE LOGGED BY CORE SIZE

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	COAL SAMPLE NO.	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
							80'					
							24.384					
	24.384	24.549	0.165	0.106				COAL - dull and bright				
								contd.:				
								Top of Box 4				
	24.549	24.784	0.235	0.151				- dull and bright				
	24.784	25.908	(1.124)	(0.722)	1.124							
							85'					
							25.908					
	25.908	26.073	0.165	0.106				- dull banded				
						Sample 1 Bag 1						
	26.073	26.228	0155	0.100				- dull				
							86'					
	26.228	26.608	0.380	0.244			26.213	- dull				
	26.608	26.822	(0.214)	(0.138)	0.214							
						88'						
	26.822	27.367	0.545	0.350		26.822		- dull and bright				
	27.367	27.584	(0.217	(0.139)	0.217							
							90.5'					
							27.584					
	27.584	27.749	0.165	0.106				- bright				
	27.749	27.944	0.195	0.125				- dull banded				
	27.944	28.174	0.230	0.148				- dull and bright				
	28.174	28.274	0.100	0.064				- dull				
						Sample 1 Bag 1						
	28.274	28.339	0.065	0.042				- dull and bright				
	28.339	28.394	0.055	0.035				- dull				

Form 71-1150-RD2

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 6

DATE BEGUN: DEPTH BEARING: UT.M

DATE FINISHED ELEV. COLLAR TOTAL DEPTH COAL LICENSE

LAT.: HOLE ANGLE LOGGED BY CORE SIZE

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	COAL SAMPLE NO.	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec	RECOVERY %
							93					
							28.346					
	28.394	28.554	0.160	0.103				COAL - dull and bright				
								contd.				
	28.554	28.744	0.190	0.122				- dull banded				
	28.744	28.884	0.140	0.090				- bright				
	28.884	29.014	0.130	0.084				- bright banded				
	29.014	29.084	0.070	0.045				- bright				
	29.084	29.364	0.280	0.180				- dull and bright				
							961					
	29.364	29.479	0.115	0.074			29.261	- dull and bright				
	29.479	29.561	0.082	0.053				dull banded				
	29.561	29.606	0.045	0.029				- dull				
	29.606	29.731	0.125	0.080				- bright				
	29.731	29.841	0.110	0.070		Sample 1 Bag 1		- dull and bright				
	29.841	29.906	0.065	0.042				- bright				
	29.906	30.076	0.170	0.109				- dull and bright				
	30.076	30.175	(0.099)	(0.64)	0.099		99					
	30.175	30.320	0.145	0.093			30.175	- bright				

Form 71-1150-RJ2

DENISON MINES LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD7602 SHEET No 7

DATE BEGUN: DEPTH BEARING: UT.M

DATE FINISHED: ELEV. COLLAR TOTAL DEPTH COAL LICENSE

LAT. HOLE ANGLE LOGGED BY CORE SIZE

B.C.A.	UNIT From	UNIT To	THICKNESS Thick.	THICKNESS True	CORE LOSS	DESC. LOG	MARKER	DESCRIPTION	RECOVERY Int.	m.	m. Rec.	%
	30.320	30.395	0.075	0.048				COAL - bright, contd.				
	30.395	30.490	0.095	0.061				- dull and bright.				
	30.490	30.555	0.065	0.042				CLAYSTONE - carbonaceous, black, with coaly inclusions.				
	30.555	30.725	0.170	0.109	0.170			COAL - dull and bright.				
	30.725	30.920	0.915	0.125				CLAYSTONE - carbonaceous, black, sheared.				
	30.920	31.090	(0.170	(0.109)			102' 31.090					
	31.090	31.345	0.255	0.164				CLAYSTONE - as above.				
	31.345	31.394	(0.049	(0.031)	0.049		103' 31.394					
	31.394	31.424	0.030	0.019				Top of Box 5				
	31.424	32.019	0.595	0.382			105'	CLAYSTONE - carbonaceous, black, with coaly inclusions.				
	32.019	32.439	0.420	0.270			32.004					
	32.439	32.614	(0.175	(0.112)	0.175		107'					
	32.614	32.819	0.205	0.132			32.614					
	32.819	33.074	0.255	0.164								

Form 71-1150-R02

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 8

DATE BEGUN: DEPTH: BEARING: UTM:

DATE FINISHED: ELEV COLLAR: TOTAL DEPTH: COAL LICENSE:

LAT.: HOLE ANGLE: LOGGED BY: CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC LOG	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
55°								SILTSTONE - dark grey, numerous fine-grained light grey sandstone interbeds.				
	33.074	33.219	0.145	0.093								
	33.219	33.223	(0.004	(0.002	0.004		109'					
							33.223					
	33.223	34.473	1.250	0.803								
							113'					
							34.442					
	34.473	35.263	0.790	0.508								
								SANDSTONE - medium-grained, light grey, lithic, occasional black carbonaceous claystone interbeds.				
	35.263	36.153	0.890	0.572			118'					
							35.966					
	36.153	36.788	0.635	0.408				Top of Box 6				
								SANDSTONE - as above.				
	36.788	37.688	0.900	0.516								
							123'					
							37.490					
	37.688	39.283	1.595	0.915								
							128'					
							39.014					
	39.283	40.695	1.412	0.810								
							138'					
							40.538					
	40.695	41.270	0.575	0.330								
								SILTSTONE - dark grey, with fine black coaly inclusions.				
	41.270	41.585	0.315	0.181								

Form 71-1150-R02

DENISON MINES LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 9

DATE BEGUN: DEPTH: BEARING: UT.M

DATE FINISHED: ELEV COLLAR: TOTAL DEPTH: COAL LICENSE:

LAT.: HOLE ANGLE: LOGGED BY: CORE SIZE:

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC. LOG	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
	41.585	42.265	0.680	0.390			138' 42.062	CLAYSTONE - black, occasional bright coal bands. Top of Box 7				
	42.265	42.305	0.040	0.023				COAL - bright.				
	42.305	42.527	0.222	0.127				CLAYSTONE - as above.				
	42.527	42.567	0.040	0.023				COAL - dull and bright.				
	42.567	43.332	0.765	0.439				CLAYSTONE - as above.				
	43.332	43.568	(0.236	(0.135)	0.236		143' 43.568					
	43.568	44.855	1.287	0.738								
	44.855	45.110	(0.225	(0.129)	0.225		148' 45.110	CLAYSTONE - as above.				
	45.110	45.600	0.490	0.281								
	45.600	45.720	(0.120	(0.069)	0.120		150' 45.720					
	45.720	46.535	0.815	0.467								
	46.535	46.634	(0.099	(0.057)	0.099		153' 46.634					
	46.634	47.504	0.870	0.499			155.5' 47.396					
	47.504	47.899	0.395	0.266				Top of Box 8				

Form 71-1150-RJ2

DENISON COAL LIMITED — DIAMOND DRILL CORE LOG

HOLE No: BRDD 7602 SHEET No 10

DATE BEGUN: DEPTH BEARING: UT.M

DATE FINISHED: ELEV. COLLAR TOTAL DEPTH COAL LICENSE

LAT.: HOLE ANGLE LOGGED BY CORE SIZE

B.C.A.	UNIT From	UNIT To	UNIT THICKNESS Thick	UNIT THICKNESS True	CORE LOSS	DESC. LOG	MARKER	DESCRIPTION	RECOVERY Int.	RECOVERY m.	RECOVERY m. Rec.	RECOVERY %
	47.895	49.069	1.170	0.671								
	49.069	49.073	(0.004)	(0.002)	0.004		161' 49.073					
	49.073	50.158	1.085	0.622								
	50.158	50.597	(0.439)	(0.252)	0.439		166' 50.597					
50°	50.597	52.192	1.595	1.025				SILTSTONE - grey, with grey claystone interbeds.				
							171' 52.121					
	52.192	53.464	1.272	0.818								
	53.464	53.645	(0.181)	(0.116)	0.181							
							176' 53.645	BOTTOM OF HOLE BRDD 7602: 176', or 53.645 metres				

Form 71-1150-R32

120°06' 06'30" 06'00" 04'30" 04'00" 03'30" 120°02'

54°25' 25'45" 25'30" 25'15" 25'00" 24'45" 24'30" 24'15" 54°24'

KSh

6 035,000 N 35 000 N

6 034,000 N 34 000 N

6 033,000 N 33 000 N

6 032,000 N 32 000 N

689 000 E 690 000 E 691 000 E

120°06' 06'30" 06'00" 04'30" 04'00" 120°03'

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Well
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours 2100
- Horizontal control △T-12
- Vertical control V-4465.73
- Spot elevation 4567
- Photo point 415-203
- DIP & STRIKE 36
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

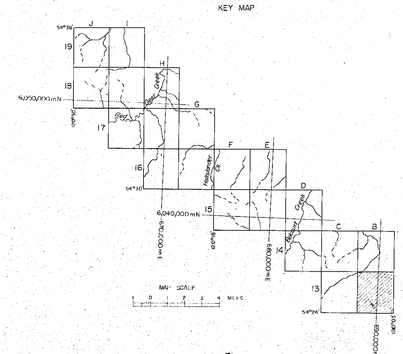
COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCmb	COMMOTION FORMATION (Boulder Creek Member)
KCmh	COMMOTION FORMATION (Hullcross Member)
KCmlg	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

KEY MAP



460

PR-BELCOURT 76(2)A

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number B-13

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

12

120°06' 05'30" 05'00" 04'30" 04'00" 03'30" 120°03'
54°28'

6 039,000 N
88 000 E 89 000 E 90 000 E 91 000 E
39 000 N

27'45"

6 038,000 N
38 000 N

27'30"

27'15"

6 037,000 N
37 000 N

27'00"

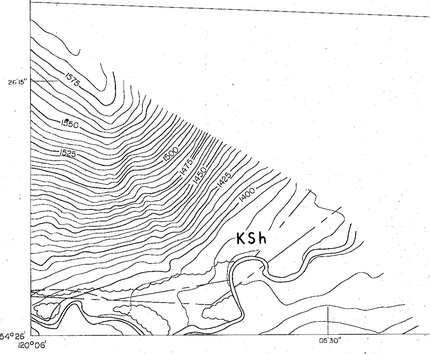
26'45"

6 036,000 N
36 000 N

26'30"

26'15"

54°26'
120°06' 05'30" 05'00" 04'30" 04'00" 03'30" 120°03' 54°26'



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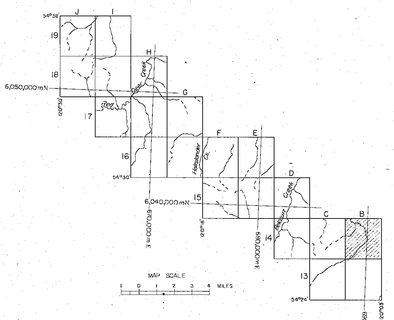


460

PR- BELCOURT 76(2) A.

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Watt
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours — 2100
- Horizontal control — △T-12
- Vertical control — V-4465-73
- Spot elevation — 4567
- Photo point — 15-903
- DIP & STRIKE — 36
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

- KSh SHAFTESBURY FORMATION
- KCmb COMMOTION FORMATION (Boulder Creek Member)
- KCmh COMMOTION FORMATION (Hultcross Member)
- KCmg COMMOTION FORMATION (Gates Member)
- KMb MOOSEBAR FORMATION
- KGt GETHING FORMATION
- KCd CADOMIN FORMATION
- KNk NIKANASSIN FORMATION

SURVEY NOTE

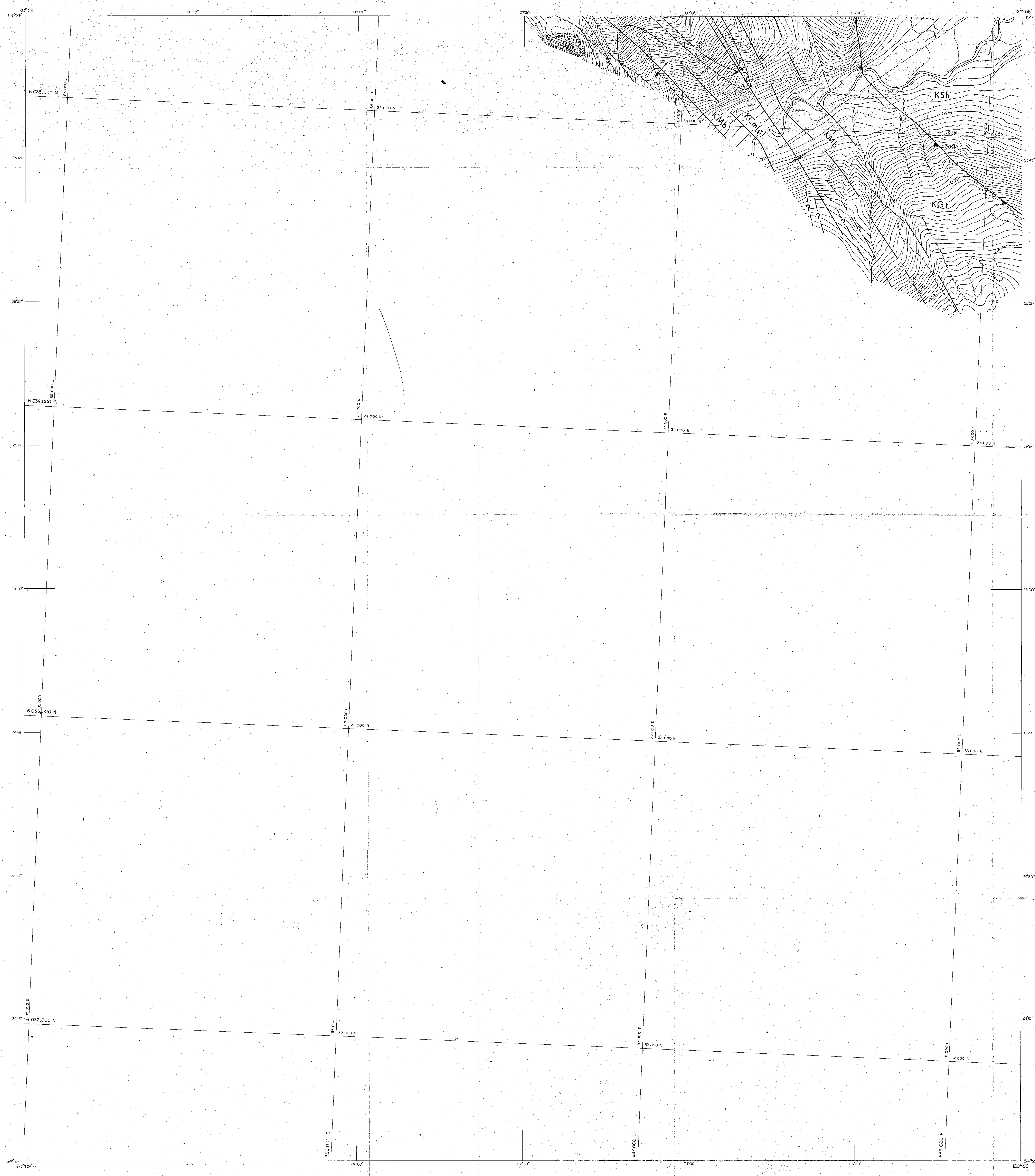
Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

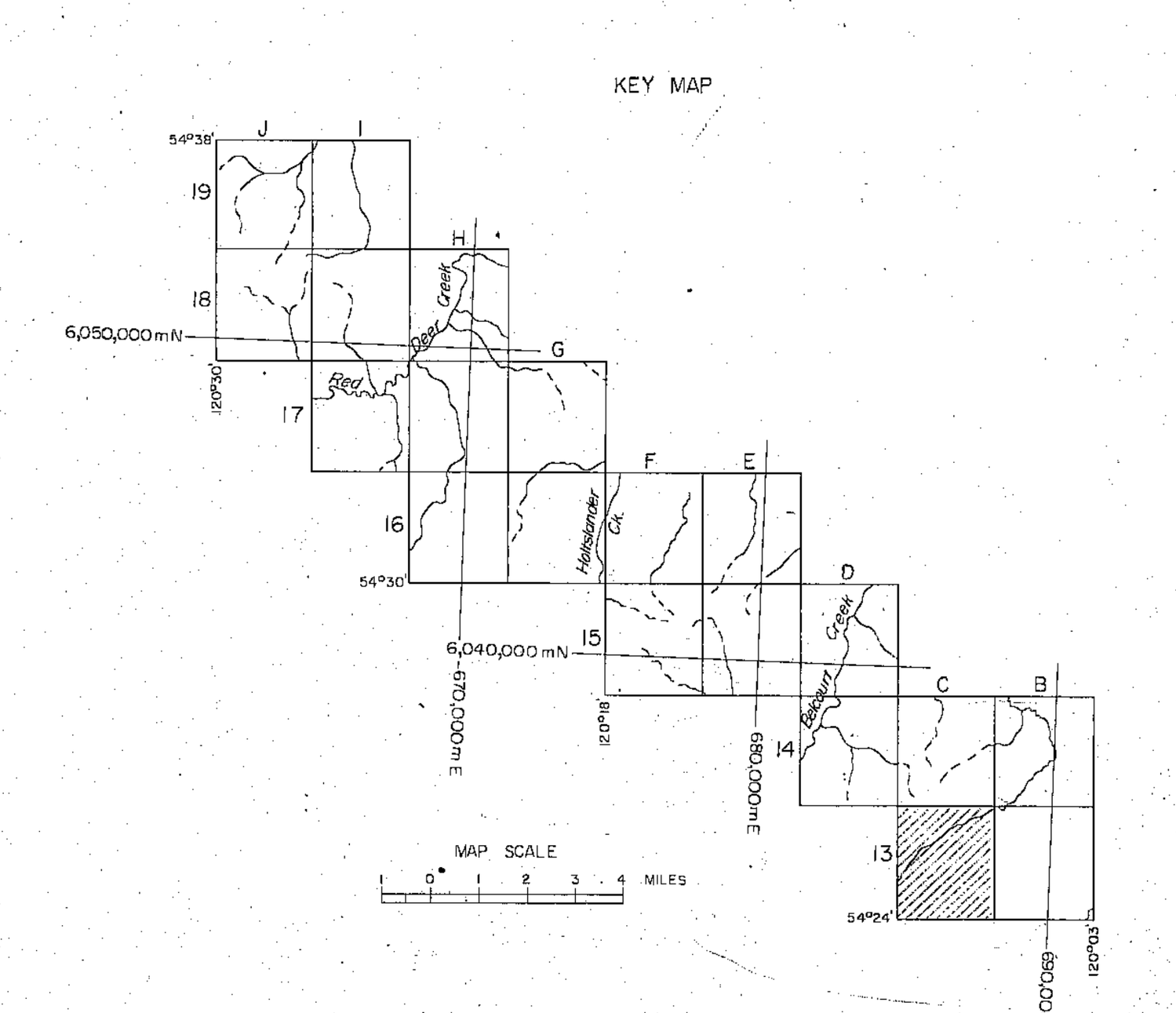
DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number B-14

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	





460

PR- BELCOURT 76 (2) A.

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line
River
Stream
Intermittent stream
Swamp
Contours 2100
Horizontal control △T-12
Vertical control V-4465·73
Spot elevation ·4567
Photo point +15-203

DIP & STRIKE 36
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hulcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number C-13
DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975
SCALE: 1:5,000	
APPROVED BY: [signature]	DRAWING No: BLCR 75-0620-R01

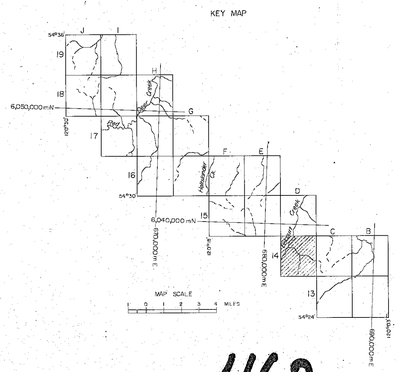
120°09'
54°28'
120°06'
54°28'
685,000 E
686,000 E
687,000 E
688,000 E
6 038,000 N
6 037,000 N
6 036,000 N
35 000 N
36 000 N
37 000 N
38 000 N
39 000 N
KGt
KMb
KCm(g)
KSh
KCd
KNk
LEGEND
Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line
River
Stream
Intermittent stream
Swamp
Contours
Horizontal control
Vertical control
Spot elevation
Photo point
DIP & STRIKE
ANTICLINE
SYNCLINE
FAULT
COAL SEAM
SCALE 1:5,000
METRES 100 0 200 400 600 800 METRES
FORM LINE INTERVAL 5 METRES
COMPILED BY BURNETT RESOURCE SURVEYS LTD.
KSh SHAFTESBURY FORMATION
KCmb COMMOTION FORMATION (Boulder Creek Member)
KCmh COMMOTION FORMATION (Hullcross Member)
KCmg COMMOTION FORMATION (Gates Member)
KMb MOOSEBAR FORMATION
KGt GETHING FORMATION
KCd CADOMIN FORMATION
KNk NIKANASSIN FORMATION
SURVEY NOTE
Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum
KEY MAP
MAP SCALE
460
AR-BELCOURT 76 (2) A.
DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA
BELCOURT
Sheet Number C-14
DETAIL GEOLOGY
DRAWN BY: SORENSEN
DATE: DEC. 1975
SCALE: 1:5,000
APPROVED BY:
DRAWING No: BLCR 75-0620-R01
8

120°12'
54°28'
11'30"
11'00"
10'30"
10'00"
9'30"
120°09'
54°28'
27'45"
27'30"
27'15"
27'00"
26'45"
26'30"
26'15"
54°26'
120°12'
120°09'
54°26'

KCd
KCm(g)
KGt
KSh
KMb
KGt
KNk
KMb
BELCOURT CREEK
?

6 038,000 N
6 037,000 N
6 036,000 N
38 000 N
37 000 N
36 000 N
682 000 E
683 000 E
684 000 E
685 000 E

KEY MAP



460

PR- BELCOURT 76 (2) A.

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours 2100
- Horizontal control △T-12
- Vertical control V-446573
- Spot elevation 4567
- Photo point +15-203
- DIP & STRIKE 38
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

N

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number D-14
DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000	
APPROVED BY:	DRAWING No: BLCR 75-0620-R01		

5

120°12' 11'30" 11'00" 10'30" 10'00" 9'30" 120°09'
54°30'

29'45" 29'30" 29'15" 29'00" 28'45" 28'30" 28'15" 28'00"

6 042,000 N
6 041,000 N
6 040,000 N
6 039,000 N
54°28'

82 000 E 83 000 E 84 000 E
42 000 N 41 000 N 40 000 N 39 000 N

KCm(g) KMb KGt KNk KCd KSh

CREEK

*1356.0 *1237 *1157.0 *1161.0 *1162.0

KEY MAP

54°30' 54°24'
19 18 17 16 15 14 13
H G F E D C B
6050,000mN 6040,000 mN
650,000mE 660,000mE 670,000mE 680,000mE

MAP SCALE 0 1 2 3 4 MILES

460

Re- BELCOURT 76 (2)A

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line

River
Stream
Intermittent stream
Swamp
Contours 2100
Horizontal control △1112
Vertical control V-4465-73
Spot elevation 4567
Photo point 5-203

DIP & STRIKE 36
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNK	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number D-15

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR. 75-0620-R01	G

KEY MAP

460

PR - BELCOURT 76 (12A.

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line
River
Stream
Intermittent stream
Swamp
Contours 2100
Horizontal control △1-12
Vertical control V-446573
Spot elevation 4567
Photo point +15-203

DIP & STRIKE 36
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCmb	COMMOTION FORMATION (Boulder Creek Member)
KCmh	COMMOTION FORMATION (Hulcross Member)
KCmg	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	GADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

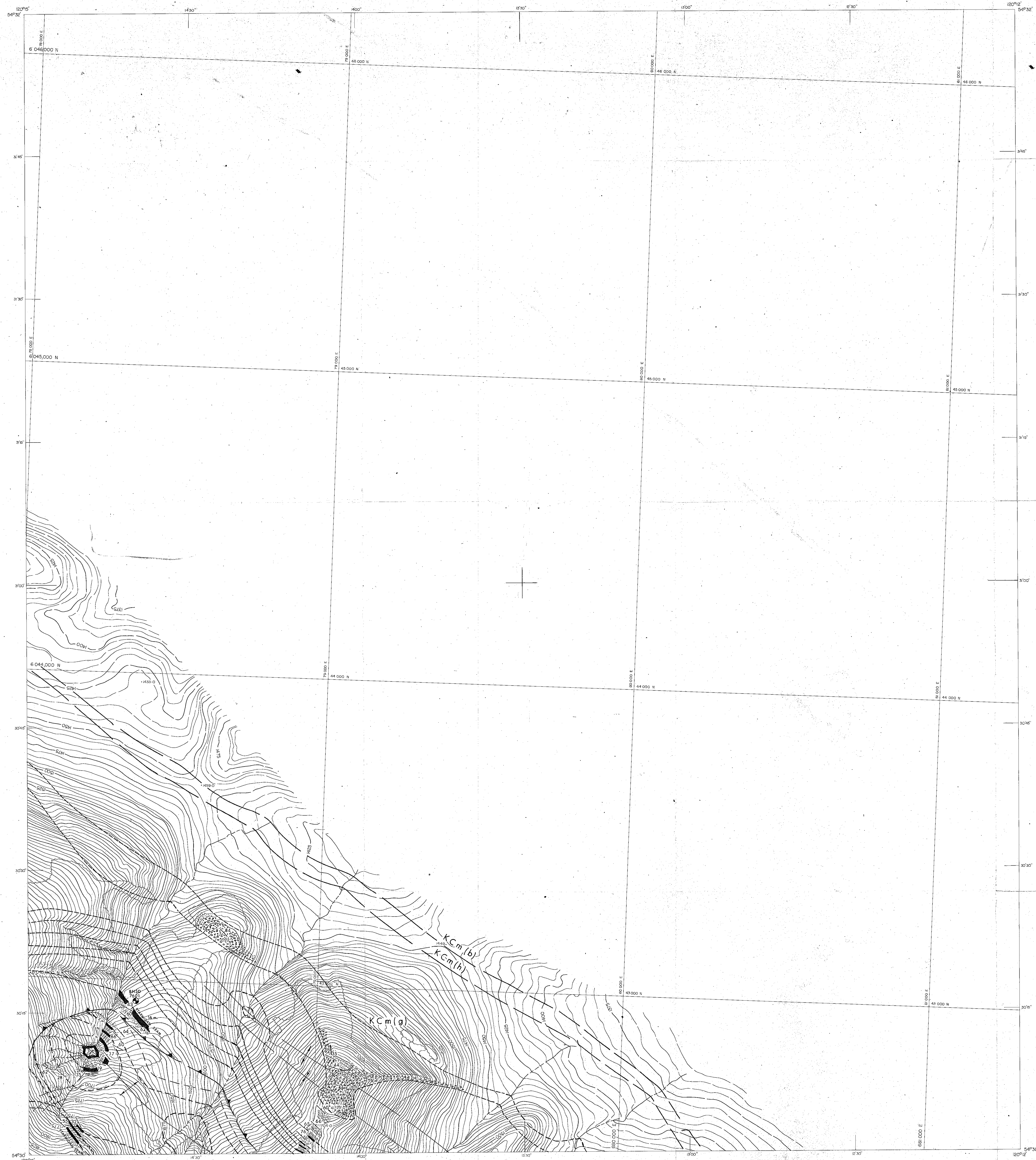
Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

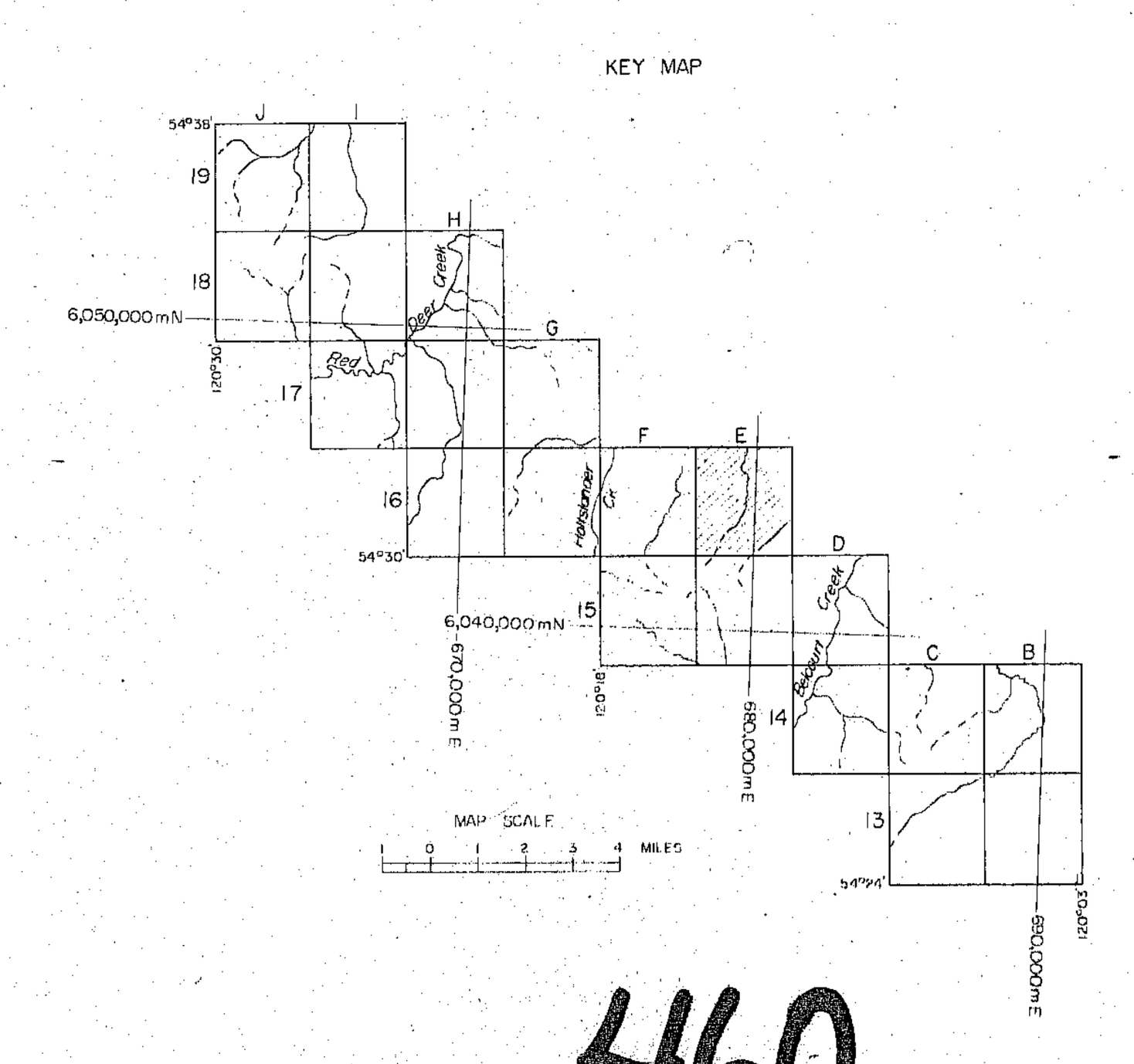
DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number E-15

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR-75-0620-R01	





460

PR - BELCOURT 76 (2) A.

LEGEND

Improved road	
Secondary road	
Track or trail	
Railway	
Fence	—x—x—
Wall	—w—w—
Cut line	
Tree area	
Tree line	—T—T—
River	
Stream	
Intermittent stream	
Swamp	
Contours	2100
Horizontal control	△T-12
Vertical control	V-4465.73
Spot elevation	·4567
Photo point	+15-203
DIP & STRIKE	36
ANTICLINE	
SYNCLINE	
FAULT	
COAL SEAM	

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

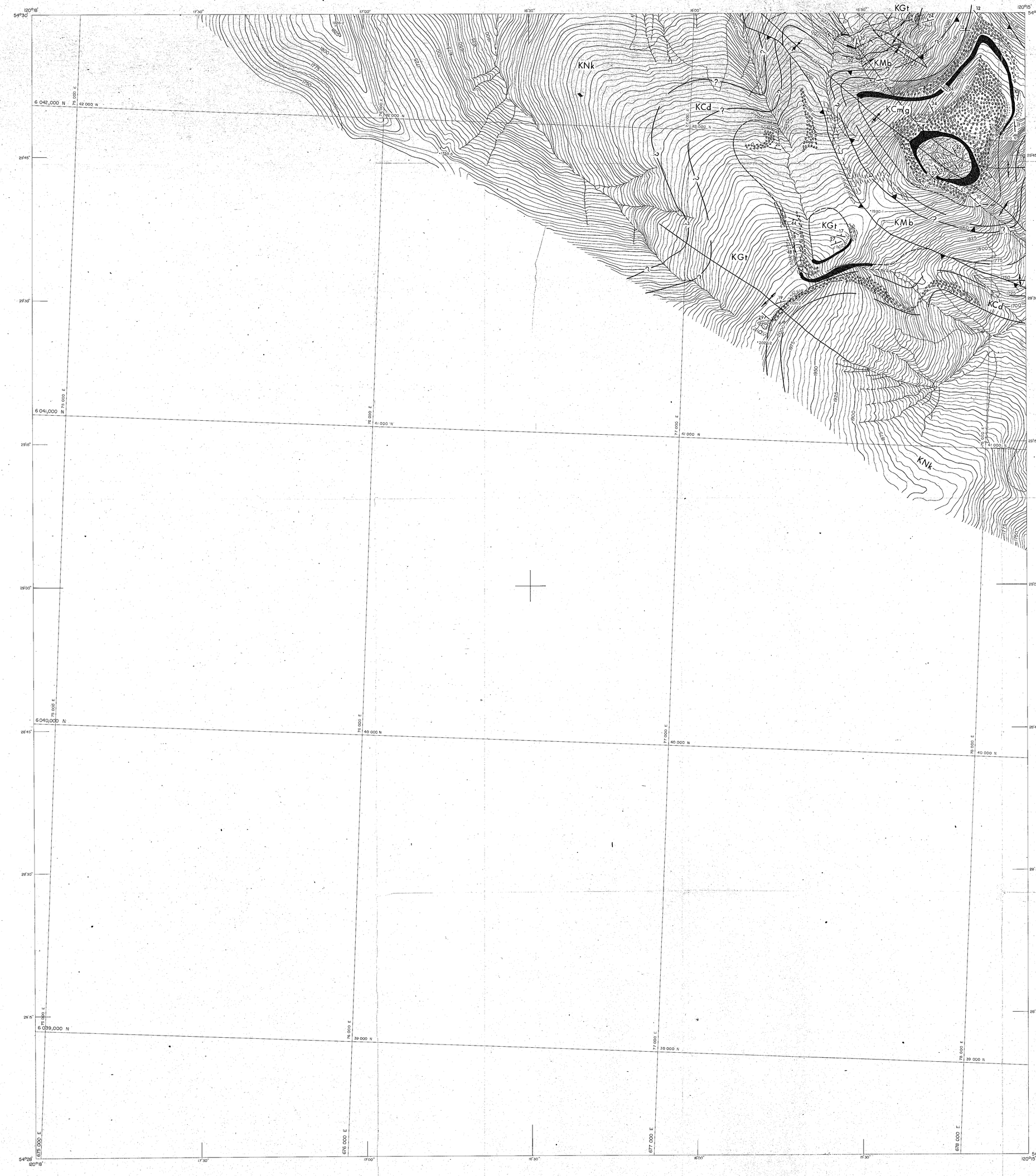
N

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

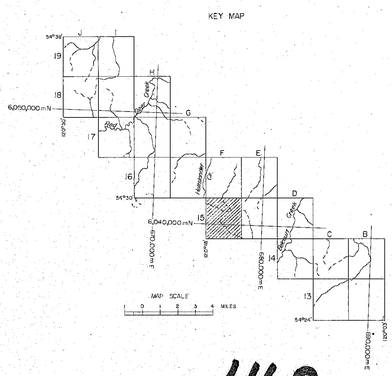
BELCOURT
Sheet Number E-16

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975
SCALE: 1:5,000	
APPROVED BY:	DRAWING No: BLCR 75-0620-R02



KEY MAP



460

RE - BELCOURT 76 (32) A.

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree cred.
Tree line

River
Stream
Intermittent stream
Swamp
Contours — 2100
Horizontal control — △T-12
Vertical control — V-4465-73
Spot elevation — 4567
Photo point — +15-203

DIP & STRIKE — 36
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCmb	COMMOTION FORMATION (Boulder Creek Member)
KCmh	COMMOTION FORMATION (Hullcross Member)
KCmg	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

N

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number F-15

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

KSh

KCm(g)

KCm(b)

KCm(h)

KMb

KGt

KCd

KNk

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours (2100)
- Horizontal control ΔT-12
- Vertical control V-4465-73
- Spot elevation 4567
- Photo point 115-203
- DIP & STRIKE (36)
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 10 200 400 600 600 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hulcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

KEY MAP

MAP SCALE 0 1 2 3 4 MILES

460

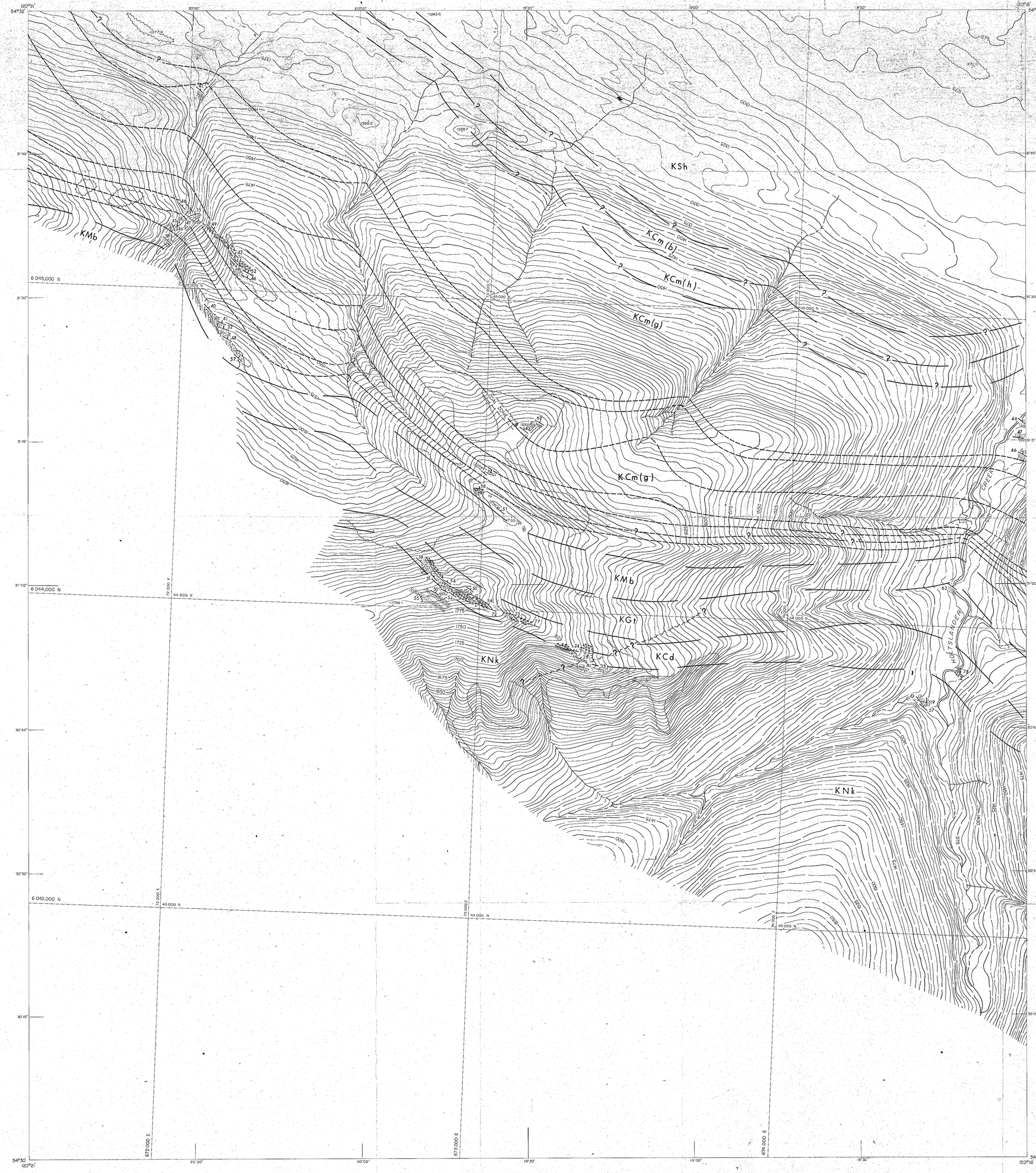
RE-BELCOURT 76 (2) A

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number F-16

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975
APPROVED BY:	DRAWING No: BLCR 75-0620-R02
	SCALE: 1:5,000



KEY MAP

460

PE - BELCOURT 76 (2) A.

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line
River
Stream
Intermittent stream
Swamp
Contours
Horizontal control
Vertical control
Spot elevation
Photo point
DIP & STRIKE
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hallcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number G-16

DETAIL GEOLOGY

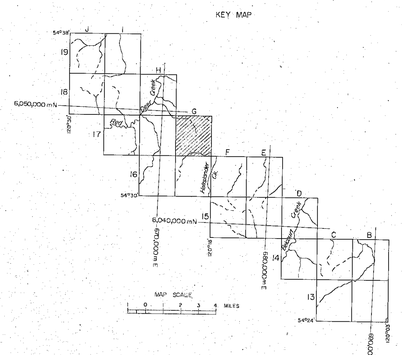
DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

120°21'
54°34'
20'30"
20'00"
19'30"
19'00"
18'30"
120°18'
54°34'
33'45"
33'30"
33'15"
33'00"
32'45"
32'30"
32'15"
54°32'
120°18'

6 049,000 N
6 048,000 N
6 047,000 N
72,000 E
73,000 E
74,000 E
75,000 E
49,000 N
48,000 N
47,000 N

KCm(h)
KCm(b)
KCm(g)
KSh
KCm (g)

KEY MAP



460

PR - BELCOURT 76 (2)A.

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours — 2100
- Horizontal control — △T-12
- Vertical control — V-4465-73
- Spot elevation — +4567
- Photo point — +15-203
- DIP & STRIKE — 36
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCmb	COMMOTION FORMATION (Boulder Creek Member)
KCmh	COMMOTION FORMATION (Hullcross Member)
KCmg	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNK	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:60,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number G-17

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

120°24' 23'30" 23'00" 22'30" 22'00" 21'30" 120°21'

54°32'

3'45"

6,045,000 N

69,000 E 45,000 N 70,000 E 45,000 N 71,000 E 45,000 N

3'30"

3'15"

6,044,000 N

69,000 E 44,000 N 70,000 E 44,000 N 71,000 E 44,000 N

3'00"

30'45"

6,043,000 N

69,000 E 43,000 N 70,000 E 43,000 N 71,000 E 43,000 N

30'30"

30'15"

54°30'

669,000 E 670,000 E 671,000 E

KCm(g)

KMb

1400

1375

1350

1325

1300

LEGEND

Improved road		River	
Secondary road		Stream	
Track or trail		Intermittent stream	
Railway		Swamp	
Fence	-x-x-	Contours	2100
Wall	-x-x-	Horizontal control	△T-12
Cut line		Vertical control	V-4465-73
Tree area		Spot elevation	4567
Tree line		Photo point	+15-203

DIP & STRIKE 36

ANTICLINE

SYNCLINE

FAULT

COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

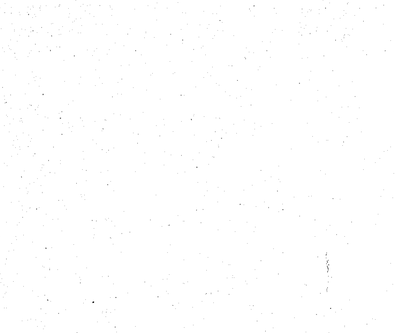
COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

KEY MAP



460

Re - BELCOURT 76 (2) a.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number H-16

DETAIL GEOLOGY

DRAWN BY: S.O.K.S./S.C.M.	DATE: DEC. 1975
APPROVED BY:	DRAWING No: BLCR 75-0620 - R01
	SCALE: 1:5,000

120°24' 23'30" 23'00" 22'30" 22'00" 21'30" 120°21'
54°34'
33'45"
33'30"
33'15"
33'00"
32'45"
32'30"
32'15"
54°32'

6 049,000 N
6 048,000 N
6 047,000 N
6 046,000 N
69 000 E
70 000 E
71 000 E

KNk
KCd
KGt
KMb
KCm(g)
KCm(h)
KCm(b)
KSh

.2 m coal
1.2 coal
.5 m coal

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours — 2100
- Horizontal control — △T-12
- Vertical control — V-4465-73
- Spot elevation — 4567
- Photo point — P15-203
- DIP & STRIKE — 36
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

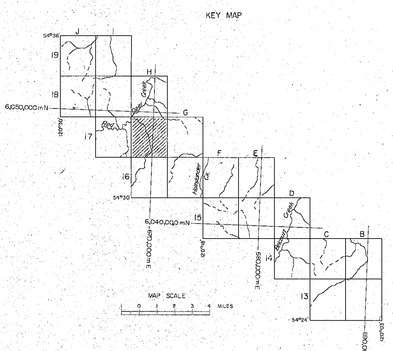
COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCmb	COMMOTION FORMATION (Boulder Creek Member)
KCmh	COMMOTION FORMATION (Hultcross Member)
KCmg	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

KEY MAP



460

RR-BELCOURT-76(10)A

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number H-17
DETAIL GEOLOGY

DRAWN BY: SOARANEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

11

120°24' 54°36'

23'30" 23'00" 22'30" 22'00" 21'30" 120°21' 54°36'

669,000 E 670,000 E 671,000 E

6 053,000 N 53 000 N

6 052,000 N 52 000 N

6 051,000 N 51 000 N

6 050,000 N 50 000 N

35'45" 35'30" 35'15" 35'00" 34'45" 34'30" 34'15" 34°34'

KCd KNk KGt

RED DEER CREEK

975-5 975-3 983-7

6240,000 mN

KEY MAP

MAP SCALE 0 1 2 3 4 MILES

460

PR-BELCOURT 76 (2)A

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours
- Horizontal control
- Vertical control
- Spot elevation
- Photo point
- DIP & STRIKE
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL - 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCmGb	COMMOTION FORMATION (Boulder Creek Member)
KCmHc	COMMOTION FORMATION (Hullcross Member)
KCmGt	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number H-18
DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

120°27' 54°34'

26'30" 26'00" 25'30" 25'00" 24'30" 120°24' 54°34'

KCm (g)

KNk

6,049,000 N

6,048,000 N

6,047,000 N

6,046,000 N

65,000 E 66,000 E 67,000 E 68,000 E

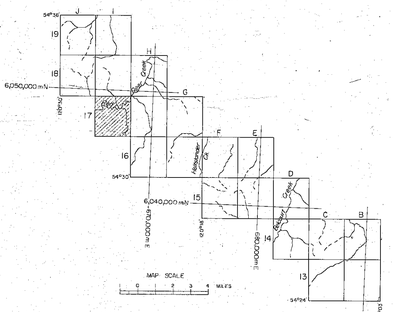
49,000 N 48,000 N 47,000 N 46,000 N

33'45" 33'30" 33'15" 33'00" 32'45" 32'30" 32'15"

54°32' 120°27'

120°24' 54°32'

KEY MAP



MAP SCALE 0 1 2 3 4 MILES

460

RE- BELCOURT 76 (2) A.

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line

River
Stream
Intermittent stream
Swamp
Contours 2100
Horizontal control △T-12
Vertical control V-446573
Spot elevation 4567
Photo point I-5-203

DIP & STRIKE 36
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 400 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGf	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number I-17

DETAIL GEOLOGY

DRAWN BY: SO/CN/SEAL	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R01	

KGt

KNk

KMb

KCd

KCm (g)

KCm (h)

KNk

KCm (g)

KNk

KCd

KNk

KNk

KCd

KGt

KMb

KCm (g)

SCALE 1:5,000

METRES 100 0 200 400 500 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours
- Horizontal control △T-12
- Vertical control V-446573
- Spot elevation 4567
- Photo point 13-203
- DIP & STRIKE 36
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

Ksh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

KEY MAP

MAP SCALE 0 1 2 3 4 MILES

460

Re - BELCOURT 76(2)A.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number I-18

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620 - R'01	7

120°27' 54°38' 28'30" 28'00" 27'30" 27'00" 26'30" 120°24' 54°38'

37'45" 37'30" 37'15" 37'00" 36'45" 36'30" 36'15" 36'00" 35'45"

6,056,000 N 56 000 N 65 000 E 66 000 E 67 000 E

6,055,000 N 55 000 N

6,054,000 N 54 000 N

54°36' 120°27' 28'30" 28'00" 27'30" 27'00" 26'30" 120°24' 54°36'

KCm (b)
KCm (h)
KCm (g)
KCm(h)
KCm(g)
KNk
KCd
KGt
KNk

1492.6 1493.8 1486.2 1475 1450 1463.0 1425 1400 1375 1350 1300 1250 1717.5 1730.4 1428.2

KEY MAP

54°36' 120°27' 54°30' 120°24' 19 18 17 16 15 14 13 J I H G F E D C B A 6,060,000mN 6,050,000mN 6,040,000mN 65,000mE 66,000mE 67,000mE 68,000mE MAP SCALE 0 1 2 3 4 MILES

460

RR-BELCOURT 76(2)A.

LEGEND

- Improved road
- Secondary road
- Track or trail
- Railway
- Fence
- Wall
- Cut line
- Tree area
- Tree line
- River
- Stream
- Intermittent stream
- Swamp
- Contours — 2100
- Horizontal control — AT-12
- Vertical control — V-4465-73
- Spot elevation — 4567
- Photo point — 15-203

- DIP & STRIKE — 36
- ANTICLINE
- SYNCLINE
- FAULT
- COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

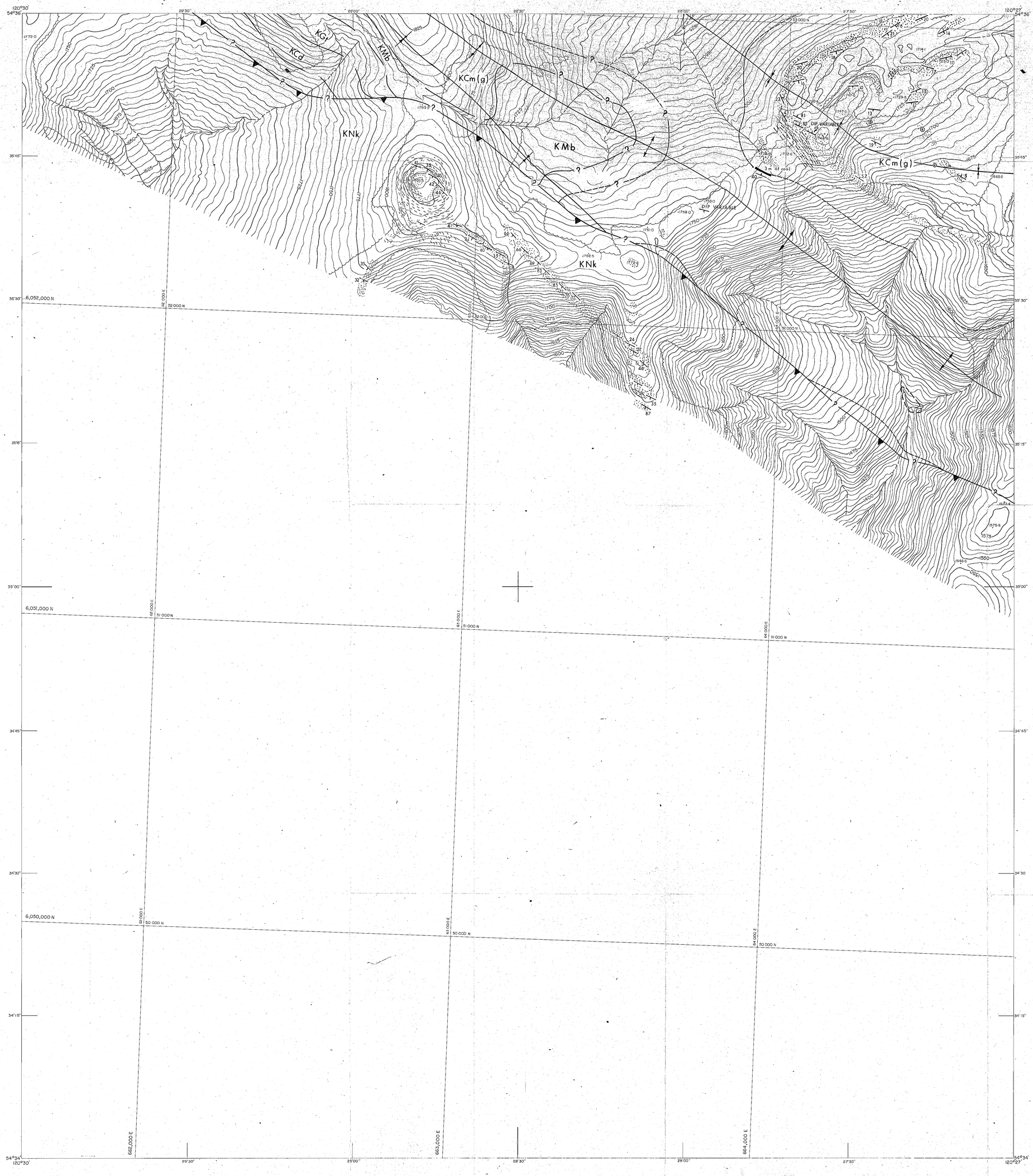
N

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number 1-19

DETAIL GEOLOGY

DRAWN BY: SCREENSCAN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No BLCR 75-0620-R02	



LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line
River
Stream
Intermittent stream
Swamp
Contours
Horizontal control
Vertical control
Spot elevation
Photo point
DIP & STRIKE
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 400 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

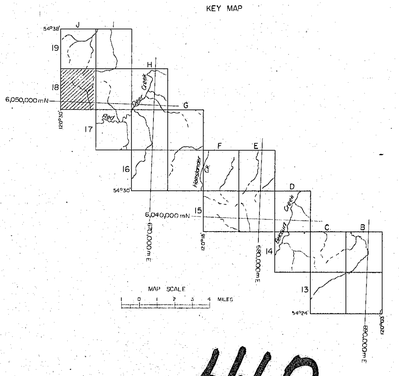
COMPILED BY BURNETT RESOURCE SURVEYS, LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum

KEY MAP



460

RE-BELCOURT 76(2)A.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number J-18

DETAIL GEOLOGY

DRAWN BY: SORENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R02	

KCm (h)

KCm (g)

KCm (b)

KNk

KMb

KGt

KCd

KNk

KCm(g)

KCm (g)

KGt

KGt

KMb

KMb

KNk

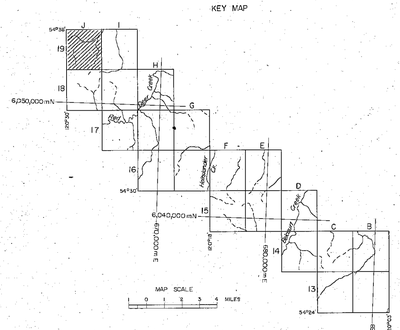
KCd

KNk

DIP VARIABLE

FAULT

KEY MAP



460

RE- BELCOURT 76 (21) A

LEGEND

Improved road
Secondary road
Track or trail
Railway
Fence
Wall
Cut line
Tree area
Tree line

River
Stream
Intermittent stream
Swamp
Contours 2100
Horizontal control △T-12
Vertical control V-446573
Spot elevation + 4567
Photo point + 15-203

DIP & STRIKE 36
ANTICLINE
SYNCLINE
FAULT
COAL SEAM

SCALE 1:5,000

METRES 100 0 200 400 600 800 METRES

FORM LINE INTERVAL 5 METRES

COMPILED BY BURNETT RESOURCE SURVEYS LTD.

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hultcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KGt	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

SURVEY NOTE

Mapping based on Horizontal and Vertical Control Data obtained from existing 1:50,000 N.T.S. Maps. Horizontal Co-ordinates shown are Metric U.T.M. Zone 10.
Form Lines shown are on Geodetic Datum.

DENISON MINES LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT
Sheet Number J-19

DETAIL GEOLOGY

DRAWN BY: JORGENSEN	DATE: DEC. 1975	SCALE: 1:5,000
APPROVED BY:	DRAWING No: BLCR 75-0620-R02	

120°22'30" 120°15'00" 120°07'30"

FIRE CREEK

HOLTSLANDER CREEK

HOLTSLANDER

C

B

SECANT = 1.0651

AREA 1

HOLTSLANDER NORTH

SECANT = 1.8734

HOLTSLANDER

HOLTSLANDER SOUTH

Shaded area indicates portion above drainage

SECANT = 1.8734

AREA 1

AREA 2

SECANT = 1.2500

K

J

WINFREY CREEK

BELCOURT CREEK

460

LEGEND

Δ - PROPOSED MINE ENTRANCE

DENISON COAL LIMITED
CALGARY

STRUCTURE CONTOURS
HOLTSLANDER SEAM

PR. - BELCOURT 76 (2) A.

DRAWN BY: J.W.K.	DATE: JAN., 75	SCALE: 1:25,000
APPROVED BY:	DRAWING NO: BLCR-76-0632-R02	

120°22'30" 120°15'00"

120°22'30" 120°15'00" 120°07'30"

HOLTSLANDER CREEK

FIRE CREEK

AREA 1

SECANT = 1.1109

HOLTSLANDER NORTH

SECANT = 1.691

HOLTSLANDER SOUTH

AREA 2

SECANT = 1.2351

Shaded area indicates portion above drainage

C

B

K

J

WINFREY CREEK

BELCOURT CREEK

LEGEND

Δ - PROPOSED MINE ENTRANCE

460

DENISON COAL LIMITED

CALGARY ALBERTA

STRUCTURE CONTOURS
PTARMIGAN SEAM

PR - BELCOURT 76-12-A

DRAWN BY: J.W.K.	DATE: JAN., 76	SCALE: 1:25,000
APPROVED BY:	DRAWING NO: BLCR76-0632-R02	

120°22'30"

120°15'00"

120°07'30"

HOLTSLANDER CREEK

FIRE CREEK

WINFREY CREEK

BELCOURT CREEK

P.L.A. PIKA CREEK

HOLTSLANDER NORTH

HOLTSLANDER SOUTH

AREA 1

AREA 2

AREA 3

SECANT - 1.1180

SECANT - 1.474

SECANT - 1.5620

Shaded area indicates portion above drainage

B

C

J

K

460

LEGEND

Δ - PROPOSED MINE ENTRANCE

DENISON COAL LIMITED

CALGARY ALBERTA

STRUCTURE CONTOURS
RED DEER SEAM

PR - BELCOURT 76 (7) A

DRAWN BY: J.W.K.	DATE: JAN., 76	SCALE: 1: 25,000
APPROVED BY:	DRAWING NO: BLCR 76-0632-R02	

120°22'30"

120°15'00"

120°07'30"

FIRE CREEK

HOLTSLANDER CREEK

SECANT - 1.0833

HOLTSLANDER NORTH

HOLTSLANDER

HOLTSLANDER SOUTH

AREA 1

AREA 2

Shaded area indicates portion above drainage

SECANT - 1.5137

SECANT - 1.5137

PIKA CREEK

PIKA SPUR

CREEK

WINFREY CREEK

BELCOURT

C

B

K

J

LEGEND

Δ - PROPOSED MINE ENTRANCE

460

DENISON COAL LIMITED

CALGARY ALBERTA

STRUCTURE CONTOURS
BELCOURT SEAM

Re-BELCOURT 76(1)A

DRAWN BY: J.W.K.	DATE: JAN., 76	SCALE: 1:25,000
APPROVED BY:	DRAWING NO: BLCR/76-0632-R02	

GEOLOGICAL LEGEND

- DRIFT COVERED AREA
- GEOLOGICAL BOUNDARY (Defined, Approximate) (Assumed, Gradational)
- LIMIT OF GEOLOGICAL MAPPING
- BEDDING, TOPS KNOWN (Horizontal, Inclined) (Vertical, Overturned, Dip Unknown)
- BEDDING TOPS UNKNOWN (Inclined, Vertical, Dip Unknown)
- BEDDING TREND (Dip Unknown - Tops Unknown, Dip and Top Known, Dip Known - Top Unknown)
- BEDDING, ESTIMATED DIP (Gentle, Moderate, Steep)
- DRAG - FOLD (Arrow Indicates Plunge)
- STRUCTURAL TREND (From Aerial Photographs)
- FAULT (Defined, Approximate, Assumed)
- FAULT (Inclined, Vertical)
- FAULT (Downthrow Side, Relative Movement)
- THRUST FAULT (Points in Direction of Dip - Defined)
- THRUST FAULT (Approximate, Assumed)
- JOINT (Inclined, Vertical, Horizontal)
- ANTICLINE (Defined, Approximate)
- SYNCLINE (Defined, Approximate)
- ANTICLINE (Overturned), SYNCLINE (Overturned)
- ANTICLINE OR SYNCLINE (Arrow Indicates Plunge)
- ESCARPMENT
- FOSSIL LOCATION
- COAL ZONES - DEFINED, INFERRED, ASSUMED

MESOZOIC

UPPER CRETACEOUS

- KDu — DUNVEGAN FORMATION: Marine and non-marine sandstone and shale

LOWER CRETACEOUS — FORT ST. JOHN GROUP —

- KSh — SHAFTESBURY FORMATION: Marine shale. * North of the Wolverine River the Shaftesbury Fm. is differentiated into Hasler, Goodrich & Cruiser Formations.
- KCr — CRUISER FORMATION: Marine shale
- KGo — GOODRICH FORMATION: Fine-grained sandstone
- KHa — HASLER FORMATION: Dark marine shale
- KCm — COMMOTION FORMATION, Undifferentiated
- KCm(b) — COMMOTION FORMATION, Boulder Creek Member: conglomerate; coarse to fine-grained sandstone; shale; coal
- KCm(h) — COMMOTION FORMATION, Hulcross Member: dark marine shale
- KCm(g) — COMMOTION FORMATION, Gates Member: carbonaceous sandstone; shale; coal
- KMb — MOOSEBAR FORMATION: dark marine shale

— BULLHEAD GROUP —

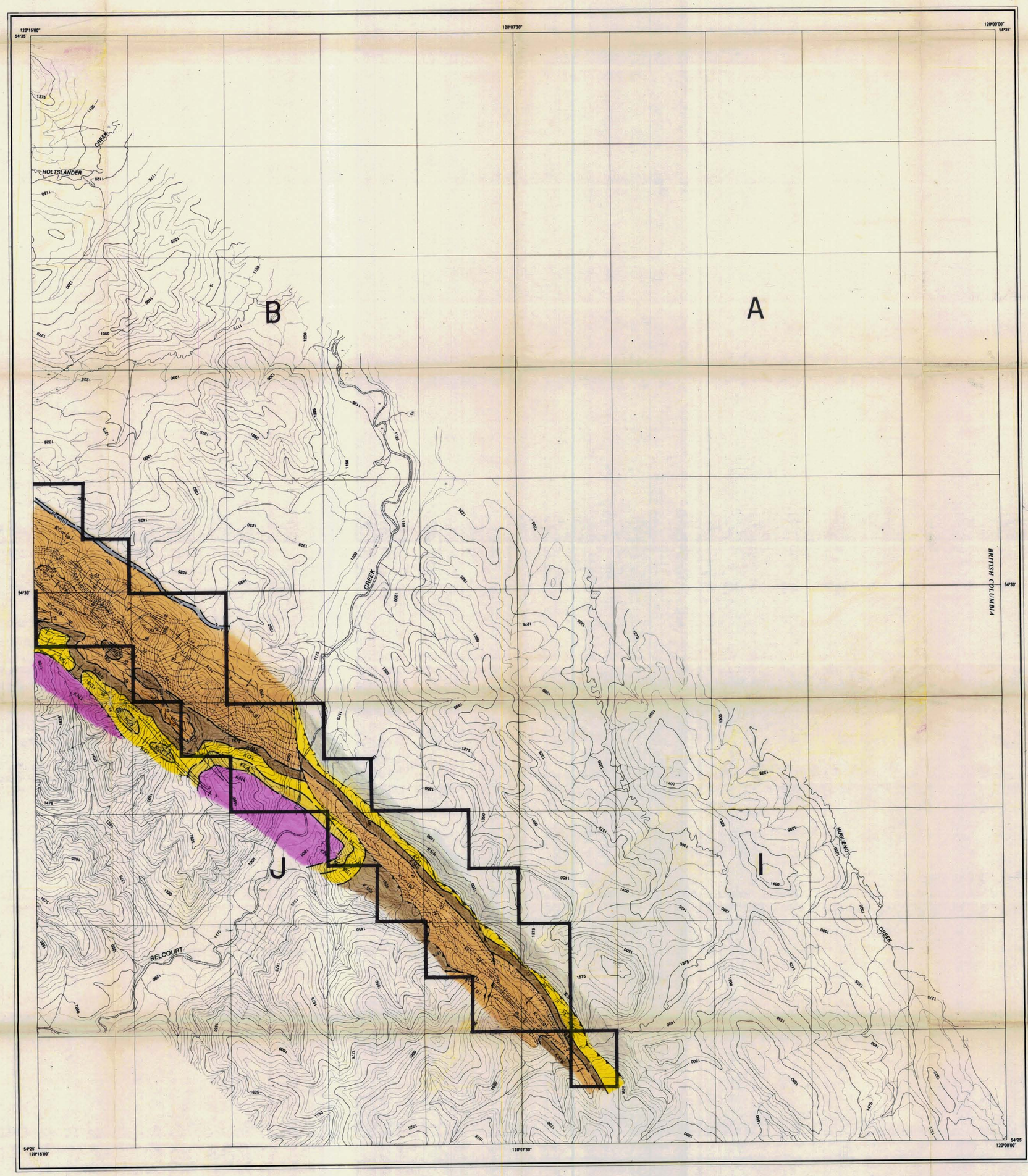
- KGt — GETHING FORMATION: conglomerate; carbonaceous sandstone and shale; coal
- KCd — CADOMIN FORMATION: massive conglomerate

JURASSIC AND CRETACEOUS LOWER CRETACEOUS AND EARLIER

- KNk — NIKANASSIN FORMATION: fine-grained sandstone and carbonaceous shale

TOPOGRAPHIC LEGEND

- ACCESS ROAD - ALL WEATHER, LIMITED WEATHER
- ACCESS TRAIL - LIMITED WEATHER
- RAILWAY
- AIR STRIP
- SEISMIC LINE, CUT LINE
- POWER TRANSMISSION LINE
- TRENCH
- ADIT - OPEN - CAVED
- GAS WELL
- DRY HOLE
- DRILL HOLE - ROTARY, DIAMOND
- CAMPSITE
- CAMPGROUND, PUBLIC
- FOREST SERVICE LOOKOUT/STATION
- HORIZONTAL AND VERTICAL CONTROL
- RIVER
- STREAM
- LAKE
- SWAMP
- CONTOURS (1625, 1500)
- DEPRESSION CONTOUR



BELCOURT PROJECT
BRITISH COLUMBIA

SCALE 1:25,000

Miles 0 1 2
Kilometres 0 1 2 3

CONTOUR INTERVAL 25 METRES

NOTE: 25 Metre contour was interpolated from photogrammetric mapping, which was compiled from aerial photography taken 1970 to 1974, and from 1:50,000 National Topographic Series maps.

Dwg. No.: BLCR 76-0625-R02

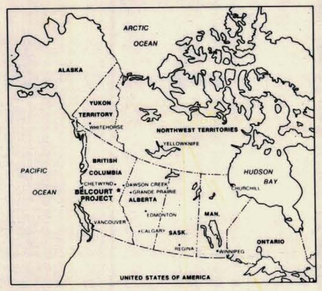
T.N.

25°25'

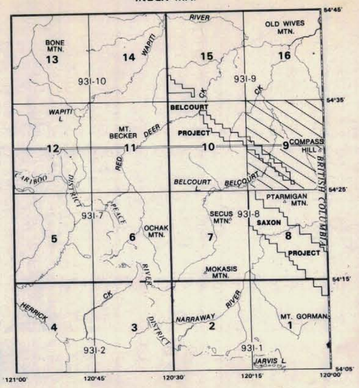
Magnetic North

APPROXIMATE MEAN DECLINATION 1965
FOR CENTRE OF MAP
Annual Change decreasing 1.0'

LOCATION MAP



INDEX MAP



SHEET NO. 9

460

PR-BELCOURT 76(1)A.

LEGEND

.243 COAL THICKNESS IN METERS

(.312) MISSING THICKNESS ASSUMED COAL

460

PR-BELCOURT 76(2)A

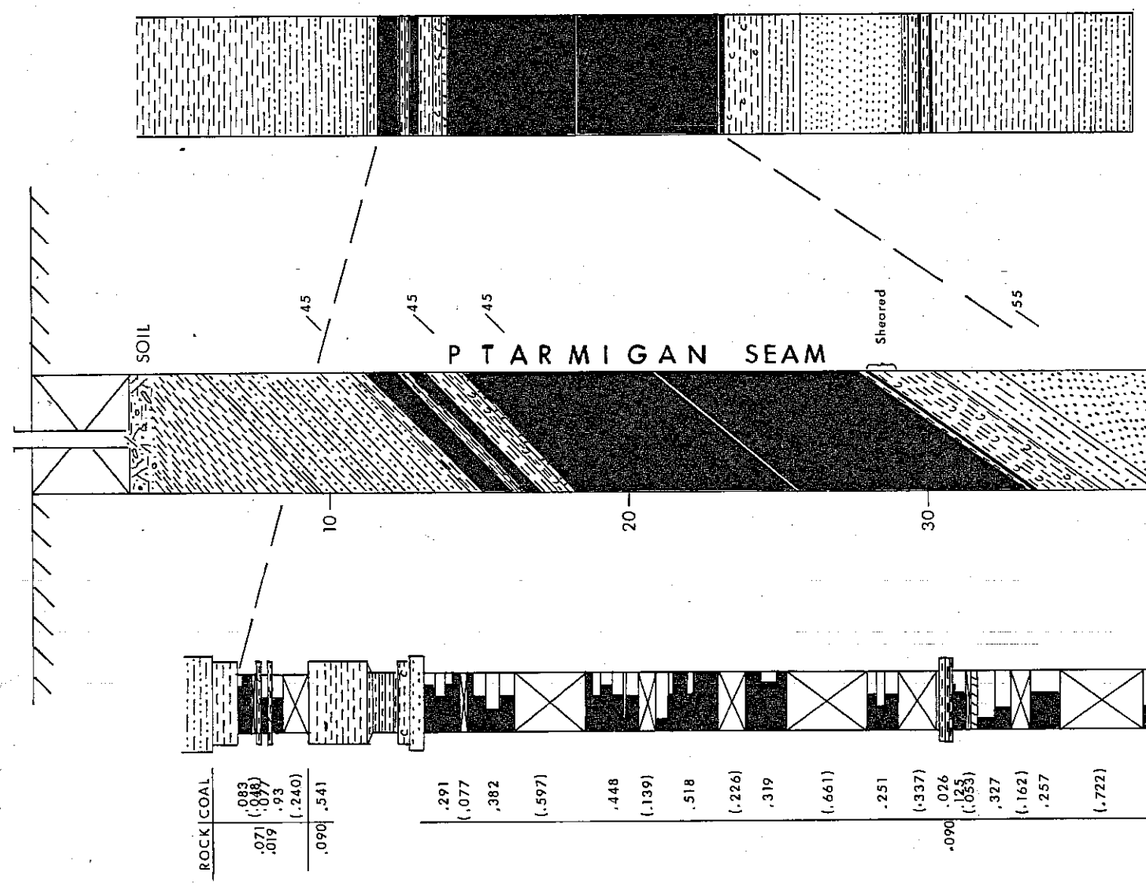
DENISON COAL LIMITED (COAL DIVISION)

CALGARY ALBERTA

BELCOURT PROJECT

DRILL HOLE BHSD 7601 ✓

DRAWN BY: L McB	DATE: Nov. 1976	SCALE: 1:50 / 1:200
APPROVED BY:	DRAWING NO: BLCR 76 - 0687 - R01	



1 : 200
TRUE THICKNESS

LEGEND
.291 COAL THICKNESS IN METERS
(.218) MISSING THICKNESS ASSUMED COAL

1:200

1:50

460

Pr. BELCOURT 76(2)A.

DENISON COAL LIMITED
(COAL DIVISION)
CALGARY ALBERTA

BELCOURT PROJECT
DRILL HOLE BRDD 7602
PTARMIGAN SEAM

DRAWN BY: L McB	DATE: Nov. 1976	SCALE: 1:50 / 1: 200
APPROVED BY:	DRAWING NO: BLCR 76- 0687 - R01	

RED DEER BLOCK

TRIAD CREEK

DEER CREEK

RED DEER KNOB

PROPOSED MINE ENTRANCE

AREA 1

AREA 2

AREA 3

AREA 4

AREA 5

SEAM OUTCROP

INFERRED FAULT

Dip Secant = 2.0883

Dip Secant = 1.4142

Dip secant = 1.0000

Dip Secant = 1.2500

Dip Secant = 1.1180

54°38'

54°37'

54°36'

54°35'

120°30'00"

28'30"

27'00"

25'30"

24'00"

LEGEND

1500 — STRUCTURE CONTOUR (INTERVAL 50 METRES)

1225 — TOPOGRAPHIC CONTOUR (INTERVAL 25 METRES)

COVER > 500 METRES

RESERVES BELOW DRAINAGE LEVEL (1425 METRES)

460

NO.	DESCRIPTION	BY	DATE
	REVISIONS		

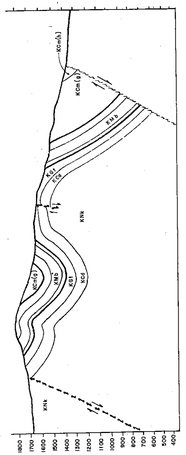
BELCOURT COAL LIMITED

PREPARED BY:
DENISON COAL LIMITED
RED DEER BLOCK

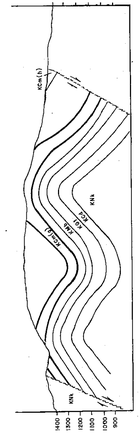
STRUCTURE CONTOUR MAP
PTARMIGAN SEAM

DRAWN BY: D.W.	DATE: DEC. 31/76	SCALE: 1:25,000
PREP'D BY: G.H.	DATE: DEC. 29/76	DRAWING NUMBER: BLCR 76-0707-R 01
APPR'D BY:	DATE:	

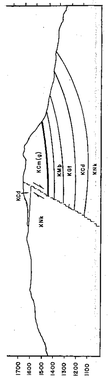
PR-BELCOURT 76(2)A.



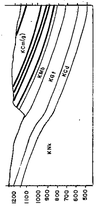
15 - 15'



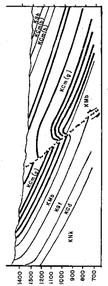
14 - 14'



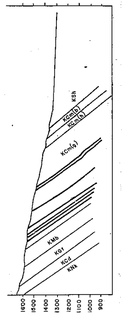
13 - 13'



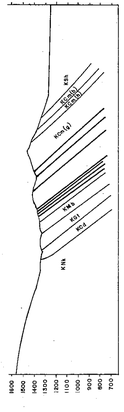
11 - 11'



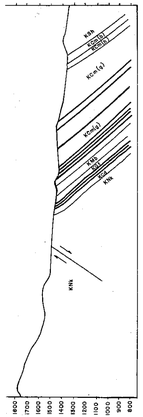
10 - 10'



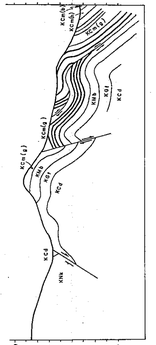
9 - 9'



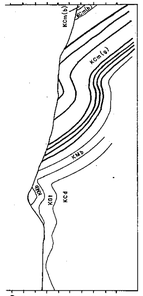
8 - 8'



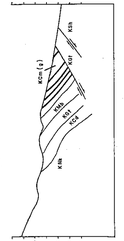
7 - 7'



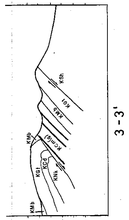
6 - 6'



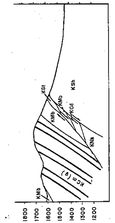
5 - 5'



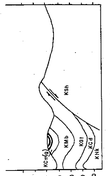
4 - 4'



3 - 3'



2 - 2'



1 - 1'

460

LEGEND

KSh	SHAFTESBURY FORMATION
KCm(b)	COMMOTION FORMATION (Boulder Creek Member)
KCm(h)	COMMOTION FORMATION (Hullcross Member)
KCm(g)	COMMOTION FORMATION (Gates Member)
KMb	MOOSEBAR FORMATION
KG1	GETHING FORMATION
KCd	CADOMIN FORMATION
KNk	NIKANASSIN FORMATION

ELEVATIONS IN METERS ABOVE SEA LEVEL

DENISON COAL LIMITED

CALGARY ALBERTA

BELCOURT CROSS SECTIONS

PR. BELCOURT 76(2)16

DRAWN BY: SORENSEN	DATE: JAN. 1976	SCALE: 1:25,000
APPROVED BY:	DRAWING NO: BLCR. 76 - 0626 - RD 2	

GEOLOGICAL LEGEND

- DRIFT COVERED AREA
- GEOLOGICAL BOUNDARY (Defined, Approximate) (Assumed, Gradational)
- LIMIT OF GEOLOGICAL MAPPING
- BEDDING, TOPS KNOWN (Horizontal, Inclined) (Vertical, Overturned, Dip Unknown)
- BEDDING TOPS UNKNOWN (Inclined, Vertical, Dip Unknown)
- BEDDING TREND (Dip Unknown - Tops Unknown, Dip and Top Known, Dip Known - Top Unknown)
- BEDDING, ESTIMATED DIP (Gentle, Moderate, Steep) S M S
- DRAG FOLD (Arrow Indicates Plunge)
- STRUCTURAL TREND (From Aerial Photographs)
- FAULT (Defined, Approximate, Assumed)
- FAULT (Inclined, Vertical)
- FAULT (Downthrow Side, Relative Movement)
- THRUST FAULT (Points in Direction of Dip - Defined)
- THRUST FAULT (Approximate, Assumed)
- JOINT (Inclined, Vertical, Horizontal)
- ANTICLINE (Defined, Approximate)
- SYNCLINE (Defined, Approximate)
- ANTICLINE (Overturned), SYNCLINE (Overturned)
- ANTICLINE OR SYNCLINE (Arrow Indicates Plunge)
- ESCARPMENT
- FOSSIL LOCATION
- COAL ZONES - DEFINED, INFERRED, ASSUMED

MESOZOIC

UPPER CRETACEOUS

- KDu — DUNVEGAN FORMATION: Marine and non-marine sandstone and shale

LOWER CRETACEOUS — FORT ST. JOHN GROUP —

- KSh — SHAFTESBURY FORMATION: Marine shale. *North of the Wolverine River the Shaftesbury Fm. is differentiated into Hasler, Goodrich & Cruiser Formations.
- KCr — CRUISER FORMATION: Marine shale
- KGo — GOODRICH FORMATION: Fine-grained sandstone
- KHa — HASLER FORMATION: Dark marine shale
- KCm — COMMOTION FORMATION, Undifferentiated
- KCm(b) — COMMOTION FORMATION, Boulder Creek Member: conglomerate; coarse to fine-grained sandstone; shale; coal
- KCm(h) — COMMOTION FORMATION, Hulcross Member: dark marine shale
- KCm(g) — COMMOTION FORMATION, Gates Member: carbonaceous sandstone; shale; coal
- KMb — MOOSEBAR FORMATION: dark marine shale

— BULLHEAD GROUP —

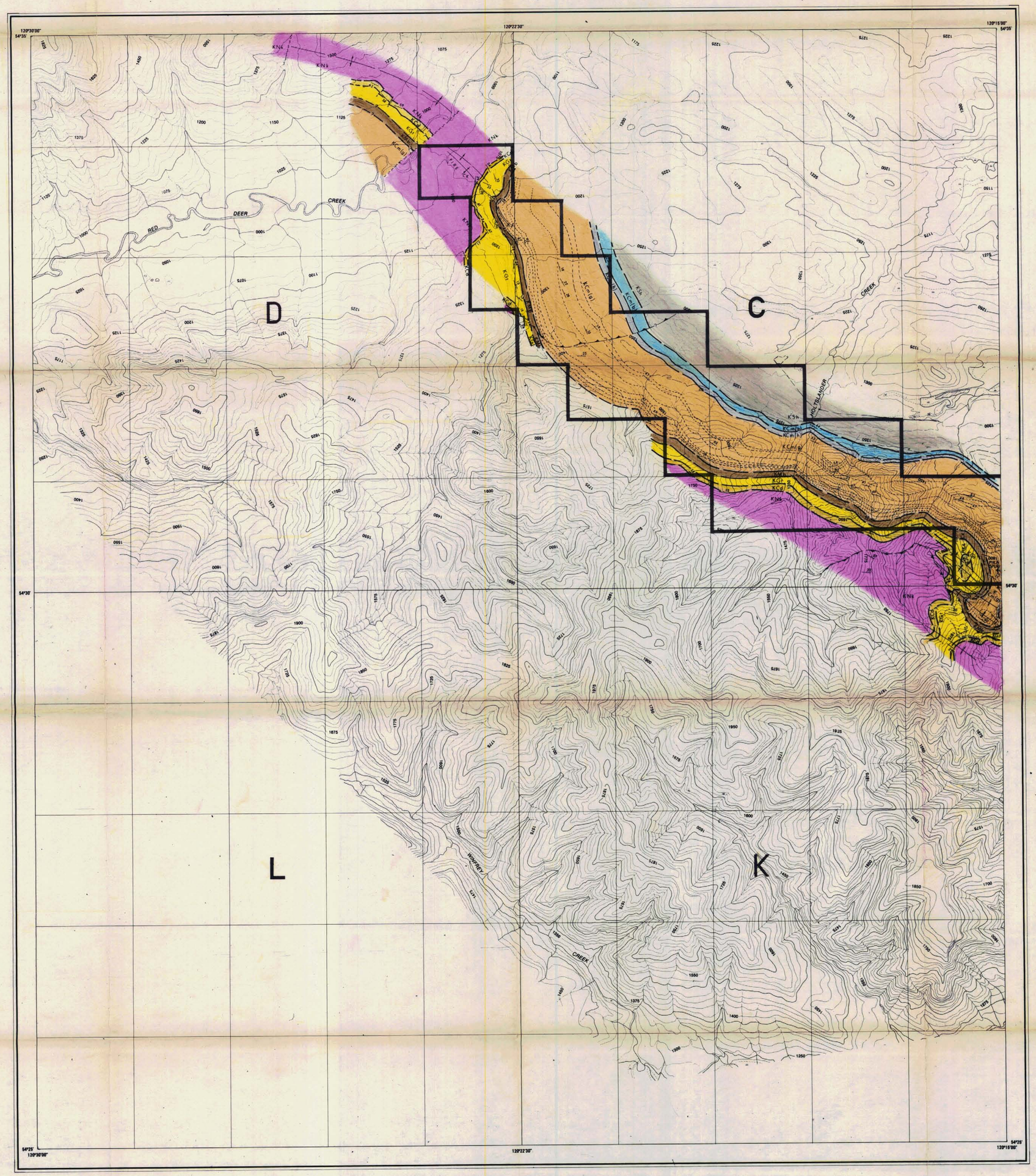
- KGt — GETHING FORMATION: conglomerate; carbonaceous sandstone and shale; coal
- KCd — CADOMIN FORMATION: massive conglomerate

JURASSIC AND CRETACEOUS LOWER CRETACEOUS AND EARLIER

- KNk — NIKANASSIN FORMATION: fine-grained sandstone and carbonaceous shale

TOPOGRAPHIC LEGEND

- ACCESS ROAD - ALL WEATHER, LIMITED WEATHER
- ACCESS TRAIL - LIMITED WEATHER
- RAILWAY
- AIR STRIP
- SEISMIC LINE, CUT LINE
- POWER TRANSMISSION LINE
- TRENCH
- ADIT - OPEN - CAVED
- GAS WELL
- DRY HOLE
- DRILL HOLE - ROTARY, DIAMOND
- CAMPSITE
- CAMPGROUND, PUBLIC
- FOREST SERVICE LOOKOUT/STATION
- HORIZONTAL AND VERTICAL CONTROL
- RIVER
- STREAM
- LAKE
- SWAMP
- CONTOURS 1625
- DEPRESSION CONTOUR 1500



T.N.

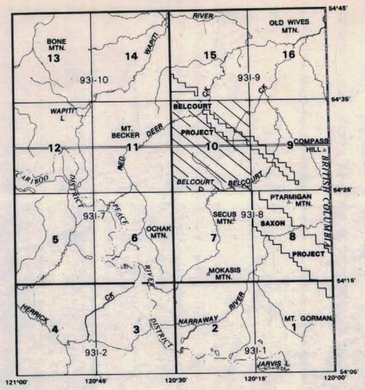
23°23'

Magnetic North

APPROXIMATE MEAN DECLINATION 1985
FOR CENTRE OF MAP
Annual Change decreasing 4.0'

LOCATION MAP

INDEX MAP



BELCOURT PROJECT
BRITISH COLUMBIA

SCALE 1:25,000

Miles 0 1 2

Kilometres 0 1 2 3

CONTOUR INTERVAL 25 METRES

NOTE: 25 Metre contour was interpolated from photogrammetric mapping, which was compiled from aerial photography taken 1970 to 1974, and from 1:50,000 National Topographic Series maps

Dwg. No. : BLCR 76 - 0625 - R02

SHEET NO. 10

460

P.R. - BELCOURT 76(2) A.

GEOLOGICAL LEGEND

DRIFT COVERED AREA

GEOLOGICAL BOUNDARY (Defined, Approximate) (Assumed, Gradational)

LIMIT OF GEOLOGICAL MAPPING

BEDDING, TOPS KNOWN (Horizontal, Inclined) (Vertical, Overturned, Dip Unknown)

BEDDING TOPS UNKNOWN (Inclined, Vertical, Dip Unknown)

BEDDING TREND (Dip Unknown - Tops Unknown, Dip and Top Known, Dip Known - Top Unknown)

BEDDING, ESTIMATED DIP (Gentle, Moderate, Steep)

DRAG FOLD (Arrow Indicates Plunge)

STRUCTURAL TREND (From Aerial Photographs)

FAULT (Defined, Approximate, Assumed)

FAULT (Inclined, Vertical)

FAULT (Downthrow Side, Relative Movement)

THRUST FAULT (Points in Direction of Dip - Defined)

THRUST FAULT (Approximate, Assumed)

JOINT (Inclined, Vertical, Horizontal)

ANTICLINE (Defined, Approximate)

SYNCLINE (Defined, Approximate)

ANTICLINE (Overturned), SYNCLINE (Overturned)

ANTICLINE OR SYNCLINE (Arrow Indicates Plunge)

ESCARPMENT

FOSSIL LOCATION

COAL ZONES DEFINED
INFERRED
ASSUMED

MESOZOIC

UPPER CRETACEOUS

KDu — **DUNVEGAN FORMATION:** Marine and non-marine sandstone and shale

LOWER CRETACEOUS
— FORT ST. JOHN GROUP —

KSh — **SHAFTESBURY FORMATION:** Marine shale
* North of the Wolverine River the Shaftesbury Fm. is differentiated into Hasler, Goodrich & Cruiser Formations.

KCr — **CRUISER FORMATION:** Marine shale

KGo — **GOODRICH FORMATION:** Fine-grained sandstone

KHa — **HASLER FORMATION:** Dark marine shale

KCm — **COMMOTION FORMATION** Undifferentiated

KCm(b) — **COMMOTION FORMATION, Boulder Creek Member:** conglomerate; coarse to fine-grained sandstone; shale; coal

KCm(h) — **COMMOTION FORMATION, Hulcross Member:** dark marine shale

KCm(g) — **COMMOTION FORMATION, Gates Member:** carbonaceous sandstone; shale; coal

KMb — **MOOSEBAR FORMATION:** dark marine shale

— BULLHEAD GROUP —

KGt — **GETHING FORMATION:** conglomerate; carbonaceous sandstone and shale; coal

KCd — **CADOMIN FORMATION:** massive conglomerate

JURASSIC AND CRETACEOUS LOWER CRETACEOUS AND EARLIER

KNk — **NIKANASSIN FORMATION:** fine-grained sandstone and carbonaceous shale

TOPOGRAPHIC LEGEND

ACCESS ROAD - ALL WEATHER
- LIMITED WEATHER

ACCESS TRAIL - LIMITED WEATHER

RAILWAY

AIR STRIP

SEISMIC LINE, CUT LINE

POWER TRANSMISSION LINE

TRENCH

ADIT - OPEN - CAVED

GAS WELL

DRY HOLE

DRILL HOLE - ROTARY
- DIAMOND

CAMPSITE

CAMPGROUND, PUBLIC

FOREST SERVICE LOOKOUT/STATION

HORIZONTAL AND VERTICAL CONTROL

RIVER

STREAM

LAKE

SWAMP

CONTOURS 1625

DEPRESSION CONTOUR 1500

120°30'00" 54°45' — 120°22'30" — 120°15'00" 54°45'

54°40'

L K E F

LITTLE PRAIRIE CREEK · TRIAD CREEK · DEER CREEK · RED CREEK

Red Deer Knob

54°35' 120°30'00" — 120°22'30" — 54°35' 120°15'00"

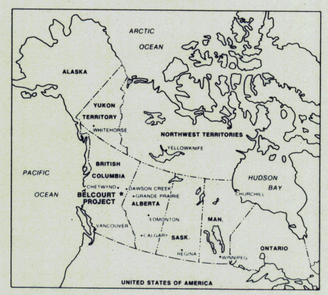
T.N.

23°39'

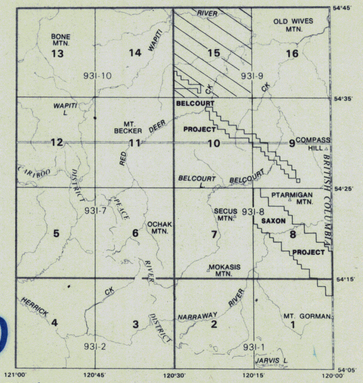
Magnetic North

APPROXIMATE MEAN DECLINATION 1965
FOR CENTRE OF MAP
Annual Change decreasing 4.0'

LOCATION MAP



INDEX MAP



BELCOURT PROJECT
BRITISH COLUMBIA

SCALE 1:25,000

Miles 1 0 1 2
Kilometres 1 0 1 2 3

CONTOUR INTERVAL 25 METRES

NOTE 25 Metre contour was interpolated from photogrammetric mapping, which was compiled from aerial photography taken 1970 to 1974, and from 1:50,000 National Topographic Series maps

Dwg. No. : BLCR 76-0625-R02

D-1652
460
PR-BELCOURT 76(2)A.

SHEET NO. 15