

MOUNT KLAPPAN ANTHRACITE PROJECT

LOST - FOX AREA

GEOLOGICAL REPORT

1986

GEOLOGICAL REPORT



GULF CANADA CORPORATION

Mount Klappan Anthracite Project Geological Report
Lost-Fox Area

1986

Coal Project Licence Numbers

7118 to 7177

7381 to 7392

7416 to 7432

7487 to 7539

7559 to 7561

and

7714 to 7757

Cassiar Land District

NTS Map Number 104 H

Latitudes Between $57^{\circ} 06'$ and $57^{\circ} 23'$
Longitudes Between $128^{\circ} 37' 30''$ and $129^{\circ} 15'$

Gulf Canada Limited

April, 1987

PREFACE

The Mount Klappan Anthracite Project is located in northwest British Columbia and is wholly owned and operated by Gulf Canada Limited.

The 1986 Lost-Fox Area Geological Report provides a current assessment of the geology, coal quality, and resource potential of the Lost-Fox Area, which is situated in the central region of the Mount Klappan property.

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LOST-FOX AREA
1986 GEOLOGICAL REPORT

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- Appendix I Trench Data and Coal Quality
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APPENDIX I

Trench Data and Coal Quality, Measured Sections, and 1:50 000 Maps

Drawing No.

1986 Trench Data and Coal Quality (18 in total)

Summary Sheet

Sample Summary Sheet

Data Source Summary

Data Sheet (1:40 scale)

Descriptive Log

Coal Quality Analyses (where available)

1986 Measured Sections (2 in total)

Summary Sheet

Data Source Summary

Descriptive Log

Strip Log (1:200 scale)

1981-1986 Measured Section Location Map

KPN86002

1986 1:50 000 Map Sheets

1986 Geology Map

KPN86003

1986 Coal Resource Map

KPN86004

1986 Coal Licence Map

KPN86005

1984-1986 Fossil Location Map

KPN86006

APPENDIX II

Bulk Sampling Program

Adit 86001

- 1.0 Introduction
- 2.0 Geology
- 3.0 Adit Construction and Monitoring
- 4.0 Coal Quality
- 5.0 Recommendations
- 6.0 References

Appendix 1 Channel Sample Data

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Appendix 3 Adit Permitting Correspondence

Appendix 4 Coal Quality Data

APPENDIX III

Geology Maps and Cross-Sections

Drawing No.

Volume I

1:2 000 Maps:

Sheet C-4	KPN86LF-19
Sheet C-5	KPN86LF-20
Sheet D-4	KPN86LF-21
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Sheet D-6	KPN86LF-23
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1:2 000 Cross-Sections:

1000N	KPN86LF-35
1125N	KPN86LF-36
1250N	KPN86LF-37
1375N	KPN86LF-38
1500N	KPN86LF-39
1625N	KPN86LF-40
1750N	KPN86LF-41
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2000N	KPN86LF-43
2125N	KPN86LF-44

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2875N	KPN86LF-50
3000N	KPN86LF-51
3125N	KPN86LF-52
3250N	KPN86LF-53
3375N	KPN86LF-54
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5000S	KPN85LF-81
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1000S	KPN85LF-83
1000N	KPN85LF-84
3000N	KPN85LF-85
5000N	KPN85LF-86

APPENDIX IV
1986 Diamond Drill Hole Data

Drawing No.

1986 Diamond Drill Holes (38 holes)

Data Source Summary

1:2000 Schematic Profile

Descriptive Log

Coal Seam Data Sheet

Stratigraphic Log

Geophysical Log

1:10 000 Drill Hole Location Map

KPN86001

Volume I

KPNLRDDH86001

to

KPNLRDDH86009

Volume II

KPNLRDDH86010

to

KPNLRDDH86019

Volume III

KPNLRDDH86020

to

KPNLRDDH86029

Volume IV

KPNLRDDH86030

to

KPNLRDDH86038

APPENDIX V

1986 Diamond Drill Hole
Coal Quality Data

1986 Diamond Drill Hole Coal Quality (38 holes)
Data Source Summary
1:2000 Schematic Profile
Sample Summary
Coal Seam Data Sheet
Coal Quality Data

Volume I

KPNLRDDH86001

to

KPNLRDDH86017

Volume II

KPNLRDDH86018

to

KPNLRDDH86038

1.0 SUMMARY

Gulf Canada Corporation's Mount Klappan Anthracite Project is located in the Bowser Basin of northwest British Columbia, 290 kilometres north of Smithers, and 150 kilometres northeast of Stewart, British Columbia. The property is composed of 211 crown coal licences totalling 56 194 hectares of land.

The Mount Klappan property has been a focus of Gulf's coal exploration activities since 1981. Several areas with economic coal potential have been highlighted or further defined during each of the exploration programs undertaken since the acquisition of the property.

The Mount Klappan property has been subdivided into three project blocks: the Lost-Fox Area, the Hobbit-Broatch Area and the Summit-Nass-Skeena Area, the former to which this report pertains. A 1986 report covering exploration activities in the Summit-Nass-Skeena Area has been completed as well. No exploration was initiated this year in the Hobbit-Broatch Area.

Encouraging results in terms of quantity, quality and accessibility of coal has provided a basis for increased attention to the Lost-Fox Area each year. Results from detailed geological mapping, hand and mechanical trenching, diamond and rotary drilling, as well as adit driveage, have contributed to the delineation of economic resource areas in the Lost-Fox Area. In 1982 a Mining Assessment of the area was completed and in 1985 Gulf prepared a Stage I submission to the Government of British Columbia with respect to the development of the Lost-Fox Area. A feasibility study and concurrent Stage II study have subsequently been initiated for completion early in 1987.

Combined exploration activity on the Mount Klappan property during 1986 comprised 38 diamond drill holes totalling 5 620 metres, 1 thirty tonne adit and 36 trenches totalling 95 metres. Geological mapping was completed at scales of 1:2 000, 1:5 000 or 1:10 000 depending on available detailed topographic base maps.

A trial cargo of anthracite, originally extracted from the Lost-Fox Area in 1985, was sized and dried before being trucked to Stewart for shipment to a potential market in Asia.

The Mount Klappan property covers sedimentary strata ranging in age from Upper Jurassic to Lower Cretaceous. These strata are interpreted to have been subjected to two phases of structural deformation resulting in NW-SE trending folds of the first phase (F₁) and generally NE-SW trending folds of the second phase (F₂). More apparent within the first phase, thrust and minor normal faulting is associated with both phases of deformation. The Lost-Fox Area is well within this structural regime, and exhibits results of both deformation phases.

The sediments underlying the property have been subdivided into four sequences: the Spatsizi, Klappan, Malloch, and Rhondda, in ascending order. The Klappan Sequence is the main coal-bearing unit and is presently interpreted to attain a thickness of up to 900 metres. The Lost-Fox Area is predominantly underlain by strata of the coal-bearing Klappan Sequence.

Exploration diamond drilling in the Lost-Fox Area has delineated 25 unique coal and carbonaceous horizons within approximately 520 metres of Klappan Sequence section. Twenty-two of these horizons

contain potentially mineable anthracite seams with true thicknesses ranging up to 8.36 metres.

The in-situ anthracite resource potential on the Mount Klappan property totals over 6 000 million tonnes, of which 74.1 million tonnes have been "measured" in the Lost-Fox Area. Table 1.1 below outlines the categorization of the in-situ resources. These resource estimates do not imply mineability or economic viability. They represent estimated in-place anthracite resources only.

Table 1.1
ANTHRACITE RESOURCE SUMMARY
(million tonnes)

	Mount Klappan Property	Lost-Fox Area
Measured	86.2	74.1
Indicated	97.9	73.4
Inferred	478.6	84.8
Speculative	5625.4	765.7
Total	6288.1 mt	998.0 mt

The coal, which is of anthracite rank, can be cleaned to simultaneously produce a variety of sized products, ranging in ash content from 5% ash premium coals to briquetting coals of 25% ash or greater. The anthracite products are characterized by low sulphur values (usually 0.5%), high calorific values, and only traces of chlorine.

2.0 RECOMMENDATIONS

Although enough exploration work has been done to identify sufficient anthracite reserves for initial mine planning, additional work would be useful as follows:

1. extend the amount of good quality, low strip ratio anthracite that would be available in the first year of mining -
 - i) by diamond drilling east of Lost Ridge for Seams H, I and K.
 - ii) by diamond drilling southwest of Lost Ridge for Seams H and I.
2. expand the mapping program in the West Ridge and correlate the stratigraphy and seams with what is defined on Lost Ridge;
3. continue with the detailed sedimentological and structural studies outlined in Section 5.11 of this report for use in seam identification and correlations as well as prediction of further areas of economic coal seam development;
4. continue geological and coal quality data collection through drilling, mapping, trenching and bulk sampling in the central Lost-Fox Area.

3.0 INTRODUCTION

3.1 Mount Klappan Anthracite Project

3.1.1 Location

The Mount Klappan coal licences are situated in northwest British Columbia approximately 930 kilometres north of Vancouver, 150 kilometres northeast of Stewart and 530 kilometres northwest of Prince George (Figure 3.1).

Geographically the coal licences are at the northern extremity of the Skeena Mountains between 57° 06' and 57° 23' north latitude, and 128° 37' and 129° 15' west longitude, and cover the headwaters of the Klappan, Little Klappan, Spatsizi, Skeena and Nass Rivers.

The nearest community to the property is the community of Iskut (population 500) located 100 kilometres to the northwest on the Stewart-Cassier Highway (Hwy 37).

3.1.2 Access

The Mount Klappan property straddles the partially completed British Columbia Railway line between Prince George and Dease Lake (Figure 3.2). Prior to cessation of work on the construction of the line, steel was laid to within 80 kilometres south of the property. With the exception of a 24 kilometre stretch north of the Kluatantan River, the railway

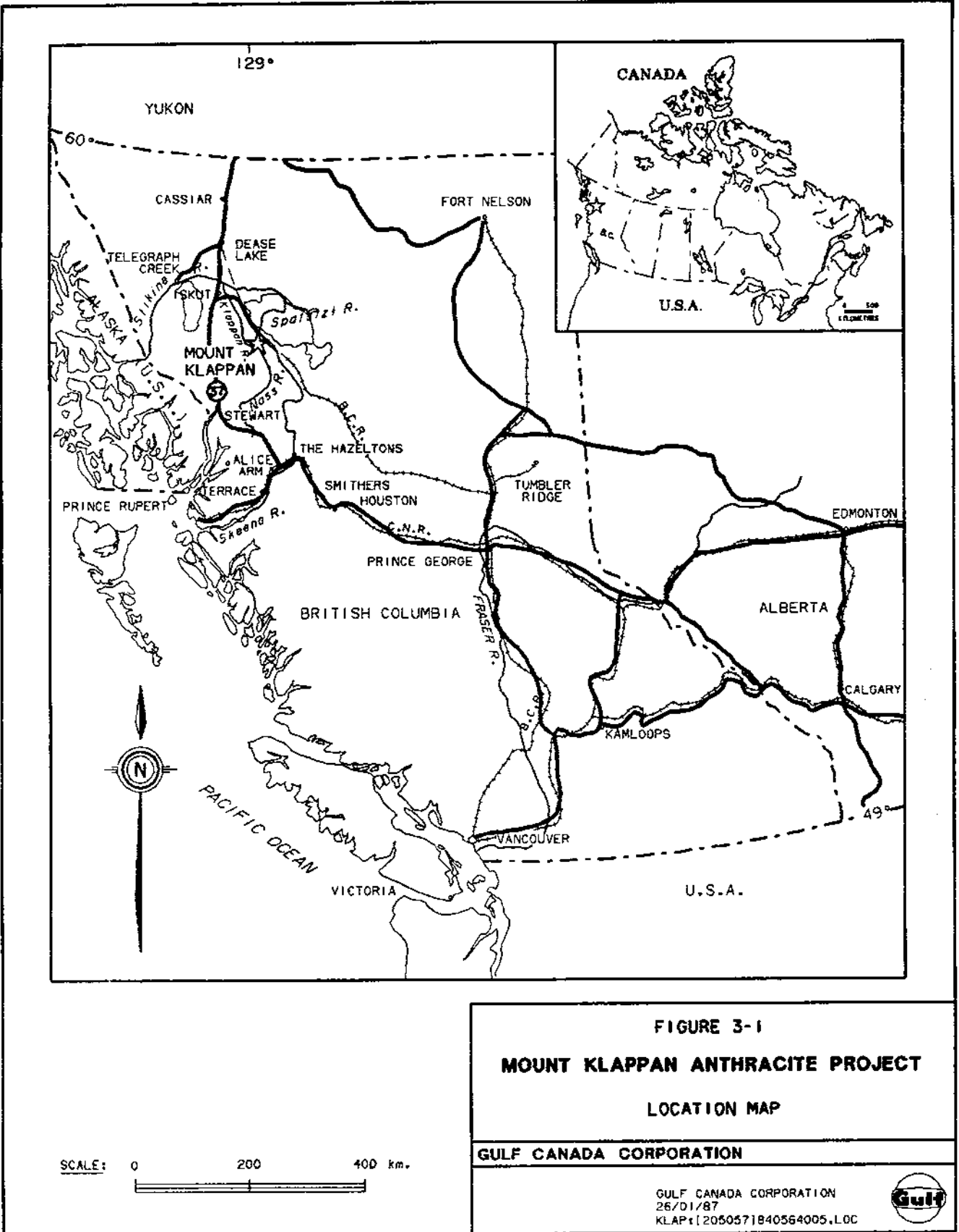
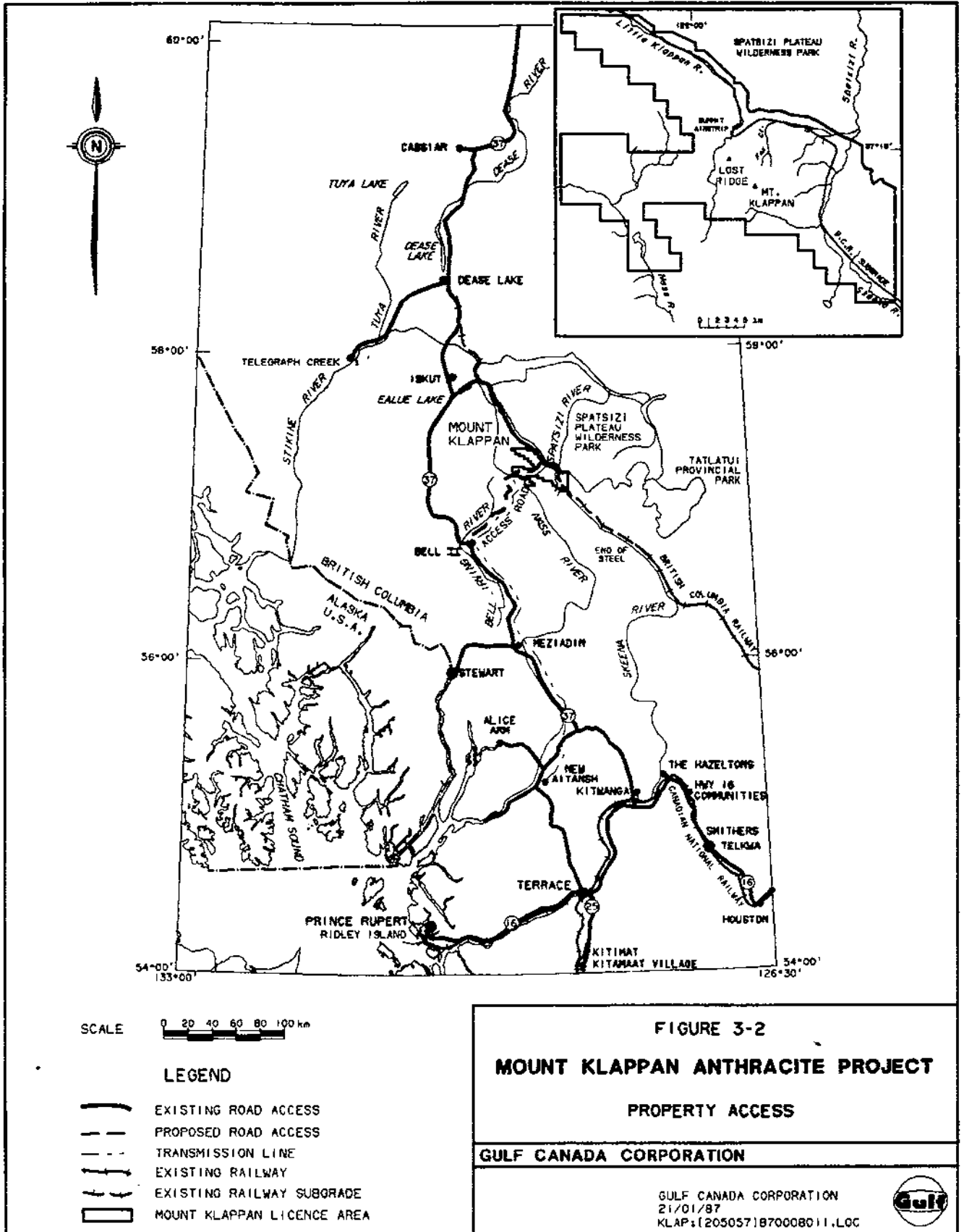


FIGURE 3-1
MOUNT KLAPPAN ANTHRACITE PROJECT
LOCATION MAP

GULF CANADA CORPORATION

GULF CANADA CORPORATION
 26/01/87
 KLAPPAN\205057\B40564005.LOC





subgrade was constructed through and beyond the property to the Stikine River just south of Dease Lake.

Road access to the property from Highway 37 via Ealue Lake Road, is provided along the British Columbia Railway subgrade. Three bridges were constructed along the subgrade early in 1984 to permit surface access to the property. Road distances from Terrace and Stewart to the property are 575 kilometres and 426 kilometres, respectively.

Fixed wing aircraft provide access by air and use the 1000 metre Summit Airstrip located along the railway subgrade in the central region of the property.

3.1.3 Property Description

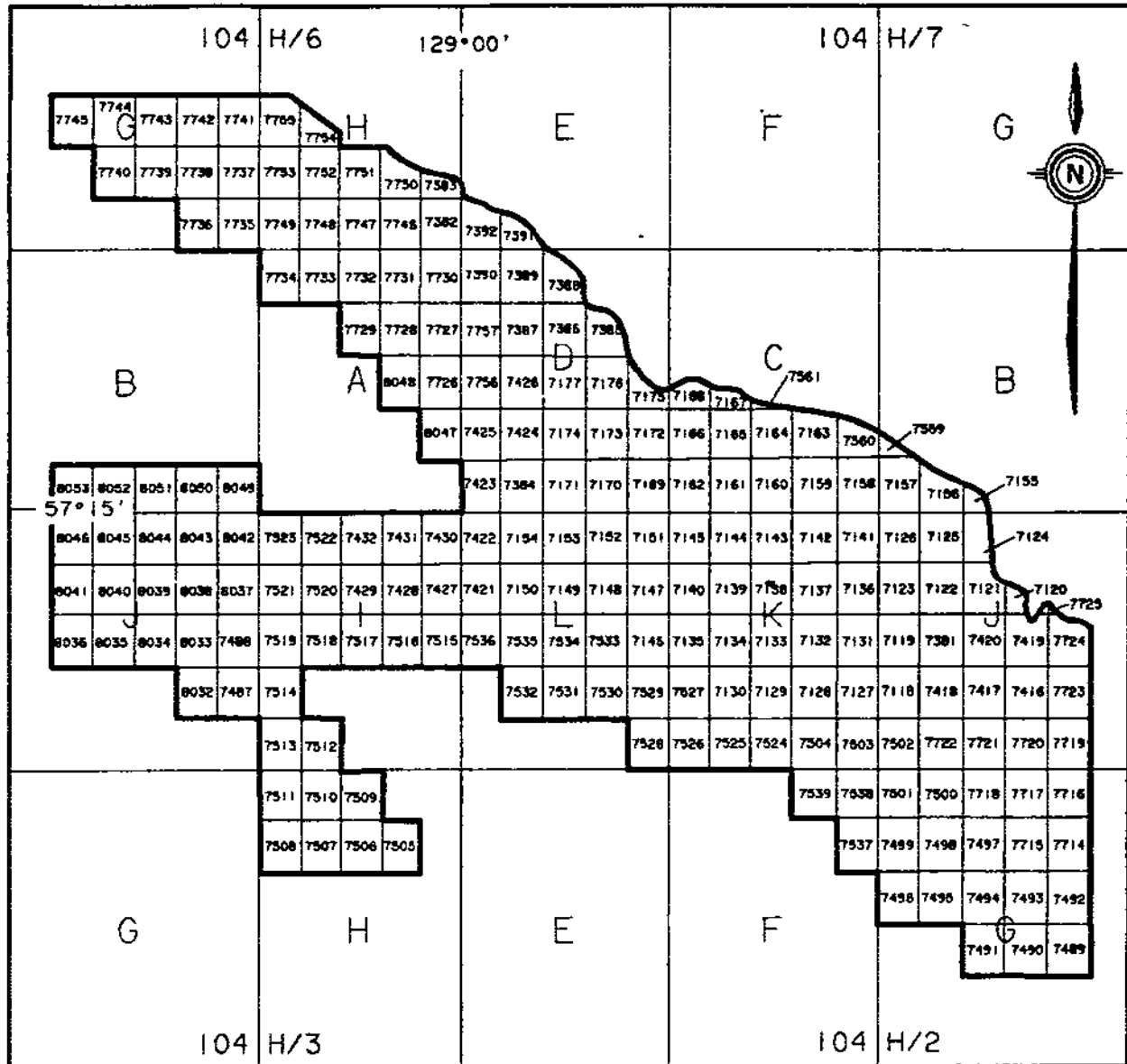
The Mount Klappan property comprises 211 coal licences totalling 56 194 hectares of land (Appendix A; Figure 3.3) as of October 15, 1986. The property was acquired in five separate applications from 1981 to 1985.

3.1.4 Ownership

Gulf wholly owns the coal licences comprising the Mount Klappan property.

3.1.5 Property Geography and Biophysical Environment

The Mount Klappan property is located at the headwaters of the Little Klappan, Klappan, Nass, Skeena, and



SCALE



LEGEND

- LICENCE AREA
- 7386 LICENCE NUMBER

FIGURE 3-3

**MOUNT KLAPPAN ANTHRACITE PROJECT
LICENCES**

GULF CANADA CORPORATION

GULF CANADA CORPORATION
10/30/86
KLAP: (205057)831024020.LOC



Spatsizi Rivers (Figure 3.1). This area is within the northern extremity of the Skeena Mountains physiographic region. The regional physiography is of mountainous terrain with broad northwest to southeast trending valleys of the aforementioned rivers.

Elevations on the property range from 991 metres in the Klappan River Valley to over 2000 metres on Mount Klappan and the adjacent ridge tops.

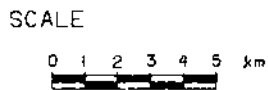
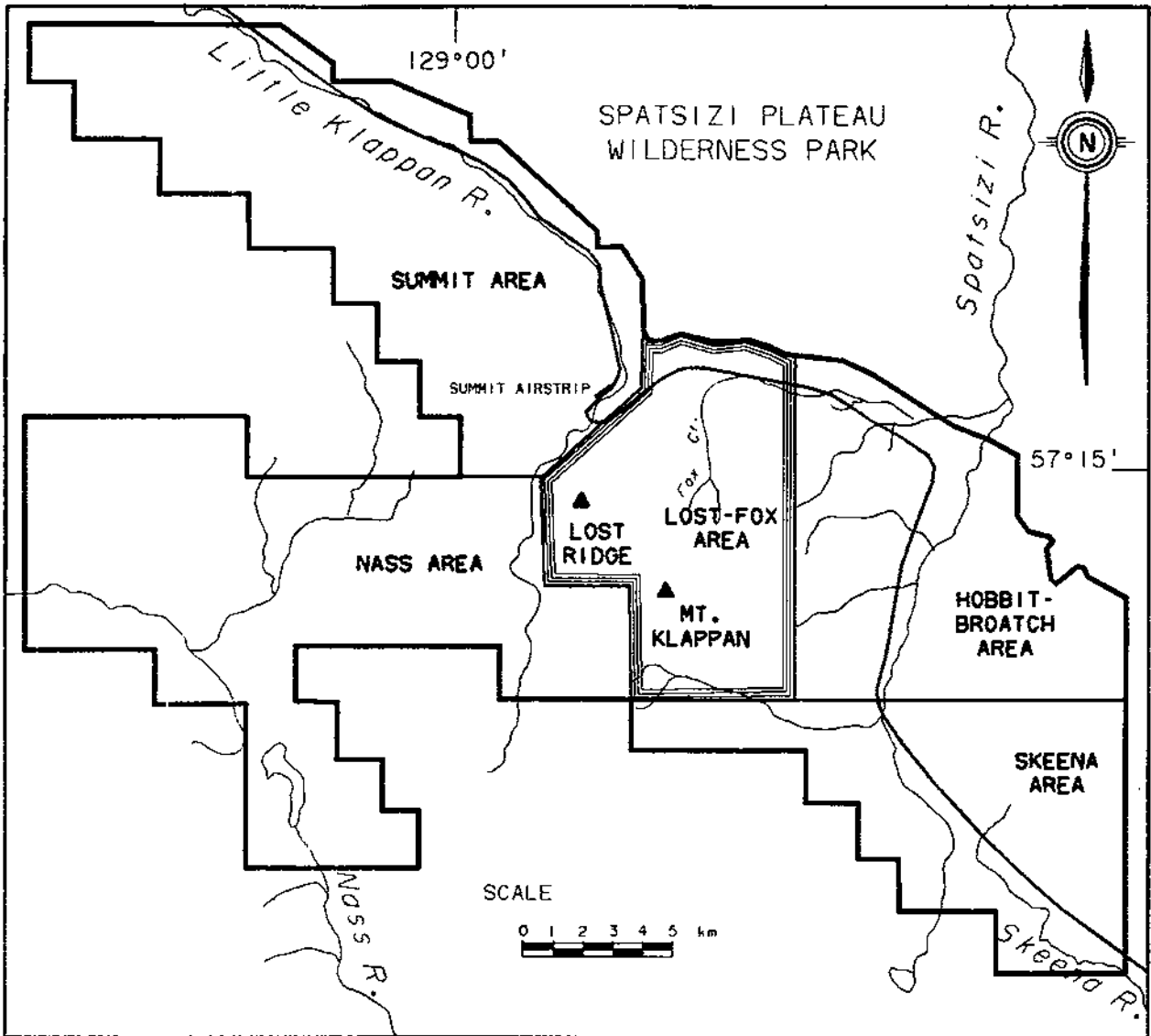
The climatic regime of the area is in the Northern and Central Plateau and Mountain Zone. Precipitation values average 300 to 400 mm per year with the mean daily temperatures comparable to Fort Nelson and Prince George. This information is derived from weather stations located on the northeastern edge of the property which have been monitored monthly since their installation five years ago.

Tree line in the area is at approximately 1500 metres. Valley bottoms are partially covered with scattered coniferous forests, grasses, shrubs, meadows, and bogs. The higher elevations are characterized by alpine tundra.

3.2 Lost-Fox Area

3.2.1 Location

The Mount Klappan property has been divided into project blocks to facilitate exploration expansion and subsequent logistics. (Figure 3.4). The Lost-Fox Area is



LEGEND

- BRITISH COLUMBIA RAILWAY SUBGRADE
- LICENCE AREA


FIGURE 3-4

MOUNT KLAPPAN ANTHRACITE PROJECT

LOST-FOX EXPLORATION AREA

GULF CANADA CORPORATION

GULF CANADA CORPORATION
20/01/87
KLAP: [205057]B41165015.LOC



situated in the central region of the Mount Klappan property. Major geographic features included in the area are Lost Ridge, Mount Klappan and Fox Creek.

3.2.2 Access

The British Columbia Railway subgrade provides road access to the northern extremity of the Lost-Fox Area. An eight kilometre long coal haul road completed in 1985 provides access to Lost Ridge where the bulk of exploration activities occur. Where road access was not available, trackmounted vehicles were used to transport drill and support equipment.

3.2.3 Area Description

The Lost-Fox Area covers 8 757.5 hectares and includes 35 of the 211 licences comprising the Mount Klappan Anthracite Project (Appendix A). Two licences, 7171 and 7173, are divided between the Lost-Fox Area and the Summit Area, the former being concerned with the southeast portion of each of those licences.

3.2.4 Biophysical Environment

With tree line at approximately 1 500 metres a.s.l., the Lost-Fox area is characterized by alpine tundra, grasses, and shrubs, with swamps and some scattered coniferous stands at lower elevations.

The Mount Klappan massif influences the physical character of much of the area. The valley separating it from the second predominant feature, Lost Ridge, expresses the influence of Fox Creek, the major drainage in the Lost-Fox Area.

4.0 EXPLORATION HISTORY

4.1 Mount Klappan Property

4.1.1 Exploration Prior to Gulf's Acquisition

V.H. Dupont made the first published description of coal in the Northern Bowser Basin in 1900 for the Canadian Department of Railways and Canals. In his report, he describes a coal outcrop near the confluence of Didene Creek and the Spatsizi River. This outcrop is now recognized as part of the Klappan coal occurrences.

The Geological Survey of Canada has initiated five exploration programs into the area. The first, in 1911, was led by G.S. Malloch (Malloch, 1914) who undertook a geological evaluation of the Bowser Basin concentrating 55 miles to the south of Mount Klappan in the Groundhog Coal Measures. The second, in 1948, was led by Buckham and Latour (Buckham and Latour, 1950) which also concentrated in the Groundhog area. The third study in 1957 was called "Operation Stikine". The fourth and fifth programs, which broadly covered the Klappan coal measures, were led by Eisbacher in 1974 and in 1981. These studies resulted in some of the first stratigraphic and structural studies of the area. In addition, Eisbacher tried to relate the depositional history of the Bowser Basin to the tectonic history of the area.

In 1979, Richards and Gilchrist, from the B.C. Department of Mines, published stratigraphic studies primarily

in the Groundhog area. However, they also included reference to the coal sequences of the Northern Bowser Basin.

Further interest in the Klappan coal occurrences during the late 1970's resulted in both Esso Minerals and Petrofina acquiring licences in the area. These licences were allowed to lapse in 1980 following minimal geological exploration of the area.

Initially, Gulf entered the Bowser Basin in 1979 concentrating in the Panorama-Groundhog Coal Measures. This was followed in 1981 by the acquisition of the Mount Klappan property.

4.1.2 Summary of Exploration 1981-1985

Prior to 1986, Gulf undertook eight separate exploration programs on the Mount Klappan property. The exploration included geological mapping, hand trenching, diamond drilling, rotary drilling and adit driveage, as summarized in Table 4.1. The results of these exploration activities have been documented in eight separate reports:

Mount Klappan Coal Project - Geological Report	1981
Mount Klappan Coal Project - Geological Report	1982
Mount Klappan Coal Project - Geological Report	1983
Mount Klappan Coal Project - Lost-Fox Area	1984
Mount Klappan Coal Project - Hobbit-Broatch Area	1984
Mount Klappan Coal Project - Summit-Nass-Skeena Area	1984
Mount Klappan Coal Project - Lost-Fox Area	1985
Mount Klappan Coal Project - Summit-Nass Area	1985

Table 4.1

MOUNT KLAPPAN ANTHRACITE PROJECT
EXPLORATION SUMMARY 1981 TO 1985

	1981	1982	1983	1984	1985	Total
Adits						
Number	--	--	1	--	--	1
Tonnes	--	--	39.2	--	--	39.2
Diamond Drill Holes						
Number (HQ)	--	7	3	8	34	52
Total Metres	--	1 223	603	1 507	6 146	9 479
Number (AIX)	--	--	6	--	--	6
Total Metres	--	--	126	--	--	126
Rotary Drill Holes						
Number	--	--	--	17	6	23
Total Metres	--	--	--	897	620	1 517
Hand Trenching						
Number	24	51	93	95	45	308
Total Metres	89	289	527	416	178	1 499
Mechanical Trenches						
Number	--	--	--	128	--	128
Total Metres	--	--	--	1 041	--	1 041
Measured Sections						
Number	--	--	--	13	19	31
Total Metres	--	--	--	2 736	3 347	6 083
Geological Mapping Scales						
	1:10 000	1:10 000	1: 5 000	1: 2 500	1: 2 500	
			1:10 000	1: 5 000	1: 5 000	
				1:10 000	1:10 000	

4.2 Lost-Fox Area

4.2.1 Summary of Exploration 1981-1985

During each of the five exploration years prior to 1986, the Lost-Fox Area has received further investigation in the form of geological mapping and trenching with subsequent drilling and adit driveage after preliminary mapping results were assessed. Encouraging results in terms of quantity, quality and accessibility of coal, provided a basis for increased attention to the Lost-Fox Area each year. Each exploration program has supported a growing data base and has provided a continuing delineation of economic resource areas. The Lost-Fox Area exploration activities prior to those of the 1986 program are summarized in Table 4.2.

Table 4.2

LOST-FOX AREA
EXPLORATION SUMMARY 1981 TO 1985

	1981	1982	1983	1984	1985	Total
Adits						
Number	--	--	1	--	--	1
Tonnes	--	--	39.2	--	--	39.2
Diamond Drill Holes						
Number (HQ)	--	1	2	4	34	41
Total Metres	--	244	411	1 017	6 146	7 818
Number (AIX)	--	--	6	--	--	6
Total Metres	--	--	126	--	--	126
Rotary Drill Holes						
Number	--	--	--	17	6	23
Total Metres	--	--	--	897	620	1 517
Hand Trenching						
Number	9	14	49	55	33	160
Total Metres	27	86	265	260	130	768
Mechanical Trenches						
Number	--	--	--	88	--	88
Total Metres	--	--	--	808	--	808
Measured Sections						
Number	--	--	--	5	5	10
Total Metres	--	--	--	1 368	308	1 676
Geological Mapping Scales	1:10 000	1:10 000	1: 5 000	1:2 500	1:2 500	
			1:10 000	1:5 000	1:5 000	

5.0 1986 EXPLORATION PROGRAM

5.1 Lost-Fox Area Program Objectives

In summary, the objectives of the 1986 Lost-Fox Area exploration program were:

1. To geologically map in detail all remaining outcrop in the Lost Ridge and West Ridge areas where surface mineable resources were interpreted to exist;
2. To complete an infill diamond drill program within the pit area to confirm previous interpretations and increase the resource category confidence level;
3. To initiate step-out drilling from the pit area into areas believed to have a good potential for additional surface mineable resources;
4. To drive an adit into H seam to collect a 30 tonne bulk sample for product analysis studies.

5.2 Summary of Exploration

5.2.1 Mount Klappan Anthracite Project

In six years of exploration programs on the Mount Klappan property, Gulf has advanced through regional investigations to seam tracing, drilling, adit driveage and trial cargos (Table 5.1). While new areas are constantly

Table 5.1

**MOUNT KLAPPAN ANTHRACITE PROJECT
EXPLORATION SUMMARY 1981 TO 1986**

	1981	1982	1983	1984	1985	1986	Total
Adits							
Number	--	--	1	--	--	1	2
Tonnes	--	--	39.2	--	--	30	69.2
Diamond Drill Holes							
Number (HQ)	--	7	3	8	34	38	90
Total Metres	--	1223	603	1507	6146	5620	15099
Number (AXI)	--	--	6	--	--	--	6
Total Metres	--	--	126	--	--	--	126
Rotary Drill Holes							
Number	--	--	--	17	6	--	23
Total Metres	--	--	--	897	620	--	1517
Mechanical Trenches (Seam Tracing)							
Number	--	--	--	128	--	--	128
Total Metres	--	--	--	1041	--	--	1041
Hand Trenches							
Number	24	51	93	95	45	36	374
Total Metres	89	289	527	416	178	95	1594
Measured Sections							
Number	--	--	--	13	19	6	37
Total Metres	--	--	--	2736	3347	745	6828
Geological Mapping Scales	1:10 000	1:10 000	1:5 000	1:2 500	1:2 500	1:2 000	
			1:10 000	1:5 000	1:5 000	1:5 000	
				1:10 000	1:10 000	1:10 000	

being investigated, exploration is being focussed on those areas which have immediate economic interest.

The 1986 summer exploration program resulted in the completion of 38 diamond drill holes and one adit in the Lost-Fox Area. The program also included detailed geological mapping of the Lost-Fox, Summit, Nass, and Skeena areas. A trial cargo of anthracite, remaining from the extraction operation in 1985, was sized, dried and trucked to Stewart for shipping.

The 8.0 kilometre long haul road constructed in late 1984 from the British Columbia Railway subgrade up the backside of Lost Ridge provided truck and cat access to the central Lost-Fox Area. The Didene Creek Camp provided lodging and working space for up to 100 Gulf and support personnel during the program. Geological, drilling and support crews were transported daily from camp either by four-wheel-drive vehicles or by a Bell 206B. Drill equipment was skidded from site to site using D-6 Catapillers and was serviced by either 4 x 4 vehicles or the Bell 206B.

Equipment for the adit was mobilized along the pre-existing haul road. A 100 metre long narrow access road was then cut along the slope of Lost Ridge to the actual driveage site.

The British Columbia Railway subgrade provided good access through the property, and joined with Highway 37 via the Ealue Lake Road (Figure 3.2). A four-wheel-drive

Emergency Transportation Vehicle was on standby at all times for use in a medical emergency.

Commercial as well as charter fixed wing aircraft linked the Summit Airstrip on the property to major centres and provided convenient air transportation for personnel and cargo throughout the exploration program.

5.2.2 Lost-Fox Area

The exploration programs undertaken from 1981 to 1985 provided encouraging and supportive data for the continued definition of the coal resources of the Lost-Fox Area (Table 5.2). The 1986 Lost-Fox area program was run from June 1 to October 8 and involved diamond drilling, adit driveage, geological studies (Section 5.11), geological mapping and hand trenching. The distribution of this work, on a licence-by-licence basis, is summarized in Appendix B.

5.3 Cartography

Topographic maps at 1:5 000 and 1:2 000 scales were used for plotting of exploration data and subsequent technical interpretation. The 1:5 000 maps were produced from 1:30 000 British Columbia Government air photographs taken in 1971 prior to the construction of the BCR subgrade. Air photographs at scales of 1:8 000 and 1:20 000 were taken over the Lost-Fox Area in September of 1985. Digitized topography derived from 1:2 500 orthophotos was used in-house to create 1:2 000 scale topographic maps for use during the Lost-Fox mapping program. Orthophoto

Table 5.2

**LOST FOX AREA
EXPLORATION SUMMARY 1981 to 1986**

	1981	1982	1983	1984	1985	1986	Total
Adits							
Number	--	--	1	--	--	1	2
Tonnes	--	--	39.2	--	--	30	69.2
Diamond Drill Holes							
Number (HQ)	--	1	2	4	34	38	79
Total Metres	--	244	411	1017	6146	5620	13438
Number (AIX)	--	--	6	--	--	--	6
Total Metres	--	--	126	--	--	--	126
Rotary Drill Holes							
Number	--	--	--	17	6	--	23
Total Metres	--	--	--	897	620	--	1517
Mechanical Trenches							
Number	--	--	--	88	--	--	88
Total Metres	--	--	--	808	--	--	808
Hand Trenches							
Number	9	14	49	55	33	18	178
Total Metres	27	86	265	260	130	58	826
Measured Sections							
Number	--	--	--	5	5	2	12
Total Metres	--	--	--	1368	308	93	1769
Geological Mapping Scales							
	1:10 000	1:10 000	1:5 000	1:2 500	1:2 500	1:2 000	
			1:10 000	1:5 000	1:5 000	1:5 000	

blowups at a 1:2 000 scale were subsequently prepared for the mapping season as well.

Each drill hole completed during the 1986 program was surveyed. The results of this survey are documented in Appendix E. There are some uncertainties as to the exact location of selected drill holes which will be rectified by resurveying during the upcoming field season.

5.4 Geological Mapping

Detailed geological mapping of the Lost-Fox Area concentrated on the slopes of Lost Ridge and the West Ridge region. The program included the remapping of some areas for the purpose of recorrelation based on the results of reinterpretations proposed after the completion of last year's geological report.

Up to three two-person mapping teams contributed to the geological investigations in the area. Mapping was completed by using 1:2000 orthophotos and tying in to observable locations. The quality of these orthophotos in the Lost-Fox Area has considerably improved the accuracy of plotted geological data points.

Detailed geological maps and cross-sections are provided in Appendix III. A 1:50 000 regional geology map is located in Appendix I with this text.

5.5 Trenching

During the 1986 Lost-Fox exploration program a total of 18 hand trenches were completed which amounted to 58 metres of excavation. The most notable result of the trenching program was the discovery of a 4.53 metre thick seam in trench TRC86012 in the West Ridge area (Appendix III; Map C-5).

Trenching was completed by Gulf personnel either on routine traverses wherever coal spoil was found, or by a team whose assignment it was to hand dig trenches in prospective coal seams. Trenches were excavated at right angles to the slope where possible; overburden and topsoil were stockpiled separately and in most cases backfilled. Some trenches remain open for further investigation. All trenches were logged by Gulf geologists upon completion.

Most trenches were analyzed for coal quality; the data is briefly discussed in Section 8.2.2 and the analytical results are provided in Appendix I. The remaining trench data, including descriptive logs and pictorial lithological logs can also be found in the same appendix.

5.6 Diamond Drilling

The 1986 Lost-Fox Area diamond drill program ran from August 15 to October 2 and comprised 38 HQ drill holes totalling 5620 metres. Two Longyear 44 drill rigs were used and all holes were geophysically logged upon completion.

All drill core was lithologically and structurally logged by Gulf geologists, and all significant coal intersections were sampled for coal quality analyses. The coal quality results are discussed in Section 8.2.1 and analytical results are provided in Appendix V. Table 5.3 summarizes the diamond drilling program statistics.

The drill rigs were skidded to and from each hole location by two D-6 Catapillars. The crews were helicoptered or drove to the various sites depending on accessibility. Crews operated on a two-shift, 24 hour per day basis, with a driller and a helper on each shift. At the completion of the drilling program the drill rigs were demobilized to a staging area on the Lost Ridge haul road.

All drill hole locations were established using both chain and compass and detailed orthophotos. Each drill hole has been surveyed and all are clearly indicated on geological maps and cross-sections. A drill hole location map and all diamond drill hole data are located in Appendix IV.

5.7 Rotary Drilling

A rotary drilling program was run to accumulate geotechnical data on overburden characteristics proximal to potential infrastructure locations. A total of 51 shallow rotary holes were completed using a CME750 drill. (See Appendix E for survey points).

Table 5.3

LOST-FOX AREA
1986 DIAMOND DRILL HOLE SUMMARY

Drill Hole	Northing (M)	Easting (M)	Elevation (M)	Length (M)	Inclination ()	Azimuth	Licence Number
KPNLRDDH86001	6344069.88	505992.13	1797.32	81.07	90.0		7152
KPNLRDDH86002	6343591.60	506123.14	1715.83	100.58	90.0		7152
KPNLRDDH86003	6345041.59	505846.36	1606.64	98.10	75.0	25	7170
KPNLRDDH86004	6344684.05	507152.41	1632.52	206.35	75.0	350	7151
KPNLRDDH86005	6344884.17	506166.91	1623.33	102.72	80.0	360	7152
KPNLRDDH86006	6344957.14	506566.25	1592.60	91.74	80.0	355	7169
KPNLRDDH86007	6344780.27	507445.52	1568.88	168.55	90.0		7151
KPNLRDDH86008	6344918.72	507080.97	1614.37	136.25	77.0	350	7151
KPNLRDDH86009	6344517.02	507379.70	1595.68	209.40	78.0	78	7151
KPNLRDDH86010	6344713.66	507615.75	1547.13	181.96	90.0		7151
KPNLRDDH86011	6344537.91	507835.46	1534.42	66.14	90.0		7145
KPNLRDDH86012	6344327.22	507019.08	1717.87	144.78	90.0		7151
KPNLRDDH86013	6344244.15	507847.04	1537.42	181.97	90.0		7145
KPNLRDDH86014	6344042.47	506891.67	1705.90	163.67	90.0		7151
KPNLRDDH86015	6344290.23	507601.84	1562.52	105.92	90.0		7151
KPNLRDDH86016	6343292.93	506636.29	1647.09	189.46	90.0		7151
KPNLRDDH86017	6343722.60	506526.64	1702.67	126.79	90.0		7151
KPNLRDDH86018	6343398.24	506220.25	1696.27	127.10	90.0		7152
KPNLRDDH86019	6343215.16	506835.26	1622.17	199.93	90.0		7151
KPNLRDDH86020	6345278.62	504613.60	1434.61	139.29	60.0	290	7171
KPNLRDDH86021	6343068.19	506427.85	1642.65	117.95	90.0		7151
KPNLRDDH86022	6343008.17	506732.90	1634.91	201.77	90.0		7147
KPNLRDDH86023	6345300.66	503627.25	1396.65	108.81	90.0		7171
KPNLRDDH86024	6344707.38	503600.23	1438.85	121.91	90.0		7153
KPNLRDDH86025	6342860.01	506215.01	1656.94	230.72	90.0		7148
KPNLRDDH86026	6343948.11	502857.71	1400.07	155.75	90.0		7154
KPNLRDDH86027	6343060.59	505969.11	1672.19	172.81	90.0		7148
KPNLRDDH86028	6346990.11	506187.54	1366.45	179.21	90.0		7173
KPNLRDDH86029	6343175.78	505751.57	1690.89	156.36	70.0	300	7152
KPNLRDDH86030	6344803.80	507888.15	1531.20	157.58	90.0		7145
KPNLRDDH86031	6343071.87	505509.46	1699.75	150.57	90.0		7148
KPNLRDDH86032	6345039.19	507804.48	1519.34	72.24	90.0		7169
KPNLRDDH86033	6344323.77	508088.86	1523.54	169.67	90.0		7145
KPNLRDDH86034	6344599.81	508167.42	1503.64	158.49	90.0		7145
KPNLRDDH86035	6344512.41	508451.58	1502.46	212.45	90.0		7145
KPNLRDDH86036	6344851.69	508346.89	1507.54	148.43	90.0		7145
KPNLRDDH86037	6342290.84	506750.41	1641.62	160.63	90.0		7147
KPNLRDDH86038	6346177.33	505424.75	1388.95	122.53	90.0		7170

5.8 Geophysical Logging

Each diamond drill hole was geophysically logged upon completion. The logging equipment utilized has downhole digitizing capabilities and resulted in a suite of logs comprised of gamma, neutron and sidewall density. Due to poor downhole conditions, all geophysical logging tools were run through the drill rods. Only four partial drill holes were able to be logged open hole. Prints of the geophysical logs, at a scale of 1:100, are included in Appendix IV along with all drill hole data.

The logging equipment was comprised of two compact and portable units and required a Bell 206B helicopter for mobilization.

5.9 Bulk Sampling Program

During the period between September 13 and October 6, 1986 a 43 metre long adit was completed in the immediate vicinity of the 1985 test pit area. The purpose of driving this adit was to obtain a 30 tonne sample of H seam for coal quality analysis. Details of the program and the results of the various analyses are included in Appendix II of this report.

5.10 Trial Cargo

A 40,000 tonne trial cargo of anthracite was sized, dried and trucked to Stewart and was subsequently shipped to a potential Asian market. The anthracite required for this shipment was obtained from what remained from the excavation completed in 1985.

5.11 Additional Geological Studies

Increased attention to the Lost-Fox Area over the past four years has permitted the undertaking of various and extremely detailed geological investigations and has resulted in an ever-broadening data base. The results of these ongoing studies have improved the confidence of seam identifications, correlations and even predictions. A thorough and complete understanding of the seam and interseam characteristics and continuity as well as the pattern of coal seam deposition for application to nearby resource areas, is the major objective of these studies.

Studies undertaken in previous years have been regional in scope and have drawn broad scale conclusions with regard to paleocurrent directions and general depositional environments. The studies conducted this year concentrated on the interpretation of specific small scale features, in drill core and outcrop, with the intent of extrapolating into the larger scale.

The marker horizon study initiated in 1985 has proven to be invaluable in correlating drilled stratigraphics. During the past season a new key bed between seams K and K/L has been identified and labeled as a porcelaneous tuffite. There are now seven key beds that have demonstrated a reliable consistency and occurrence across the Lost-Fox Area. A description of these correlative horizons and their relative stratigraphic positions is outlined in Table 5.4.

An in-house Geofile computer system is being used to make palinspastic reconstructions of all drill hole locations in the

TABLE 5.4

LOST-FOX AREA
KEY STRATIGRAPHIC HORIZONS

Seam	Marker Horizon	Description
P O Nu	Crest Zone	Thick white ash layer (>20 cm); in distinct contrast with dark mudstone above and below; marks a point 10-15m above N seam.
N M/N M L/M L K/L	Porcelaneous Tuffite Zone	Hard tuffaceous zone with extremely fine grained uniform texture and conchoidal fracture; becomes thinner and more mixed in with the surrounding sediment westward; occurs at a variable stratigraphic level above K seam.
K	Coaster Zone	Rhythmic, extremely fissile dark grey mudstone; marks occurrence of J seam zone which always lies immediately beneath the Coaster Zone.
J	Tuffite Zone	Variable thickness containing a mixture of tuffaceous material and siltstone; normally has a sharp base and gradational top; occurs always in association with I seam but at a variable stratigraphic level above it.
I H/I H	Recrystallized Zone	Diagenetic recrystallization of carbonate in mudstone; sensitive to facies but occurs widely within 10 m below H seam.
PH Gu G GL F/G	Milky Way Zone	Mudstone speckled with dispersed angular white quartz clasts; variable in thickness and abundance of quartz clasts; marks a point 12 m above F seam.
F E D	Gastropod Zone	Gastropods occur only in a very restricted portion of the coal sequence; several thin bands densely packed with gastropods can occur above and below D seam (mostly below); bivalves are found in association.
C B		

Lost-Fox Area. Isopach maps will then be generated that depict the original environment of deposition in this region. The trends indicated by these contour maps can be used to predict areas which can be expected to have thick seam development. This information will then be incorporated into an overall drilling strategy for the Lost-Fox Area.

Results from a bentonite study completed in 1986 suggest that the Mount Klappan area bentonites were deposited in brackish waters as they are generally composed of illite-smectite mixed layer swelling clays. Most of the samples collected are from above I seam, above K seam and above N seam. Initial results indicate that elemental analyses and ratios can be used to determine stratigraphic positions by using discriminant function statistics. In future drill programs, bentonites will continue to be sampled and analysed to expand the data base and improve on statistical reliability.

Separate fault and cleavage studies were worked on in 1986 but as of the writing of this report the results of these studies were not yet available. The fault study concentrated on the Summit and Nass areas whereas the cleavage study also included the Lost-Fox Area. Conclusions from these projects will be incorporated into the 1987 Geological Report.

Work continued for a third year on the collection of flora and fauna samples and locations. The results of this work are discussed in section 6.3.3 of this report and shown in table form in Appendix C.

5.12 Data Management

Throughout the 1986 exploration program an IBM PC computer was utilized for cost accounting and budget control. During the field season, it also served as an on-site data storage system which facilitated the subsequent and immediate uploading of outcrop, trench, adit and drill hole data onto Gulf's mainframe Coal Data Base set up on an AMDAHL V8 computer in Calgary. Coal quality data was also stored in the Coal Data Base. System 2000 data base management and Act I software provided the tools for data entry, retrieval and manipulation on the main frame computer.

5.13 Reclamation

All aspects of the drilling program on the Lost-Fox Area resulted in minimal disturbance during the 1986 exploration program. The drill program required two Caterpillars for rig transportation and use was made of the existing haul road to minimize surface disturbances. Each of the 38 sites was cleared of equipment and garbage upon completion of drilling. As each of the sites was at or above tree line, no significant clearing of sub-alpine trees was undertaken.

Hand trenching operations resulted in minimal disturbances with trenches being excavated at right angles to the slope where possible; overburden and topsoil were piled separately and later backfilled. Some trenches remain open for further investigation.

In accordance with government regulations a report is being

prepared regarding reclamation activities and will be available in a separate report in the spring of 1987.

5.14 Exploration and Camp Permits

Approvals for the 1986 exploration program on the Mount Klappan property was received following submission of Coal Exploration Forms 6 and 7 to the Government of British Columbia. Subsequently, the following permits/approvals were issued to Gulf with respect to the Mount Klappan Coal Project 1986 exploration program:

Name	B.C. Ministry of
Reclamation Permit C-160	B.C.M.E.M.P.R.
Free Use Permit 12678	Forests
Waste Management PR-7332	Environment
Water Management A61-14	Environment
Class A Burning Permit 007957A	Forests
Inspection Report C-160	B.C.M.E.M.P.R.
Explosives Storage and Use Permit #668	B.C.M.E.M.P.R.
Adit Excavation File #14750-20/MTKL	B.C.M.E.M.P.R.

5.15 Project Management and Major Contractors

The Mount Klappan Anthracite Project was managed by V. L. Duford, P.Geol., Coordinator - Coal Geology, Gulf Canada Limited.

The following professional and technical personnel contributed to the Lost-Fox Area 1986 exploration program:

E. Swanbergson	Project Geologist
J. Innis	Senior Geologist
G. Seve	Senior Geologist
K. Jenner	Geologist
F. S. McKenzie, P.Geol.	Geologist
J. Thumult	Geologist
S. MacLeod	Geologist
L. Savoie	Geologist
B. Van den Bussche	Geologist
M. Barker	Geologist
D. Love	Geologist
B. M. Leece, P. Eng.	Senior Engineer-Mining
K. Fujita	Coal Preparation Engineer
A. Sali	Administrator
R. Aftergood	Administrative Analyst
T. Sampietro	Camp Manager
C. Misurelli	Bookkeeper
C. Boyko	Secretary
C. D. Ireland	Secretary
P. Tydemers	Geological Assistant
K. Hunter	Geological Assistant
P. Campbell	Geological Assistant
S. Lee	Geological Assistant
D. Willis	Geological Assistant
J. Matthews	Geological Assistant
G. Murray	Geological Assistant

R. Quock	Data Entry Technician
A. Tashoots	Core Photography
L. Louie	Core Photography
V. Louie	Core Photography

A condensed list of those companies that provided services and/or supplies to the exploration program is presented below:

Birtley Coal & Mineral Testing	Calgary, Alberta
Canadian Freightways Ltd.	Calgary, Alberta
Central Mountain Air Serv. Ltd.	Smithers, B.C.
Century Geophysical Corp. of Canada	Calgary, Alberta
Higgins Lake Contractors	Dawson Creek, B.C.
I.C.G. Liquid Gas Ltd.	Terrace, B.C.
J. T. Thomas Diamond Drlg. Ltd.	Smithers, B.C.
Loring Laboratories	Calgary, Alberta
Neville Crosby Inc.	Vancouver, B.C.
Northern Mountain Helicopters Inc.	Prince George, B.C.
Northmount Camp Services (1975) Ltd.	Vancouver, B.C.
Orthoshop	Calgary, Alberta
Pacific Western Airlines	Calgary, Alberta
Petro Canada	Terrace, B.C.
Starr Industries Ltd.	Fort St. John, B.C.
Terrace Totem Ford	Terrace, B.C.
Trans-Provincial Airways	Terrace, B.C.
Tronnes Surveys Limited	Calgary, Alberta
Westcan Electronic Services Ltd.	Calgary, Alberta

6.0 GEOLOGY

6.1 Introduction

Geological mapping and hand trenching activities were undertaken over the majority of the Mount Klappan property during the 1986 exploration program. In addition, diamond drilling and trial cargo operations proceeded on the Lost-Fox Area. The results of this exploration program combined with previous years' work provided the basis for geological interpretations presented in this report.

The Mount Klappan property is underlain by uppermost Jurassic to Lower Cretaceous strata which consist of marine to non-marine sediments deposited in the Bowser Basin of northcentral British Columbia. The strata have been subjected regionally to two successive non-coaxial phases of deformation, F1 and F2, which resulted in folding and faulting trending in NW-SE (F1) and E-W (F2) directions generally. (See 1:50 000 Regional Geology Map; Appendix I).

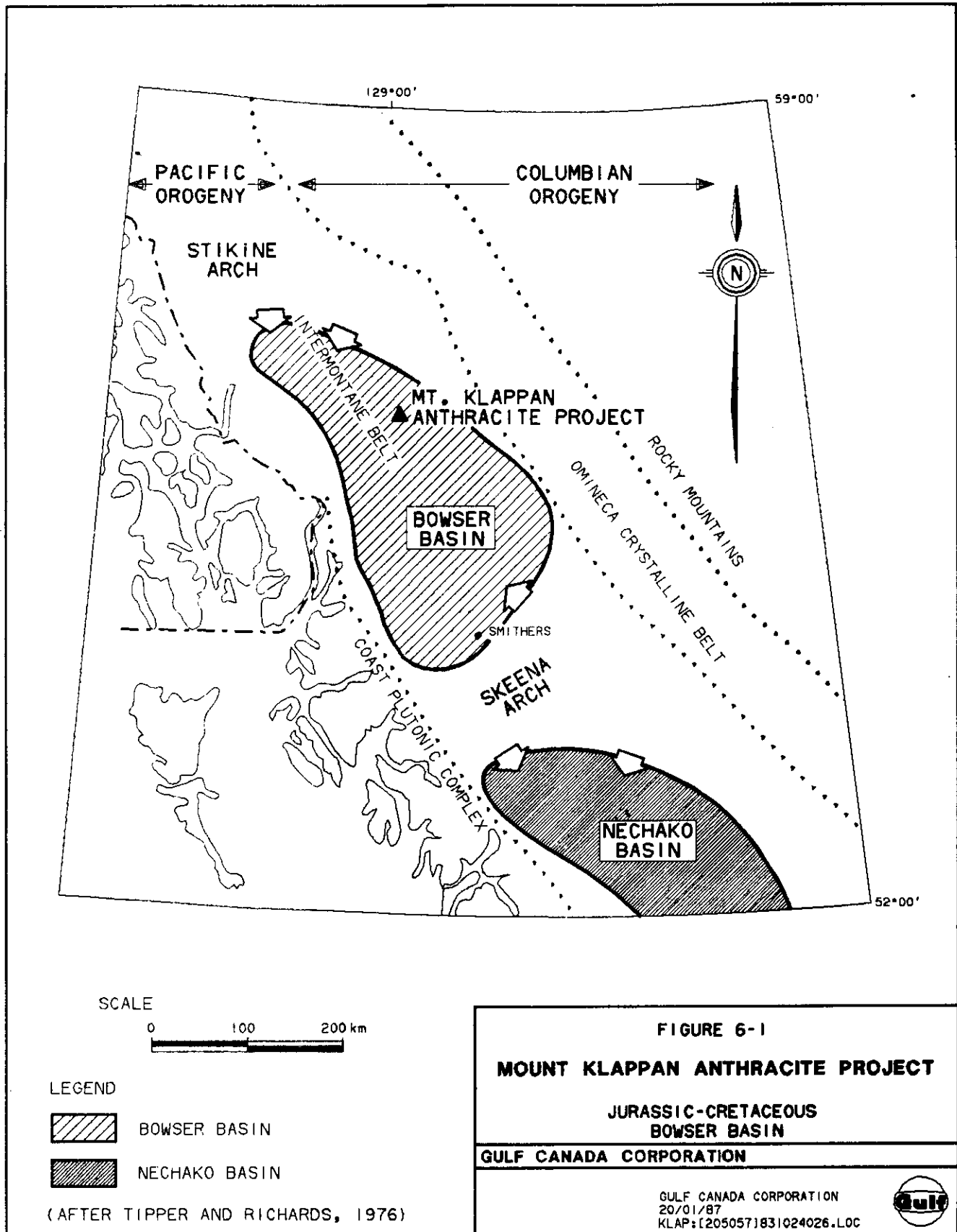
The coal seams of the Mount Klappan property occur primarily in the Klappan Sequence; in addition, some minor seams have been trenched in the Malloch Sequence. Coal seams range up to 8.36 metres in maximum true thickness in the Lost-Fox Area and are usually found to be laterally continuous over broad areas although some seams thin locally.

6.2 Regional Geologic Setting

The coal measures of the Mount Klappan property are contained within a series of sediments ranging in age from uppermost Jurassic to Lower Cretaceous. These sediments were deposited in the Bowser Basin, a successor basin to the volcanogenic Hazelton Trough (Tipper and Richards 1976). The Bowser Basin is bounded to the north and south by the Stikine and Skeena Arches respectively, and to the east by the Columbia Orogen (Omineca Crystalline Belt). The western margin is thought to have been open to the sea at the time of Bowser sediment deposition (Figure 6.1).

The formation and development of the Bowser Basin was controlled by the "collision and subsequent isostatic uplift of several crustal blocks in the Cordilleran Orogen of western Canada" (Eisbacher, 1981). These crustal blocks include the Stikine Terrane (volcanic arc complex) which directly underlies the Bowser sediments, the Atlin Terrane (remnant oceanic crust) and the Omineca Crystalline Belt (western margin of the North American Craton).

During the Middle Jurassic, the Skeena Arch was uplifted and the subsidence of the Stikine Terrane divided the Hazelton Trough into the Bowser Basin to the north and the Nechako Basin to the south. Uplift of the Atlin Terrane to the north and northeast of the Bowser Basin, coupled with continued subsidence of the Stikine Terrane and collision and suturing of both these terranes with the Omineca Crystalline Belt (Eisbacher, 1981) resulted in a progradation of non-marine over marine sediments within the basin.



Paleocurrent measurements indicate a centripetal flow into the Bowser Basin from highlands to the north, northeast, and south.

Bowser sediment source rocks originate within the Atlin Terrane (high chert; low volcanic content) for the north and northeastern margins of the Basin, and from the remnant volcanic arc assemblage of the Stikine Terrane, (high volcanic; low chert content) for the southern portion of the Basin. Sediments from the Lower Cretaceous (youngest marine succession of the Bowser Basin) through to the Paleocene are found only on the eastern, and in part, the southern margins of the Basin.


Geologic studies in the southern and northern Bowser Basin sediments have resulted in several reports and descriptions of the sedimentary package associated with the Mount Klappan Area. These studies are summarized in Table 6.1.

Structural deformation of Bowser Basin sediments resulted from intermittent tectonic stresses at the western cratonic margin from Cretaceous to recent time. The deformation caused an extensive, shallow decollement, recumbent folds, and local thrust faults extending a few kilometres along strike (Eisbacher, 1976).

The large scale forces resulting from collision of a remnant volcanic arc and cratonic margin subjected the area to northeast-southwest compression (F_1) creating the general structural trend of northwest-southeast.

Later position of the former volcanic arc terrain northwards

TABLE 6.1
MOUNT KLAPPAN COAL PROPERTY
REGIONAL STRATIGRAPHY - TABLE OF FORMATIONS

		MALLOCH, 1914	BUCKHAM & LATOUR, 1950	SOUTHER & ARMSTRONG, 1966	EISBACHER, 1974c	TIPPER & RICHARDS, 1976	RICHARDS & GILCHRIST, 1979	BUSTIN & MOFFAT, 1983
		SOUTHERN GROUNDHOG COALFIELD	GROUNDHOG COALFIELD	NORTHERN BRITISH COLUMBIA	NORTHERN BOWSER BASIN	SOUTHERN BOWSER	SOUTHERN GROUNDHOG COALFIELD	GROUNDHOG COALFIELD
CRETACEOUS	UPPER			SUSTUT- SIFTON ASSEMBLAGE	SUSTUT- SIFTON ASSEMBLAGE	SUSTUT GROUP		
	LOWER	SKEENA SERIES	HAZELTON GROUP	UPPER PART	BOWSER ASSEMBLAGE	JENKINS CREEK FACIES	SKEENA GROUP	GUNANDOT ASSEMBLAGE
				LOWER PART			GUNANDOT- GROUNDHOG FACIES	
JURASSIC	UPPER	HAZELTON GROUP			DUTI RIVER SLAMGEESH FACIES	BOWSER LAKE GROUP		
	MIDDLE			TAKLA- HAZELTON ASSEMBLAGE		HAZELTON GROUP		JACKSON UNIT
	LOWER				TAKLA- HAZELTON ASSEMBLAGE			
TRIASSIC	UPPER					TAKLA GROUP		
	MIDDLE							

northwards along interlaced right lateral high angle faults (Eisbacher, 1981) may account for the later north-south compressional (F_2) event. This deformational event resulted in generally broad, open NE to SW trending folds with relatively rare, flat lying thrusts expressed in several Klippen fault structures.

The final deformational event which produced strike-slip and some dip-slip faulting may have resulted from a change in the rotational component of the western crustal block, terminating compression.

6.3 Mount Klappan Anthracite Project Geology

6.3.1 Stratigraphy

Based on age-dating of collected species of plant macrofossils and fauna, the sediments underlying the Mount Klappan property range from uppermost Jurassic to Lower Cretaceous in age (Section 6.3.3). This sedimentary package has been subdivided into four gradational sequences which in ascending order are the Spatsizi, Klappan, Malloch and Rhondda sequences (Figure 6.2). These conformable sequences occur within approximately 3 000 metres of section and represent a gradual marine regression. Table 6.2 briefly outlines the sedimentological characteristics observed within each sequence.

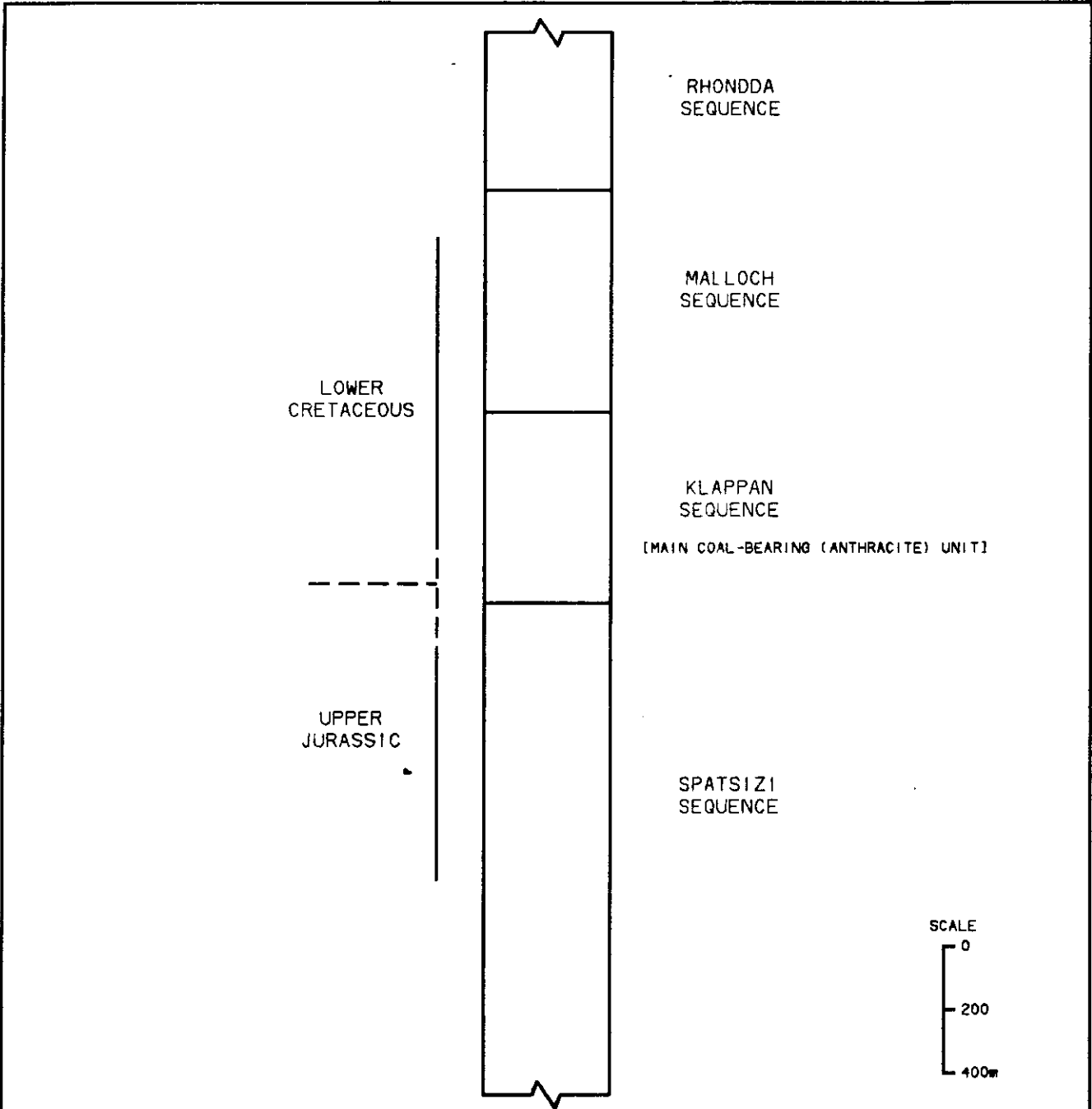


FIGURE 6-2
MOUNT KLAPPAN ANTHRACITE PROJECT
SCHEMATIC STRATIGRAPHIC COLUMN

GULF CANADA CORPORATION

GULF CANADA CORPORATION
 20/01/87
 KLAP: (205057)841165010.CHT




TABLE 6-2

TABLE OF FORMATIONS

Kr

RHONDDA SEQUENCE

SEQUENCE OF THICK CHERT PEBBLE CONGLOMERATES AND MINOR GRITTY SANDSTONES INTERBEDDED WITH AN INCREASING NUMBER OF SILTSTONES AND MUDSTONES TOWARDS THE BASAL CONTACT. LARGE SCALE TROUGH AND TABULAR CROSS BEDS ARE COMMON. SIX SPECIES OF PLANT FOSSILS ARE FOUND AT THE BASE OF THE SEQUENCE.

Km

MALLOCH SEQUENCE

THICK INTERBEDS OF MUDSTONES, ARGILLACEOUS SILTSTONES, FINE GRAINED SANDSTONES AND THIN INTERBEDS OF ORANGE WEATHERING NODULAR SILTSTONES. MANY CONGLOMERATE BEDS DISPLAY LARGE SCALE CROSS BEDDING AND TEND TO BE LATERALLY DISCONTINUOUS. THICK CLEAN SANDSTONE BEDS AND THIN COAL SEAMS INCREASE IN ABUNDANCE TOWARDS THE BASAL GRADATIONAL CONTACT. TWENTY-THREE SPECIES OF PLANT FOSSILS OCCUR WITHIN THE SEQUENCE.

JKk

KLAPPAN SEQUENCE (MAIN COAL-BEARING UNIT)

FINE TO COARSE GRAINED SANDSTONES INTERBEDDED WITH MUDSTONES, SILTSTONES, OCCASIONAL THIN BANDS OF ORANGE WEATHERING CALCAREOUS SILTSTONES, CONGLOMERATES AND ABUNDANT COAL SEAMS. CONGLOMERATE BEDS GRADE LATERALLY INTO SANDSTONE. SANDSTONES OFTEN DISPLAY TABULAR OR TROUGH CROSS BEDDING. RHYTHMITES OCCUR IN THE MIDDLE OF THE SEQUENCE. TWENTY-THREE SPECIES OF BIVALVES AND UP TO TWENTY-FIVE SPECIES OF PLANTS OCCUR THROUGHOUT. PETRIFIED WOOD AND RARE COQUINA MAY BE PRESENT TOWARDS THE UPPER CONTACT.

Js

SPATSIZI SEQUENCE

PREDOMINANTLY A MARINE SEQUENCE OF INTERBEDDED MUDSTONES, SILTSTONES, SANDSTONES AND CONGLOMERATES. CARBONACEOUS MUDSTONES, COARSENING UPWARDS SEQUENCES AND CHERT PEBBLE CONGLOMERATES ARE MORE ABUNDANT IN THE UPPER PART OF THE SEQUENCE. NINETEEN SPECIES OF BIVALVES ARE PRESENT. BELEMNITES ARE RARE. PLANT DEBRIS MAY OCCUR NEAR THE UPPER GRADATIONAL CONTACT.

6.3.1.1 Spatsizi Sequence

The Spatsizi Sequence is the lowest stratigraphic unit within the Mount Klappan property. Approximately 600 metres of this section has been measured and although the base has not been observed the stratigraphic thickness is estimated to be in excess of 1 200 metres. Interbedded mudstones, siltstones and sandstones are found throughout the sequence while thin coal seams and massive conglomerates exist within the upper portion. The overall trend is a coarsening upward sequence with marine conditions throughout and increasing coastal environment influences toward the upper transitional contact with the Klappan Sequence.

Exposures of the Spatsizi Sequence are located in the western and northern Summit Area and in the northern Nass Area of the Mount Klappan property.

6.3.1.2 Klappan Sequence

The Klappan Sequence, the main coal-bearing unit, conformably overlies the Spatsizi Sequence and occurs over the majority of the property. It represents a transition from marine conditions, at the base of the unit, to more coastal influenced sediments toward the top. The stratigraphy consists of cyclic packages of interbedded fine to coarse-grained

sandstones, siltstones, mudstones, laterally discontinuous conglomerates and abundant coal seams. Up to 25 coal horizons with seam true thicknesses of as much as 8.36 metres occur within the Klappan Sequence. The sequence is interpreted to attain a thickness of up to 900 metres though both the upper and lower contacts are transitional.

6.3.1.3 Malloch Sequence

The Malloch Sequence conformably overlies the Klappan Sequence and outcrops in the central, western and southeastern areas of the property. The strata consist of interbedded argillaceous sandstone, siltstone and mudstone with the development of thin coal seams towards the base of the sequence. Chert pebble conglomerates are laterally discontinuous. Approximately 700 metres of Malloch Sequence are exposed within the Klappan property.

6.3.1.4 Rhondda Sequence

The Rhondda Sequence is the youngest stratigraphic package on the Mount Klappan property and has a gradational and conformable contact with the underlying Malloch Sequence. Outcroppings of the Rhondda are restricted to the southeast of the property in the Skeena Area. Lithologically this unit consists of thick, laterally extensive chert pebble conglomerates. Thin interbeds of sandstone,

siltstones and mudstones increase in thickness towards the bottom of the sequence. The top of the Rhondda has not been observed but approximately 500 metres of exposed section occur within the Mount Klappan region. It is interpreted that the Rhondda Sequence represents a prograding alluvial fan system over a transitional coastal-marine environment.

6.3.2 Structure

Deformation of sediments within the Mount Klappan property is the result of two regimes of non-coaxial stress which differ in the intensity of their effect on the stratigraphic package. The dominant structural features are the Beirnes Synclinorium and the parallel Nass River Anticlinorium which trend northwest to southeast. These major folds and all associated structures result from the dominant deformational phase (F1). On the Mount Klappan property the synclinorium axis can be observed in the competent Rhondda strata as bisecting a broad, open, upright feature and plunging gently to the southeast. Smaller folds on both sides of the synclinorium have axes that dip toward the synclinorium axis. The adjacent major anticlinorium is not so clearly discerned as it is defined solely by the assignment of subordinate folds in the less competent Malloch strata.

Across the Mount Klappan property both outcrop and drilling indicate a structure comprised of south-westwardly dipping fold axes and thrust faults that are all part of the

F1 regime. The secondary deformation (F2) produces primarily low amplitude, long wavelength folds trending northeast-southwest. These are superimposed on the F1 folding, producing a series of plunge reversals averaging 8 to 10 degrees to the northwest and southeast.

Cleavage is associated with both fold patterns. The F1 cleavage is pervasive and well developed in all fine grained lithologies. It has also been observed in different areas either as axial plane divergent or convergent, trending generally at 135 degrees. Similarly, cleavage related to the F2 folding can be convergent or divergent and trend anywhere from 030 to 110 degrees.

Non-compressional structures are also a feature of the Mount Klappan area. High angle normal faults trending north-south and large scale fracture zones trending east-west have been recorded regionally. These may have resulted from re-activation by F2 stresses of zones of weakness formed during F1 deformation; they may be relaxation features dating from before or after the F2 event; or they may be related to an entirely separate deformational event.

6.3.3 Plant Macrofossils and Fossil Fauna

During the 1984 to 1986 field seasons 1 100 specimens of fossil flora and fauna were collected from 590 sites on the Mount Klappan property during routine traverses and the drill core logging program. The 27 species of fossil fauna and up to 25 species of plant macrofossils collected have

aided in age determination, paleoenvironmental interpretations, stratigraphic delineation and, to a lesser extent, detailed stratigraphic correlation. The 1984 to 1986 Fossil Location Map in Appendix I documents all collection sites and a complete listing of fossils with stratigraphic and geographic positions is given in Appendix C.

6.3.3.1 Fossils Evidence for Stratigraphic Age

Nineteen species of plant macrofossils previously identified within the Klappan and Malloch Sequences on the Mount Klappan property were dated as Lower Cretaceous on the basis of floristic comparisons with other western Canadian Lower Cretaceous formations with similar collections (Table 6.3). During the 1986 field season an additional four species were identified from the Klappan Sequence and each of these species is present in at least four other Lower Cretaceous coal-bearing formations in western Canada.

An age ambiguity is present at the Klappan-Spatsizi contact zone where limited Lower Cretaceous plant species and abundant Jurassic-Cretaceous marine fauna co-exist. Age dating confidence increases, however, towards the middle and upper Klappan Sequence where there is a marked increase in plant species diversity and numbers (Table 6.4). For this reason, the Jurassic-Cretaceous contact, previously placed at or near the Spatsizi-Klappan contact zone, remains unchanged.

KLAPPAN - MALLOCH - RHONDDA SEQUENCE
PLANT MACROFOSSILS

* PARTIAL SPECIES LISTS ARE GIVEN FOR ALL FORMATIONS. ONLY THOSE SPECIES COMMON TO BOTH MT. KLAPPAN AND OTHER FORMATIONS ARE INCLUDED.

FORMATIONS		CLADOPHYTES YIRIBIANENSIS	SPIROGASTERIS BRULENSIS	ECOSSETTES LYELLII	SALENA FLORATA	SALENA BRUCEI	SALENA LEPTON	SALENA PLURIVARIATA	CEPHALONIA RIBIDA	PYRROPHYLLON RECTANGULARE	WILSONIA BRONKHARTI	WILSONIA CANADENSIS	WILSONIA TEMICOLA	STENIS OREOLA	WILSONIA SCHUMBERGII	PITYOPHYLLON NORDESKJOLDII	PODOPHYLLON LAMCOLLIS	SANICULUS WILLIAMSII	PLATYDES CURVIFOLIA	CONIOPHYTES BERRY	
LOWER CRETACEOUS	BLAIRMORE FR (UPPER FLORA)	•	•																		
	PASAYTEN GP	●										•									
	HAZELTON GP (SKEENA BEDS)				•	•	•	•	•										●	•	
	JACKASS MOUNTAIN GP	●							•											•	•
	SPENCE BRIDGE GP																				•
	KOOTENAY FR	●	●	•	•	•	●	●		•	●	●	•	●	●	•					
	NIKANASSIN FR			•	•		•	•	•						•	•	•				
	HAZELTON GP (HAZELTON AREA)	●	●	•		●	●			•			•	●	•	•					
	HAZELTON GP (GROUNDHOG AREA)	●				•	•					•	•	●	•						
	TANTALUS FR	•								•	•				•						•

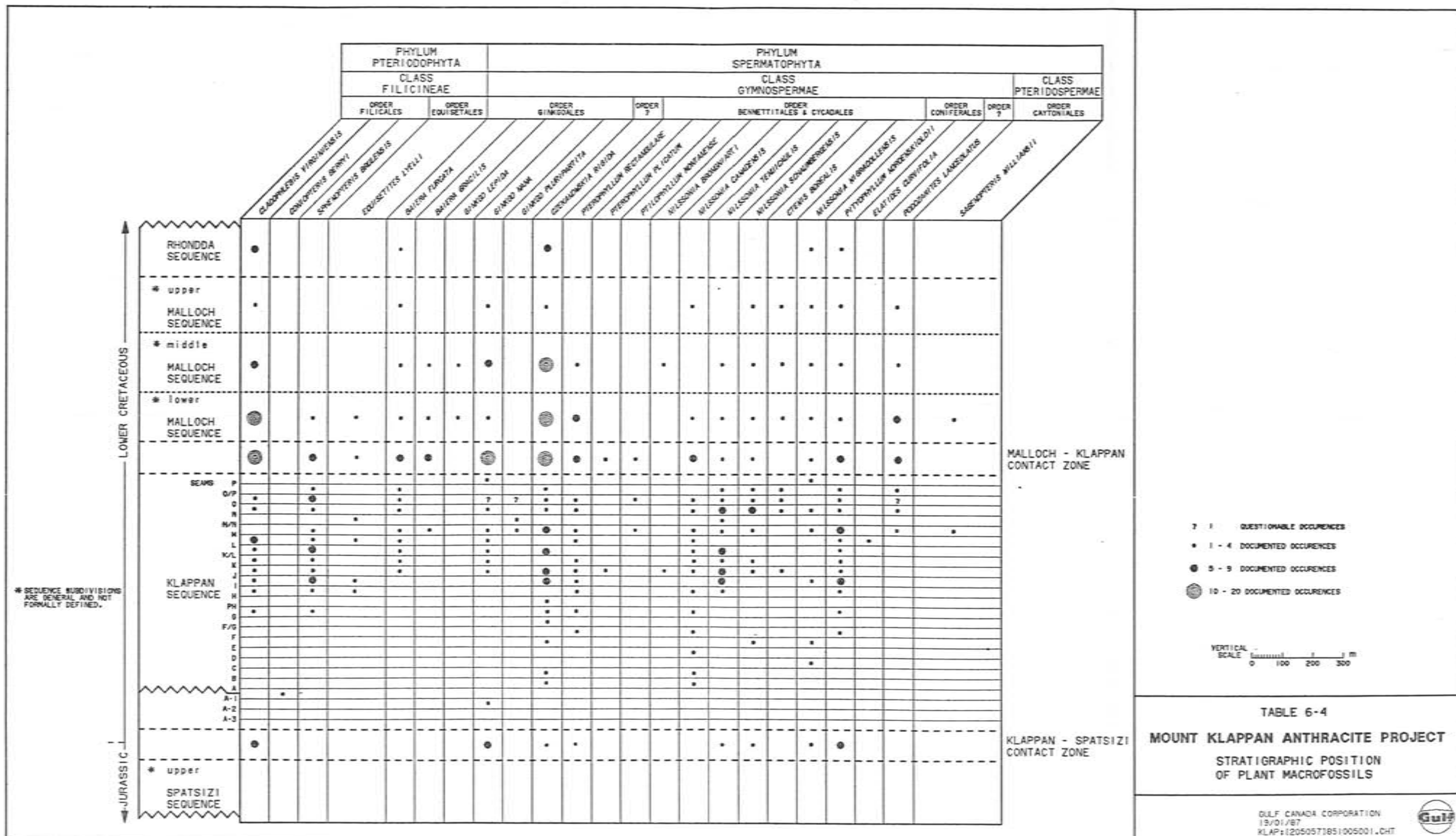
TABLES INDICATES A LOWER CRETACEOUS AGE FOR COAL-BEARING STRATA OF MT. KLAPPAN BY FLORISTIC COMPARISONS WITH OTHER WESTERN CANADIAN LOWER CRETACEOUS FORMATIONS WITH SIMILAR COLLECTIONS.

- 1 - 2 DOCUMENTED OCCURRENCES
 - 3 - 4 DOCUMENTED OCCURRENCES
 - 5 OR MORE DOCUMENTED OCCURRENCES
- (BASED ON DATA FROM BELL, 1966)

TABLE 6-3
MOUNT KLAPPAN ANTHRACITE PROJECT
AGES OF MOUNT KLAPPAN PLANT
MACROFOSSILS IN OTHER
WESTERN CANADIAN FORMATIONS

GULF CANADA CORPORATION
12/11/85
KLAPP: [205057]851022001.CHT





6.3.3.2 Fossil Distribution and Limitations as Index Fossils

During the 1986 field season an additional 624 specimens were collected at 255 sites, including all documentation made from drill core, bringing the total specimen and collection site totals to 1 100 and 590 respectively. Despite the increasing data and stratigraphic control, few individual species are believed to be true index fossils, except on a localized basis. A few key trends of fossil groups, noted in 1985, have been confirmed by further collection.

To date, the Spatsizi Sequence remains as the only Mount Klappan strata to be characterized by the presence of lycoceratid ammonites and to lack in-situ plant fossils. Belemnites, previously thought to be relatively abundant only within the Spatsizi Sequence, have been recently documented in the lower Klappan Sequence at one location below A seam on Lost Ridge and on Repeater Ridge in the Summit Area.

The Klappan Sequence contains the only brackish water bivalves (the oyster, Ostrea, and Modiolus), both of which have been found only in the lower Klappan Sequence. Ferganoconcha, a large fresh water bivalve, has been documented five times within the upper Klappan Sequence in the Lost-Fox N - O inter-seam, in drill core and in outcrop, but at no other stratigraphic or geographic location on the Mount

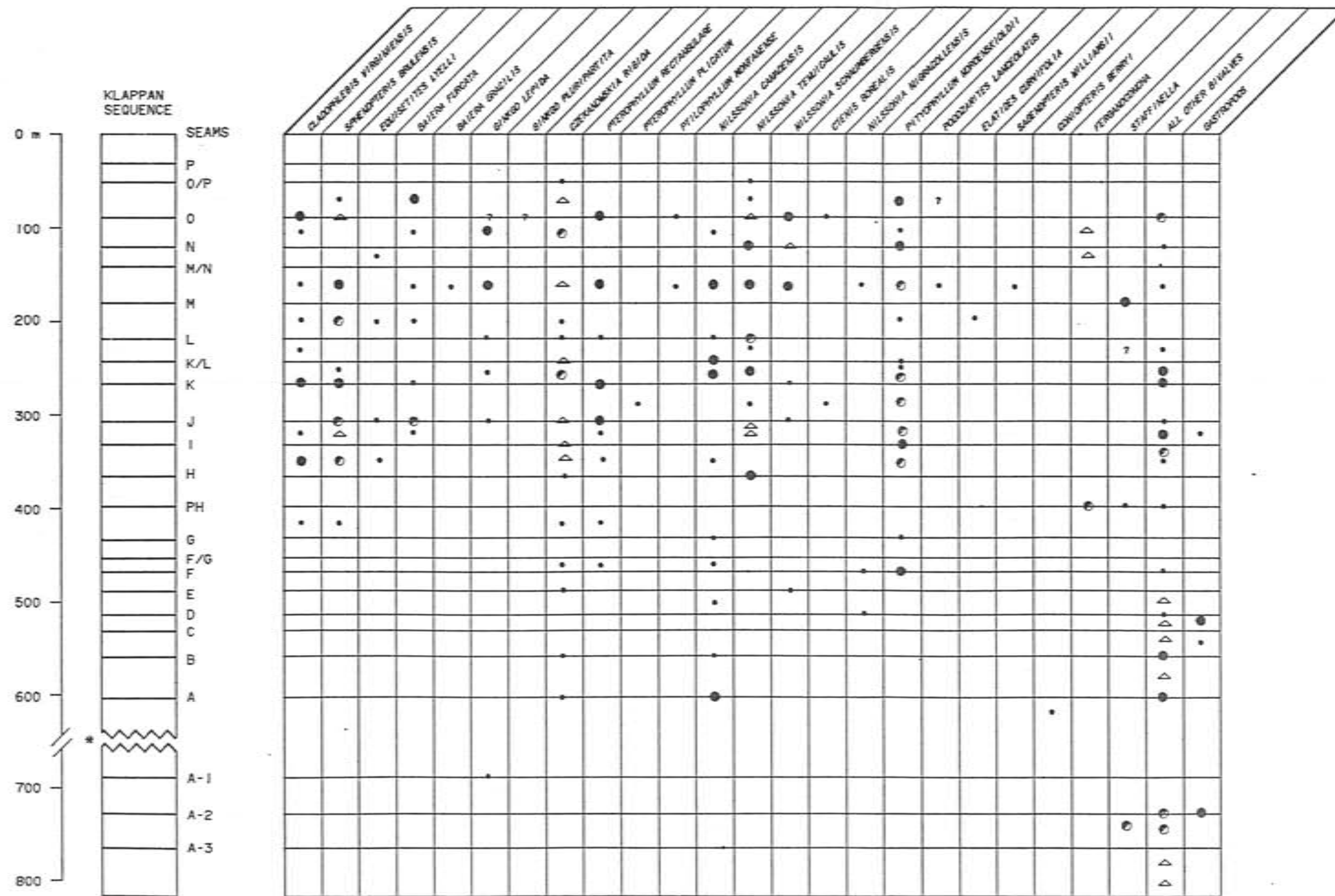
Klappan property. The Malloch Sequence continues to be characterized by abundant flora, with 23 of the 25 species represented, and a lack of marine fauna. The Rhondda Sequence has no marine fauna and rare flora. Tables 6.4 and 6.5 illustrate the stratigraphic position of all species documented on the Mount Klappan property. Given the present control, property wide correlations on the basis of individual species are not advisable. Although increased data has confirmed a few previously noted fossil group trends, it has also proven that a number of seemingly rare species have a wider stratigraphic and geographic distribution than previously thought.

6.4 Lost-Fox Area Geology

6.4.1 Introduction

The Lost-Fox Area is underlain primarily by sediments of the coal-bearing Klappan Sequence. The overlying non-marine Malloch Sequence becomes predominant in the southern region of the area, south of Fox Creek toward Mount Klappan and Knooph Hill, as the stratigraphic package plunges regionally within the Lost-Fox Area toward the southeast.

The strata have been subjected to two successive non-coaxial phases of deformation. The first phase (F1) resulted in major folds, commonly overturned, which trend in a northwest-southeast direction. The second phase (F2) resulted in discontinuous asymmetric folds which trend roughly



* LOWER SECTION, REPRESENTED BY D086605, TENTATIVELY INTERPRETTED TO BE BELOW SEAM A
 NO SPECIFIC A/A-1 INTERSEAM IS IMPLIED (MAY BE AS MUCH AS 150-200m)
 ** INTERSECTIONS/OCCURENCES BASED ON 1986 DRILLING OR 1996 INTERPRETATION OF TRENCH SEAMS

- ? 1 QUESTIONABLE INTERSECTION
- 1 INTERSECTION/OCCURENCES
- 2 INTERSECTION/OCCURENCES
- ⊙ 3 INTERSECTION/OCCURENCES
- △ 4 - 6 INTERSECTION/OCCURENCES

TABLE 6-5
MOUNT KLAPPAN ANTHRACITE PROJECT
 KLAPPAN SEQUENCE
 STRATIGRAPHIC POSITION OF
 FOSSIL FLORA AND FAUNA

GULF CANADA CORPORATION
 19/01/87
 KLAP: [205057]B70006002.CHT



east-west. The F2 event has resulted in generally gentle, disharmonic plunge reversals on the F1 structures in most regions of the Lost-Fox Area.

Exploration to date has determined that the Klappan Sequence of the Lost-Fox Area contains at least 25 coal horizons, 22 of which contain potentially mineable coal seams with an aggregate average true thickness of 48.7 metres. The coal seams average about 2.2 metres in thickness and range up to 8.36 metres. Drilling and trenching operations have primarily concentrated in the vicinity of Lost Ridge. Exploration this year stepped out to the east and southwest of the ridge area to delineate extensions of our primary seams of interest, namely H and I. It is presently interpreted that these 22 coal seams occur within approximately 520 metres of section in the Klappan Sequence strata. The entire thickness of the Klappan Sequence has not been intersected in exploration to date on the Lost-Fox Area. The sequence has been interpreted to attain a thickness of approximately 700 metres in the Lost-Fox Area; hence, there is potential for the existence of further coal seams (Section 6.4.4.1).

Detailed geological maps and cross-sections pertaining to the Lost-Fox Area are located in Appendix III. All outcrop measured section data is located in Appendix I, as is the 1:50 000 Regional Geology Map of the Mount Klappan property.

6.4.2 Klappan Sequence

The Klappan Sequence predominates in the Lost-Fox Area and extends throughout Lost Ridge to the base of Mount Klappan in the south and into the valley separating Knooph Hill from Lost Ridge in the east. Based on field observation and drill core analyses sediments of this sequence range from shallow marine to non-marine within a coastal plain environment.

To date, exploration operations have not delineated the total thickness of the sequence. Based on drill hole and trench information there are at least 520 metres of coal-bearing Klappan Sequence strata within the Lost-Fox Area. Detailed geological interpretations suggest that the Klappan Sequence in the Lost-Fox Area attains a thickness of about 700 metres.

The essential lithologic composition of the Klappan Sequence is a cyclic alteration between coal and interlaminated siltstone and mudstone, although sandstone and minor conglomerate are more abundant in the middle of the sequence. Sediments accumulated through the periodic establishment of coal swamps along a marine to transitional marine coastline. Numerous migrating fluvial systems transecting the shoreline provided a constant sediment supply and caused the repeated lateral relocation of coal swamp depositional centres.

The basic cycle of deposition produced coal seams or

carbonaceous zones stratigraphically separated by 23 to 33 metres of strata. Superimposed on this cycle was a larger oscillation which resulted in thicker, better developed coaly zones in the middle of the unit, generally seam G to seam I, than those higher or lower. There was also an increase in coarse sediments in this middle section. Associated with this is the appearance of ripple marks and planar and trough cross-bedding, suggesting more fluvial conditions.

The contact between the Klappan Sequence and the underlying, marine, Spatsizi Sequence is transitional. Towards the base of the Klappan Sequence, thinly bedded siltstone and mudstone units increase in abundance, occasional fauna types are observed and coal thicknesses decrease.

6.4.3 Malloch Sequence

Mount Klappan, Knooph Hill, Grizzley Ridge and Cincie's Ridge have been interpreted as Malloch Sequence sediments. Up to approximately 250 metres of the lower portion of the the Malloch Sequence are present in the southern region of the Lost-Fox Area. Very little time was given to investigating this area further during the 1986 field season. Thicknesses of approximately 700 metres for this sequence are reported in other areas of the Mount Klappan property.

The Malloch Sequence contains repetitive sequences of fine to coarse-grained sandstone, interbedded argillaceous

siltstone, mudstone, thick bedded conglomerate and thin coal seams which suggest a non-marine environment. Sandstones and interbedded siltstone beds are the dominant lithologies in the lower Malloch Sequence outcroppings in the Lost-Fox Area. Cross-bedded conglomerate beds are laterally discontinuous indicating fluvial reworking similar to that of the Klappan Sequence.

The contact between the Malloch and Klappan sequences is interpreted to be gradational, which is reflected in changes in lithologies and coal seam character over several hundred metres of section.

6.4.4 Coal Seam Development

6.4.4.1 Klappan Sequence

Five consecutive years of drilling programs have determined the presence of 25 coal and carbonaceous horizons based on present correlations (Tables 6.7, 6.8). These horizons occur within approximately 520 metres of section and contain coal seams with true thicknesses of up to 8.36 metres, although several structurally thickened seams up to 16.72 metres have also been drilled. The various coal horizons have been labelled from A to P.

The 22 drilled, potentially mineable coal seams have an aggregate average true thickness of about 49 metres within approximately 520 metres of

Klappan Sequence strata (Table 6.6). The average true thickness of these coal intersections is 2.2 metres.

Due to some reinterpretations of previous years' drilling results, correlations have altered minimally from those presented in the 1985 report. An updated version of those seams as well as those from the 1986 program are listed in Table 6.7. All resource calculations are based on the 1986 thicknesses and correlations.

Six diamond drill holes, north and west of Lost Ridge, intersected coal seams at depth. Whether these seams correlate directly to any known seams in the ridge area or not is still uncertain. Current interpretations suggest that these coal horizons occur below seam B and have been labelled accordingly as A, A-2, A-3, A-4 and A-5 in descending order. Additional drilling will be required to prove this correlation. These seams were not considered in resource calculations.

Other diamond drilling results, east of Lost Ridge towards Fox Creek, showed a notable increase in true thickness for K seam to as much as 8.36 metres. Drilling will continue to the east to determine the lateral extent of not only the thickened K seam, but H and I seams as well.

The 4.53 metre seam hand trenched at TRC86012

Table 6.6

LOST-FOX AREA: COAL SEAM AND CARBONACEOUS ZONE SUMMARY

Seam	Number Valid Data Points (Diamond Drilling)	Average True Thickness (m) (Coal)	Average True Thickness (m) (Coal + Rock)	Representative True Interseam Thickness** (m)
P	1	0.92	0.92	48.80 m
O	8	1.23	1.54	27.85 m
N	10	0.87	1.09	15.20 m
M/N	3	0.80	0.96	11.70 m
Mu	1	1.81	1.85	2.50 m
M	11	3.80	5.67	30.10 m
L/M	1	0.32	0.40	10.10 m
L	17	2.00	2.86	28.75 m
K/L	19	2.21	2.67	21.25 m
K	29	2.75	3.47	23.00 m
J	36	0.27	0.71	36.75 m
I	51	4.21	4.66	24.90 m
H/I	6	0.42	1.39	14.00 m
H	38	3.12	3.86	20.10 m
PH	26	0.57	2.81	33.80 m
G	20	0.88	2.56	12.20 m
G lower	9	0.53	1.01	7.10 m
F/G	2	0.26	0.33	14.75 m
F	13	2.39	3.17	18.00 m
E	11	1.32	1.39	24.25 m
D	5	2.01	2.46	19.10 m
C	5	0.40	0.79	27.40 m
B	3	0.22	1.01	6.99 m
B lower	1	0.30	0.30	41.40 m
A	6	1.23	1.88	? m
A-2	1	0.85	1.01	? m
A-3	1	4.05	4.98	? m
A-4	1	2.38	3.11	? m
A-5	1	3.45	4.70	? m
<hr/>				
Total	336	45.57 m	63.56 m	*519.99 m 63.56 m

Total Thickness of
Coal-Bearing Sequence

583.55 m

*Values given do not include data from below Seam A due to lack of information.
**Obtained from a composite section of typical true interseam thicknesses.

Table 6.7

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH82005	I (ovt)	54.02	- 60.30	4.26	4.98	
	J (ovt)	108.17	- 108.31	0.14	0.14	
	K (ovt)	148.09	- 154.34	3.99	5.16	
	L (ovt)	186.89	- 193.81	2.75	5.75	
	M (ovt)	236.14	- 238.92	1.43	2.24	
DDH83001	I	26.90	- 32.68	4.96	5.51	
	H	74.73	- 79.38	3.83	4.54	
	G	133.42	- 137.43	3.00	3.93	Resource thickness. Additional coaly zone containing 64.03% ash from 138.22 m to 139.19 m.
	G lower	142.45	- 144.75	1.24	2.25	
	F	180.62	- 185.52	3.88	4.79	
	E	209.60	- 210.94	1.32	1.32	
DDH84005	PH	10.67	- 12.24	0.00	1.55	Drill hole intensely folded.
	G	34.30	- 48.70	0.00	6.49	
	G	59.00	- 61.10	0.41	1.62	
	G	83.40	- 84.78	0.78	0.78	
	G	111.40	- 114.42	0.00	2.95	Not used for resources.
DDH84006	H (ovt)	16.04	- 22.21	4.69	5.80	
	H/I (ovt)	49.43	- 50.17	0.61	0.61	Limited lateral extent.
	I (ovt)	109.99	- 116.94	4.71	5.04	
	J (ovt)	154.04	- 159.35	3.20	3.56	
	K (ovt)	257.54	- 260.95	2.27	2.88	
DDH84007	J	20.53	- 23.09	0.00	2.45	Carbonaceous zone.
	I	56.87	- 62.32	5.11	5.43	
	H	103.00	- 107.18	3.27	3.98	
	PH	124.77	- 127.86	2.45	2.98	
	G	151.43	- 151.72	0.28	0.28	
	G lower	164.64	- 165.53	0.72	0.89	Additional coaly zone at 167.26 m contains 0.38 m of coal.
	F	227.26	- 228.36	0.97	1.07	
	E	251.62	- 252.70	1.00	1.00	
	E (ovt)	272.00	- 282.45	3.75	3.79	Intensely folded. Not used for resources.
DDD84008	L	23.20	- 29.26	0.94	4.49	
	K	61.40	- 65.37	3.33	3.93	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH85001	J	93.24	- 93.39	0.14	0.14	Intensely folded. Not used for resources.
	I	133.60	- 137.71	3.40	3.86	
	H/I	169.15	- 169.49	0.33	0.33	
	H	180.08	- 189.53	5.90	6.41	
	H	218.82	- 234.37	3.67	3.84	
	G	271.11	- 274.55	1.88	3.28	
	G lower	290.90	- 291.21	0.29	0.29	
	J	22.10	- 22.68	0.36	0.36	
	J	78.02	- 78.89	0.00	0.08	
	*J	86.63	- 87.16	0.00	0.29	
DDH85002	I	119.13	- 123.51	3.38	4.38	Twinned hole with DDH85004. (Non-Valid Data Point).
	H/I	141.01	- 141.07	0.05	0.05	
	H	158.65	- 160.98	1.74	2.15	
	PH	175.78	- 176.00	0.22	0.22	
	G	214.70	- 215.64	0.85	0.94	
	I	59.45	- 62.68	3.00	3.23	
	H	101.62	- 102.97	1.09	1.35	
DDH85003	M (ovt)	35.71	- 42.63	3.91	5.30	
	M/N (ovt)	91.30	- 92.00	0.56	0.56	
	N (ovt)	100.20	- 102.39	1.17	1.72	
	N (upright)	170.59	- 172.29	1.08	1.44	
DDH85004	I	59.02	- 62.72	3.47	3.70	
	H	101.65	- 105.64	3.20	3.96	
	PH	125.97	- 126.20	0.23	0.23	
	G	160.32	- 165.35	2.43	4.92	
	F	204.19	- 206.57	1.73	2.35	
	E	223.68	- 226.75	2.04	2.23	
DDH85005	O (ovt)	26.90	- 30.13	0.64	0.67	Intensely folded. Not used for resources.
	O	51.60	- 53.25	1.11	1.33	
	*N	98.55	- 99.65	0.17	0.17	
	M	106.13	- 111.87	2.43	3.94	

*Depth discrepancy between log and "86" sections.

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
	N (rep)	175.69	- 175.88	0.13	0.13	
	M (rep)	210.91	- 214.17	1.89	2.93	
	L/M	243.46	- 243.86	0.32	0.40	Not used for resources.
	L	255.98	- 256.63	0.41	0.61	
	*K/L	310.83	- 311.56	0.62	0.66	Not used for resources.
	*K	316.12	- 319.48	2.49	3.10	Resource thickness. Additional coaly zone from 320.99 m to 321.62 m with no ash analysis.
DDH85006	H	23.32	- 26.09	2.13	2.76	
	PH	43.17	- 45.23	0.00	2.06	
	G	81.93	- 85.47	2.15	3.49	Resource thickness. Additional coal zone containing 67.74% ash from 85.47 to 88.08 m.
	G (rep)	111.27	- 113.25	0.00	0.75	
	F	153.47	- 156.65	1.94	3.10	
	E	178.13	- 179.04	0.62	0.91	
DDH85007	I	95.50	- 102.30	3.63	4.81	Twinned hole with DDH85009. (Non-Valid Data Point).
DDH85008	PH	19.00	- 19.36	0.07	0.36	
	G	40.00	- 42.18	1.27	1.69	
DDH85009	I (ovt)	102.85	- 111.00	4.28	4.90	
	J (ovt)	166.20	- 166.23	0.02	0.02	
	K (ovt)	204.40	- 209.51	2.70	3.27	
	L (ovt)	241.14	- 247.93	2.73	4.46	
	K	322.62	- 328.06	2.09	2.81	Intensely Folded; Not used for resources.
DDH85010	O	73.40	- 73.62	0.22	0.22	
	N	91.66	- 92.01	0.31	0.31	
	M	130.04	- 134.76	2.60	4.60	Resource thickness. Additional coaly zone containing 63.61% ash from 134.76 to 135.90 m.
	L	159.22	- 161.13	1.19	1.81	
	K	222.56	- 228.22	2.82	3.96	
DDH85011	K/L					In casing.
	K	36.49	- 40.55	2.20	3.47	Resource thickness. Additional coaly zone from 42.02 to 42.74 m, with no ash analysis.
	J	70.56	- 70.94	0.00	0.37	Carbonaceous zone.

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH85012	I	101.44	- 103.34	1.22	1.75	Minor coal stringers. Becciated coaly claystone.
	H/I	139.23	- 144.84	0.00	5.23	
	H	153.42	- 154.11	0.00	0.65	
	L	23.24	- 24.84	1.37	1.37	Limited lateral extent (?). Resource thickness. Additional coaly zone containing 64.70% ash from 71.73 m to 73.63 m. Carbonaceous zone.
	K/L	50.16	- 51.69	1.15	1.49	
	K	69.89	- 71.73	1.62	1.74	
DDH85013	J	125.61	- 126.50	0.00	0.79	Carbonaceous zone.
	K (repeat)	151.54	- 153.01	0.59	1.22	
	J	176.01	- 176.21	0.00	0.16	Carbonaceous zone.
	H	205.78	- 209.20	2.06	3.21	
	PH	242.57	- 255.92	0.26	11.63	
	K	22.90	- 23.91	0.68	0.98	
J	50.02	- 52.93	0.00	2.84	Coal stringers.	
I	91.24	- 97.53	5.33	6.16		
H	146.55	- 150.96	2.60	4.37		
PH	176.56	- 176.65	0.09	0.09		
G	185.65	- 185.90	0.22	0.22		
PH	211.17	- 211.82	0.56	0.65		
G	235.70	- 236.11	0.18	0.39		
F	271.23	- 275.51	2.66	4.21		
DDH85014	K	32.60	- 35.40	0.00	2.76	Coal stringers.
	J	63.22	- 64.46	0.00	1.17	Coal stringers.
	I	102.59	- 108.37	5.24	5.46	Carbonaceous zone.
	H	155.53	- 157.67	1.05	2.09	
	PH	160.98	- 162.11	0.00	1.12	
	F	247.19	- 250.10	2.22	2.71	
DDH85015	E (ovt)	32.54	- 34.89	0.85	0.95	
	F (ovt)	78.00	- 82.28	1.92	2.73	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval (m)	True Thickness		Comments	
			Coal (m)	Coal + Rock (m)		
DDH85016	F/G (ovt)	92.37 - 92.57	0.00	0.14	Intensely folded; Not used for resources.	
	G lower	144.09 - 144.80	0.00	0.46		
	G	157.52 - 166.01	1.74	3.43		
	G lower	176.39 - 177.71	1.18	1.30		
	G lower	185.47 - 185.62	0.15	0.15		
	J	26.54 - 27.49	0.00	0.94		Coal lenses in carbonaceous mudstone.
	I	80.80 - 86.41	5.11	5.55		Resource thickness. Additional coaly zone containing 79.54% ash from 261.44 m to 263.00 m.
	H	127.12 - 134.33	4.57	6.75		
	PH	141.86 - 144.38	0.75	2.07		
	G	182.72 - 183.64	0.79	0.79		
F	205.20 - 207.59	1.77	2.13			
E	231.45 - 233.78	2.12	2.22			
D	263.00 - 265.51	2.30	2.41			
DDH85017	C	285.71 - 286.08	0.34	0.34	In casing.	
	B	318.22 - 318.55	0.27	0.29		
DDH85018	K				Resource thickness: 0.58/1.01 m	
	J	64.86 - 65.03	0.16	0.16		
	I	101.36 - 106.87	4.41	5.37		
	H	152.36 - 157.10	3.79	4.67		
	PH	184.56 - 189.06	1.55	4.41		
	G	204.72 - 208.53	1.07	3.80		
	G lower	221.21 - 222.23	0.71	0.97		
	F	241.48 - 243.47	1.56	1.93		
E	261.48 - 263.92	2.27	2.34	Resource thickness. Additional coaly zone containing 68.98% ash from 263.92 m to 265.51 m.		
DDH85018	J	22.42 - 22.52	0.00	0.09	Carbonaceous zone.	
	I	69.08 - 71.75	2.54	2.61	Carbonaceous mudstone with coal stringers.	
	H	109.90 - 113.78	3.24	3.63		
	PH	132.95 - 139.12	0.00	5.59		

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH85019	G	158.08	- 165.50	0.00	7.35	Coal ripup clasts in sandstone.
	G lower	169.90	- 172.18	0.00	2.24	Coal ripup clasts in sandstone.
	F	212.26	- 218.60	4.89	6.02	
	E	238.76	- 239.00	0.22	0.22	
	D	260.40	- 263.07	1.57	1.89	
	C	269.02	- 270.48	0.00	1.03	Coal stringers.
	PH	10.51	- 12.41	0.00	1.90	Coal stringers.
	G	26.21	- 27.51	0.53	1.29	Not used for resources.
	G lower	31.26	- 31.78	0.45	0.52	
	F/G	46.16	- 46.68	0.51	0.51	
DDH85020	F	65.65	- 70.20	3.62	4.21	Resource thickness. Additional coaly zone from 63.14 m to 63.67 m, with no ash analysis.
	E	87.36	- 87.78	0.33	0.33	
	D	121.53	- 122.29	0.36	0.43	
	C	139.06	- 139.69	0.36	0.51	
	F	25.59	- 28.14	0.73	2.49	
	E	53.87	- 55.83	1.91	1.91	
	D	98.12	- 106.40	3.51	4.74	Resource thickness. Coaly zone containing 67.74% ash from 94.32 m to 98.12 m.
DDH85021	C	148.72	- 150.41	1.02	1.19	Resource thickness. Additional coaly zone containing 45.03% ash from 152.19 m to 153.84 m.
	I	32.18	- 33.89	1.30	1.61	
DDH85022	H	40.00	- 45.70	4.70	5.55	
	PH	73.55	- 76.18	0.00	2.57	Carbonaceous zone.
	G	99.67	- 101.60	0.00	1.82	Carbonaceous zone.
	F	124.40	- 128.11	3.14	3.43	
	E	150.22	- 152.19	1.80	1.81	
DDH85022	J					In casing.
	I	49.04	- 53.87	4.50	4.69	
	H	90.46	- 94.20	3.09	3.66	
	PH	111.08	- 114.58	0.00	3.48	Coal stringers.
	G	158.50	- 162.68	0.00	3.93	Coal stringers.

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH85023	K (ovt)	26.93	- 32.42	3.85	4.47	Intensely folded; Not used for resources.
	L (ovt)	63.18	- 69.04	3.34	4.57	
	M	125.84	- 145.84	7.55	11.91	
	M (ovt)	214.32	- 230.86	9.67	14.24	
	M (upright)	270.74	- 290.26	11.77	16.72	
DDH85024	I	12.68	- 19.68	4.29	6.45	Carbonaceous mudstone with coal bands.
	H	91.08	- 95.87	4.08	4.62	
	PH	117.31	- 123.60	0.11	6.13	
DDH85025	J					In casing.
	I	36.40	- 40.82	4.04	4.42	
	H	75.74	- 79.47	3.25	3.72	
	PH	98.10	- 102.64	0.00	4.47	
DDH85026	I	19.68	- 25.41	4.57	5.68	Carbonaceous zone.
	H	62.60	- 66.03	2.92	3.43	
	PH	77.80	- 83.46	0.00	5.57	
DDH85027	N	75.26	- 77.68	1.94	2.17	Limited lateral extent. Limited lateral extent. Limited lateral extent (?). Carbonaceous zone.
	M/N	94.32	- 95.63	0.72	1.15	
	M upper	109.24	- 111.30	1.81	1.85	
	M	114.88	- 116.16	1.15	1.20	
	L	127.56	- 129.29	1.42	1.62	
	K/L	147.78	- 151.69	2.47	3.22	
	K	163.80	- 164.91	0.92	1.08	
	J	191.45	- 191.98	0.01	0.39	
	I	216.16	- 221.55	4.67	5.03	
	H	265.98	- 268.29	2.22	2.25	
DDH85028	I	10.80	- 15.68	4.47	4.74	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval (m)	True Thickness		Comments
			Coal (m)	Coal + Rock (m)	
	H	56.96 - 61.18	3.39	4.08	Carbonaceous zone.
	PH	69.60 - 73.83	0.00	3.70	
DDH85029	J	49.79 - 50.51	0.00	0.58	
	*K/L	75.00 - 75.53	0.43	0.43	
DDH85030	I	20.48 - 24.69	3.73	3.98	Drilled within trial cargo pit area.
DDH85031	I	8.12 - 12.85	4.08	4.54	Drilled within trial cargo pit area.
DDH85032	I	27.54 - 33.03	4.83	5.47	Drilled within trial cargo pit area.
DDH85033	I	10.96 - 16.62	4.90	5.48	Drilled within trial cargo pit area.
DDH85034	I	30.32 - 35.52	4.83	5.14	Drilled within trial cargo pit area.

Table 6.7

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH86001	I	25.65	- 29.20	3.28	3.55	
	H	68.24	- 71.08	2.17	2.84	
DDH86002	H part	39.33	- 40.21	0.76	0.76	Not used for resources
	H	56.74	- 62.11	3.77	4.84	
	PH	92.10	- 93.00	.84	.84	
DDH86003	I	40.08	- 47.34	6.80	7.25	
	H	88.03	- 91.73	2.40	3.34	
DDH86004	K/L ?	13.97	- 17.79	3.26	3.76	
	K/L ?	27.14	- 28.24	.72	1.09	
	K/L ?	39.38	- 41.47	1.64	2.03	
	K ?	53.20	- 56.64	2.61	3.44	
	K	89.27	- 95.00	4.88	5.48	
	J	103.70	- 104.39	0.00	0.67	
	I	135.44	- 140.76	4.93	5.27	
	H	191.50	- 199.00	5.95	7.11	
DDH86005	J	19.20	- 20.30	0.02	.95	Carbonaceous zone.
	I	41.00	- 46.35	4.54	4.79	
	H	90.45	- 93.53	2.49	2.94	
DDH86006	I	28.44	- 42.43	11.15	12.06	Intensely deformed, not used for resources.
	H	78.50	- 84.95	5.04	5.89	
DDH86007	K					In casing. Carbonaceous zone
	J	42.72	- 45.39	0.00	0.56	
	I	98.96	- 105.11	5.32	5.57	
	H	157.89	- 161.84	3.27	3.66	
DDH86008	I	20.92	- 24.56	3.10	3.49	
	I (rep)	48.74	- 54.35	4.03	4.86	
	H	93.65	- 100.01	4.73	5.43	
	PH	124.33	- 129.17	4.14	4.67	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval (m)	True Thickness		Comments
			Coal (m)	Coal + Rock (m)	
DDH86009	K/L				In casing.
	K	70.29 - 76.20	5.08	5.81	
	J	104.55 - 105.00	0.45	0.45	
	I	142.13 - 148.14	5.21	5.80	
DDH86010	H	189.15 - 201.52	8.98	12.16	Intensely folded, not used for resources.
	K	55.21 - 69.99	11.34	14.38	
	J	94.72 - 95.83	0.99	1.07	
	I	134.68 - 140.01	4.77	5.15	
DDH86011	H	171.65 - 175.62	3.14	3.91	Intensely folded, not used for resources.
	L	25.44 - 30.95	3.74	4.91	
DDH86012	K/L ?	56.91 - 58.76	1.43	1.70	Intensely folded, not used for resources.
	O (ovt)	20.10 - 23.75	1.03	1.29	
	O	82.67 - 84.26	1.18	1.46	
DDH86013	N	113.42 - 115.06	1.23	1.42	In casing.
	K/L				
	K	53.56 - 58.53	3.98	4.77	
	J	89.14 - 89.76	0.52	0.61	
DDH86014	I	112.92 - 121.60	6.15	6.98	Intensely folded, not used for resources.
	I (ovt)	159.00 - 176.64	14.59	14.81	
	K (ovt)	40.50 - 44.50	.15	3.26	
DDH86015	K/L (ovt)	53.44 - 55.19	.61	.97	Poor drill intersection, not used for resources.
	L (ovt)	105.59 - 109.91	2.81	3.05	
	K	154.29 - 156.94	2.27	2.58	
	L	29.21 - 30.51	1.16	1.24	
DDH86015	K/L	42.68 - 43.19	.50	.50	Intensely folded, not used for resources.
	K	86.55 - 90.55	3.72	3.98	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH86016	J	47.85	- 48.20	0.00	0.28	Carbonaceous zone.
	L	75.66	- 78.30	2.29	2.29	
	K/L	144.00	- 146.77	2.41	2.74	
	K	157.12	- 159.80	2.31	2.61	
	J	172.30	- 172.81	0.00	0.49	
DDH86017	I	60.71	- 65.97	4.87	5.15	Possible faulted repeat of H.
	H (prt)	110.00	- 113.00	1.94	2.73	
	H	114.35	- 119.86	3.89	4.45	
DDH86018	J					In casing. Not a valid data point (in casing)
	I	2.44	- 8.72	1.62	1.62	
	H	103.00	- 104.11	0.57	0.82	
	PH	115.50	- 120.22	1.14	3.80	
DDH86019	M/N ?	69.31	- 70.84	1.11	1.16	Carbonaceous zone.
	M	82.70	- 83.40	0.57	0.68	
	L	100.07	- 101.96	1.69	1.86	
	K/L	120.18	- 124.70	3.96	4.43	
	K	139.68	- 143.13	2.96	3.34	
	J	165.66	- 166.76	0.00	1.03	
	I	185.15	- 192.38	6.51	6.95	
DDH86020	B	24.37	- 24.77	.37	.37	Not used as a data point.
	A	67.77	- 71.29	2.27	3.10	
	A (prt)	78.38	- 81.18	.16	2.50	
DDH86021	I	23.82	- 28.55	4.09	4.54	
	K	42.80	- 44.20	1.00	1.16	
	J	72.80	- 73.70	0.10	0.81	
	I (rep)	106.79	- 111.76	4.12	4.59	
DDH86022	M	36.20	- 38.80	1.08	1.52	Carbonaceous zone.
	L	64.78	- 68.24	2.00	2.38	
	K/L	88.20	- 93.80	3.55	4.31	
	K	104.90	- 106.87	1.47	1.92	
	J	120.80	- 121.20	0.00	0.38	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval		True Thickness		Comments
		(m)		Coal (m)	Coal + Rock (m)	
DDH86022 (cont'd)	I	140.41	- 141.56	1.14	1.14	Faulted, not used for resources.
	I (ovt)	175.95	- 184.17	4.25	4.53	
DDH86023	A	24.44	- 27.87	1.01	1.14	
	A	40.82	- 41.96	.36	.36	
	A	55.60	- 61.36	2.11	2.77	
DDH86024	A-4	46.25	- 49.76	2.38	3.11	
	A-5	98.96	- 104.38	3.45	4.70	
DDH86025	P	7.01	- 8.00	.92	.92	
	O	62.22	- 64.16	1.45	1.85	
	N	93.61	- 94.72	.84	1.05	
	J	118.82	- 119.15	.23	.28	
	I	131.20	- 134.36	2.78	2.90	
	J (rep)	183.47	- 183.96	.46	.46	
	I (rep)	216.24	- 221.72	4.49	4.74	
DDH86026	A-2	36.63	- 37.74	.85	1.01	
	A-3	71.33	- 76.79	4.05	4.98	
DDH86027	O	8.56	- 12.00	2.47	2.98	
	N	26.53	- 28.48	1.52	1.81	
	K/L	73.59	- 79.76	5.27	5.80	
	K	95.95	- 98.95	2.52	2.77	
	J	127.91	- 128.15	0.20	0.22	
	I	158.60	- 159.64	0.95	0.95	
DDH86028	D	35.88	- 38.87	2.33	2.84	Carbonaceous zone.
	C	60.32	- 61.48	0.29	0.88	
	B	93.60	- 96.00	0.02	2.38	
	B lower	103.40	- 103.70	0.30	0.30	
	A	145.64	- 147.32	1.62	1.65	
DDH86029	K	8.03	- 11.00	2.46	2.96	
	I	50.99	- 55.48	4.07	4.42	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval (m)	True Thickness		Comments
			Coal (m)	Coal + Rock (m)	
DDH86029 (cont'd)	H	91.50 - 92.73	0.96	1.22	
	PH	131.58 - 131.70	0.11	0.11	
DDH86030	J	21.92 - 22.76	0.69	0.82	
	I	63.15 - 69.65	5.35	5.59	
	H	122.64 - 125.68	2.68	2.97	
	PH	145.01 - 145.48	0.44	0.44	
DDH86031	J				In casing.
	I	40.72 - 45.36	3.97	4.49	
	H	83.44 - 90.27	5.24	6.58	
	PH	117.90 - 120.47	1.88	2.32	
	K/L ?	124.00 - 134.51	7.01	9.54	
DDH86032	I	8.15 - 11.33	2.87	3.08	
	H	62.12 - 67.55	3.95	4.92	
DDH86033	M	48.80 - 62.51	3.72	5.83	
	L	87.42 - 90.06	2.06	2.45	
	K/L	115.07 - 117.31	1.81	2.11	
	K	147.47 - 152.76	4.05	5.03	
DDH86034	K/L	20.03 - 24.02	3.25	3.84	
	K	48.80 - 56.10	4.93	6.49	
	J	81.88 - 82.68	0.61	0.75	
	I	119.66 - 125.13	4.82	5.10	
DDH86035	M				In casing.
	L	50.78 - 54.40	2.53	3.35	
	K/L	67.95 - 69.40	1.27	1.42	
	K	90.73 - 99.39	6.68	8.36	
	J	122.44 - 122.85	0.38	0.38	
	I	157.51 - 158.82	1.23	1.23	
	H/I	180.33 - 181.21	0.66	0.77	
	H	197.19 - 198.51	0.98	1.16	
DDH86036	K	8.29 - 10.21	1.37	1.85	
	J	32.84 - 33.87	0.97	0.99	

Table 6.7 cont'd

LOST-FOX AREA: SUMMARY OF DIAMOND DRILL HOLE COAL SEAMS AND CARBONACEOUS ZONES

Diamond Drill Hole	Seam	Drilled Seam Interval (m)	True Thickness		Comments
			Coal (m)	Coal + Rock (m)	
DDH86036 (cont'd)	I	78.56 - 84.06	4.91	5.15	
	H/I	113.22 - 114.60	0.87	1.33	
	H	139.56 - 141.85	1.54	2.17	
DDH86037	O	17.48 - 20.03	1.75	2.49	
	N	49.12 - 49.82	0.28	0.64	
	M	70.98 - 78.44	3.68	6.78	
	L	148.02 - 150.48	1.61	2.34	
	K/L	153.27 - 153.95	0.66	0.66	
DDH86038	A	50.75 - 53.20	0.00	2.26	Carbonaceous zone.

(Section 5.5) is interpreted to be I seam based on the seam character, surrounding lithologies and coal quality results. Further exploration will be initiated, which may include drilling, to confirm the stratigraphy and tie in the area structurally with Lost Ridge. The combined results of the extensive drill programs and 1984's mechanical trenching program confirm that many of the coal seams in the sequence are laterally continuous for several kilometres.

Studies show that typical log signatures are evident for some seams, notably seams E, F, H and I and can be used as correlative tools.

Coal seams are indicated on all detailed maps and cross-sections located in Appendix III.

6.4.4.2 Malloch Sequence

Coals of the Malloch Sequence in the Lost-Fox Area are thinner and separated by greater interval thicknesses than those of the Klappan Sequence. As a result a seam correlation has not yet been established. Based on previous hand trench data, the coals range from 0.5 metres to 2.41 metres in thickness with an average thickness of 1.26 metres.

6.4.5 Structure

Evidence supporting the interpretation of two non-

parallel regimes of deformation is clear in the Lost-Fox area. F1 deformation has produced a large-scale series of overturned folds trending at approximately 135 degrees, with south-westerly dipping axes, a wavelength of 1 to 1.5 kilometers and an amplitude of up to 450 metres. Smaller folds and faults (with both reverse and normal displacement) can be superimposed on these large features. The second deformational style (F2) involves primarily low amplitude, long wavelength folds trending northeast-southwest. They are not strongly delineated in themselves, but are seen as overprinting the F1 folding, producing a series of plunge reversals averaging 8 to 10 degrees to the northwest and southeast.

The Lost Ridge anticline-syncline pair is an F1 feature, and its plunge from the cliff face, southeast down the back of Lost Ridge is an example of F2 deformation. The shape and orientation of the fold pair changes along its strike. In the vicinity of Fox Creek the southwest limbs dip at a fairly shallow angle and the northeast limbs are vertical. The northeast limbs become overturned, shallowing to as little as 50 degrees toward the ridge crest. Parasitic synclines and anticlines affect strata on both limbs of the larger folds and may involve packages with stratigraphic thicknesses up to 150 metres. Less competent units may act as decollement surfaces and limit the stratigraphic penetration of the parasitic features by releasing the applied stress via bedding plane slippage. This has been observed along the eastern and central portions of Lost Ridge where overturned folds become detached from underlying monoclines along coal horizons.

Stress is absorbed not only along bedding planes but also by fractures and faulting across bedding. Stratigraphic repetition in drill-core has been interpreted to represent the presence of localized swarms of thrust faults imbricated upon each other. Localized zones of multiple repetition of strata do occur, but more frequently thrusts have large displacements and are more isolated. Several larger scale reverse or thrust faults are each defined by discontinuities in one or more drill holes. Displacements are on the order of tens of metres, normally under 50 metres. In certain situations, stratigraphic disturbances dictate that displacements of over 100 metres may be present, but there is insufficient drill control at depth to interpret whether this must all be taken up by one fault or may be distributed among several in a zone.

The deformation of greatest complexity lies in the cores of folds. The syncline emerging on the face of Lost Ridge appears, in the subsurface, to contain in its core a wedge shaped block of quite contorted strata bounded by a major, shallowing dipping normal fault above and a thrust fault below. The wedge widens toward the opening of the syncline and may be the result of the material at the core being extruded outward as the syncline approached recumbency. In general, the strata in the vicinity of fold axes may be structurally thickened by convolute folding, particularly affecting incompetent units. Annealed quartz breccia zones are observed along some axes.

Cleavage sets are noted associated with both F1 and

F2 folding. Fold related cleavages for the F1 folds are nearly always of the fracture type. Rarely, argillaceous beds show crenulation cleavages. F1 cleavage sets are usually more closely spaced and more consistent in attitude than F2 cleavages, likely due to the greater intensity of stress involved in the formation of F1 folds. Wavelengths of F2 folds are approximately 750 metres with amplitudes of 150 metres. Movement associated with the F2 regime has the affect of complicating the delineation of F1 features. Both bedding and cleavage attitudes from the F1 deformation have been re-oriented locally and cannot be relied upon to be consistent over any distance. In addition, the secondary cleavage set formed through F2 deformation may be confused with F1 cleavage. Joints associated with both cleavage sets may be quartz filled in the hinge areas of anticlines.

Few, if any, high angle normal faults are recognized on the property, but this may be due to the ambiguity of the features that would be created when such a fault is intersected by a vertical drill hole. A fairly high angle fault with normal, rotational displacement is projected south of the pit area, in conjunction with a shallowly dipping, sub-parallel thrust of major displacement. Over a dozen drill holes are involved in the interpretation of the structure in this area, but additional information could initiate substantial review.

In the Lost Fox area, as regionally, there are two major fracture sets displaying aspects of brittle deformation, one trending north-south and the other east-west. Both

sets are post folding. The easterly trending set appears to be the most systematic, and possibly older. Minor strike slip and dip slip displacements along these high angle fractures are common. Vertical components of displacement may reach 50 metres.

The same structural pattern observed crossing the entire Lost-Fox area is also represented on a smaller scale. Within the trial cargo excavation localized examples of structural failure include a series of equally spaced (about 25 metres) normal faults trending 160 degrees and dipping 65 degrees west. Displacements are in the order of one or two metres, down thrown to the west. Thrust faults with a shallower angle are also present on the same scale. The intensity of stress suggested by the major features of Lost-Fox is such that these small scale adjustments might be expected throughout.

The above described structure is diagrammed on the 1:50 000 Regional Geology Map located in Appendix I. Detailed geology maps and cross-sections at 1:2 000 and 1:5 000 scales may be found in Appendix III.

7.0 RESOURCES

7.1 Mount Klappan Anthracite Project

7.1.1 Summary

Significant changes to the resource categorization of Mount Klappan anthracite has resulted from the 1986 exploration program. A total of 74.1 million tonnes of measured resources and 73.4 million tonnes of indicated resources have been delineated in the Lost-Fox Area. The in-situ anthracite resource at Mount Klappan totals over 6,000 million tonnes in seams greater than 0.5 metres thick to a maximum depth of 500 metres. The following table summarizes the resource contributions from the areas of the property as well as the representation by resource category. These resource estimates do not imply mineability or economic viability. They represent estimated in-place anthracite resources only. Resource categories are discussed further in Section 7.3.3. A 1:50 000 Coal Resource Map (Appendix I) presents the distribution of resources over the Mount Klappan property.

Table 7.1

MOUNT KLAPPAN COAL PROJECT
COAL RESOURCES (MT)

Area	Category			
	Measured	Indicated	Inferred	Speculative
Lost-Fox	74.1	73.4	84.8	765.7
Hobbit-Broatch	12.1	24.5	369.1	731.6
Summit			31.8	1859.1
Nass				1991.7
Skeena				277.3
Total	86.2	97.9	485.7	5 625.4

Total Coal Resources Potential: 6 295.2 million tonnes

The coal seams are contained within the strata of the Klappan Sequence. There are also coal measures in other strata underlying these coal licences; however, they are not presently considered of economic importance.

The parameters within which the coal resources were classified and the procedures utilized in resource calculations are outlined in Section 7.3. A standardized method was utilized for the 1986 resource calculations over the Mount Klappan property.

7.2 Lost-Fox Area

7.2.1 Summary

During 1986 increased drill hole density and stepout drilling to the east and southwest in the Lost-Fox Area resulted in significant increases in the measured and indicated resource categories. As outlined in Table 7.2, 147 million tonnes are within the measured and indicated categories. The in-situ anthracite resources, including speculative resources, in the Lost-Fox area total almost 1 billion tonnes in seams averaging 2.2 metres in true thickness to a maximum depth of 500 metres. Resource data is located in Appendix D.

7.3 Procedures and Parameters

7.3.1 Introduction

In-situ resources are defined as the in-place coal

(coal and partings) that are contained in seams occurring within specified limits of thickness and depth from surface. Resources are further defined through classification into "measured", "indicated", "inferred", and "speculative" categories based on the existence and relative spacing of coal seam exploration data.

The procedures for the resource calculations include standard methods utilizing geological cross-sections and maps as described in Section 7.3.2.

The parameters for resource categorization generally follow those set out for the Cordillera Region by Energy, Mines and Resources Canada in Report ER79-9: Coal Resources and Reserves of Canada. The parameters utilized for the 1986 Mount Klappan Coal Project are described in Section 7.3.3.

7.3.2 Procedures

Diamond drill holes were used as valid data points for resource calculations except for two twinned holes (DDH85002, DDH85007). If individual drilled seam intersections were less than 0.5 metres in true thickness or were comprised of over 50% rock partings then they were not used in resource calculations. Intensely disturbed seam intersections were also not used. Table 7.3 summarizes the seams and associated thicknesses used for this year's resource calculations.

Seam intersection coordinates, which are stored in a 'System 2000' database (resident on Gulf's AMDAHL 5867 main-

frame computer) were extracted and uploaded onto a WICAT 150² microcomputer system. MEDSYSTEM³ mine modelling software (resident on the WICAT 150) was used to calculate the polygon intersection coordinates for each set of data points. The plotting of the resultant polygons for each of the 22 mineable seams, was performed using TELLAGRAF⁴ computer graphics software. Data transfer between the various systems was performed using KERMIT⁵ software resident on an IBM⁶PC.

The boundaries for each polygon were transferred onto applicable cross-sections and seam lengths for each area were measured.

The third dimension required for the coal volume calculation, after the seam thickness and length were determined, was the "influence" or "strike length" of the seam. This measurement was chosen to extent to the midpoint of influence of cross-section lines and measures 125 metres in length.

Rather than use a straight average specific gravity for all seams, as in 1985, values were determined on a seam-by-seam basis. For a particular seam, specific gravity determinations from applicable drill holes in the resource area were utilized. These specific gravity values were attained by straight averaging and were applied wherever that specific seam influenced the resources. A summary of these specific gravity averages are shown on Table 7.4.

TABLE 7.4
SUMMARY OF MEAN SPECIFIC GRAVITIES

SEAM	MEAN S.G. (t/m ³)	# of Occurrences
O	1.65	4
N	1.69	6
M/N	1.86	2
M	1.71	10
L	1.68	11
K/L	1.73	8
K	1.63	21
J	1.61	2
I	1.54	37
H	1.67	33
Phantom	1.81	5
G	1.83	2
G lower	1.81	10
F/G	1.86	1
F	1.72	13
E	1.55	13
D	1.71	3
C	1.49	1
<hr style="border-top: 1px dashed black;"/>		
Overall Mean	1.66	182
Overall Mean (minus I and H)	1.69	112

The following equation summarizes the resource calculation procedure:

$$\text{Tonnes of Coal} = \text{Seam Thickness} \times \text{Seam Length} \times \text{Influence} \times \text{Specific Gravity}$$

(m)
(m)
(m)
(t/m³)

Speculative resources were calculated using a slightly different procedure. The area indicated on the 1:50 000 Coal Resource Map (Appendix I) to be Klappan Sequence within the Lost-Fox Area but outside the 1:2000 resource map area, was planimetered. The 11.25 metre seam thickness applied to this area is 25% of the average combined coal thicknesses for the Lost-Fox (63.56 metres) and Hobbit-Broatch (26.40 metres) areas, as this figure appeared to be a reasonable estimate of the proportionate coverage of coal-bearing section within the area. The overall average specific gravity for drilled seams on the property has been calculated to equal 1.66 tonnes per cubic metre. The following equation summarizes the Speculative Resource calculation:

$$\text{Speculative Resource Tonnes of Coal} = \text{Planimetered Area} \times 11.25 \times 1.66$$

(m²)
(m)
(t/m³)

System

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System 2000

Intel Systems Corp., Austin, Texas

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³MEDSYSTEM

Mintec Inc., Tucson, Arizona

⁴TELLAGRAF

Integrated Software Systems Corp., San Diego, California

⁵KERMIT

Columbia University, New York, N.Y.

⁶IBM

International Business Machines Corporation

7.3.3 Parameters

The minimum seam thickness used for the 1986 Mount Klappan Anthracite Project was 0.5 metres. Seams were included to a maximum depth of 500 metres from surface. A list of the seam thicknesses applied to the Lost-Fox resource calculations is shown in Table 7.3.

The following resource category parameters were used for the calculations. The classification scheme is illustrated in Figure 7.1

7.3.3.1 Measured Resources

Measured resources include those in-situ resources delineated through establishment of exploration data points and therefore reported with confidence as to the character and continuity of the coal seams. The maximum distance between data points, which may include adits, drill holes, trenches and outcrops, is 300 metres.

7.3.3.2 Indicated Resources

Indicated resources include in-situ resources which are delineated using established data points as well as reasonable geological projections. The maximum distance between data points is 600 metres.

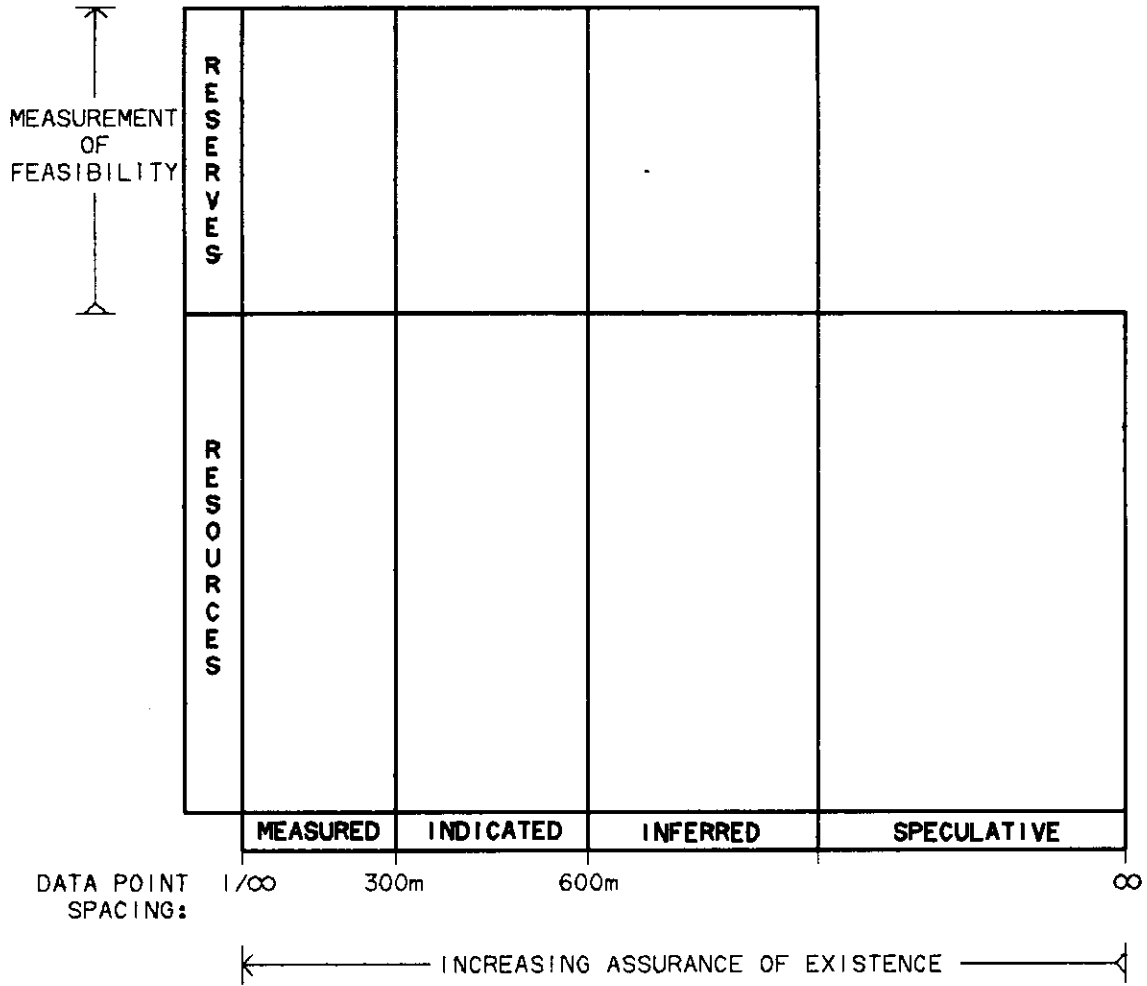


FIGURE 7-1
MOUNT KLAPPAN ANTHRACITE PROJECT
1986 RESOURCE CLASSIFICATION SCHEME

GULF CANADA CORPORATION

GULF CANADA CORPORATION
05/02/87
KLAP# [205057]84 [32600] .CHT

7.3.3.3 Inferred Resources

Inferred resources include in-situ resources which are delineated utilizing regional geological data including data points which predict the continuity of coal seams. Report ER79-9 does not state a data point spacing for this category. For the purposes of standardization for the 1986 Mount Klappan Anthracite Project resource calculations, a maximum data point spacing of 2000 metres was used for the inferred level. However, in the Hobbit-Broatch Area, inferred resources were calculated over the entire 1:2500 map area due to the continuity of coal seams in that area.

7.3.3.4 Speculative Resources

Speculative resources include those in-situ resources which are calculated from a few scattered coal occurrences in areas of little or no exploration data where the coal-bearing sequence is interpreted to exist. There is no maximum spacing in this category.

Speculative resources are only a broad geological indication of the amount of coal which could be contained within the Klappan Sequence the vast majority of which would not be mineable under current economic conditions.

8.0 COAL QUALITY

8.1 Summary

The 1986 Lost-Fox Area exploration program continued the delineation of the anthracite resources in the Lost Ridge region. Coal quality information increased substantially due to detailed analysis of coal samples obtained in diamond drilling, adit bulk sampling and trenching.

A total of 38 diamond drill holes produced 5 620 metres of core, 466.42 m of that coal. Laboratory analysis of the coal core can be found in Appendix V of this report.

The drivage of an adit resulted in a 30 metric tonne bulk sample. A complete report including coal quality is located in Appendix II of this report.

Hand trenching of 18 coal exposures provided channel samples of 5 different seams. The coal quality information from the trenching is provided in Appendix I.

8.2 Procedures and Parameters

8.2.1 Diamond Drilling Program

Each of the 154 coal and carbonaceous zones intersected was logged in detail prior to sampling. Sample

intervals were based on the stratigraphy of the seam, including rock partings and variance in coal composition. Geophysical logs were used extensively in defining these seam characteristics. The complete analysis of the coal is outlined on the flow sheet in Figure 8.1 and average analytical results are documented in Table 8.1.

Selected seam intersections from the coal core received were first crushed to pass a top size of 35 mm. Size consist was then determined according to the following: 35 mm x 25, 25 x 12, 12 x 6, 6 x 0.5, 0.5 x 0.15 and 0.15 mm x 0. Results of the average size consist for each seam are presented in Table 8.2.

Washability analysis of the coal core consisted of a consolidation of several sizes into the following 4 fractions: 35 x 6 mm, 6 x 0.5 mm, 0.5 x 0.15 mm, 0.15 x 0 mm. All but the fine fraction, 0.15 x 0 mm, were tested at the specific gravities of separations of: 1.40, 1.45, 1.50, 1.55, 1.60, 1.70, 1.80, 2.00, 2.60. The fine fraction will undergo froth floatation at a later date. All raw washability data is found in Appendix V.

8.2.2 Trenching Program

A total of 18 trenches were logged and sampled in the Lost-Fox Area. All channel samples were collected perpendicular to the strike and dip of the seam.

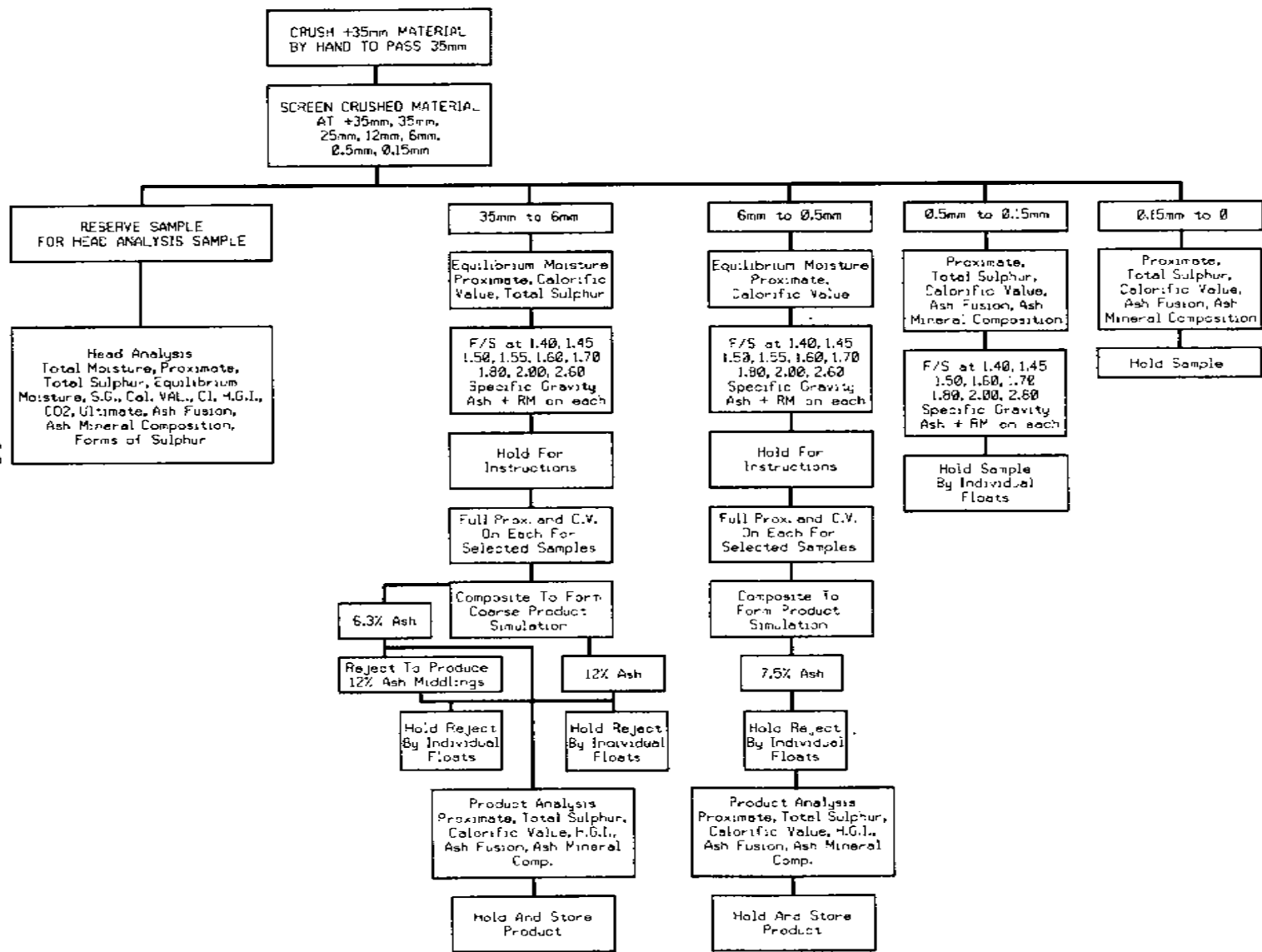


FIGURE 8-1
MOUNT KLAPPAN ANTHRACITE PROJECT
DIAMOND DRILL HOLE
COAL CORE ANALYSIS FLOW SHEET (1986)

GULF CANADA CORPORATION



TABLE 8.1
1986
AVERAGE DIAMOND DRILL HOLE RAW COAL QUALITY BY SEAM

SEAM	H	H PART	I	K	K/L	L	M/N	N	PH
PROXIMATE ANALYSIS									
Residual Moisture	0.73	0.64	1.15	0.79	0.78	0.50	0.40	1.12	0.80
Ash	37.77	61.25	22.46	40.17	41.56	36.48	40.48	37.62	35.99
Volatiles	8.23	9.70	6.91	8.42	7.88	8.24	8.48	7.87	8.78
Fixed Carbon	53.27	28.41	69.48	50.62	49.79	54.78	50.64	53.39	54.43
H.G.I.	59	63	48	53	53	59	72	79	61
Specific Gravity	1.66	1.93	1.52	1.69	1.72	1.65	1.69	1.66	1.64
Carbon Dioxide	3.33	6.26	2.10	3.61	2.97	2.94	4.44	2.36	4.98
Chlorine (ppm)	2666	2320	2359	2481	3230	2800	2430	2210	2802
Sulphur	0.43	1.57	0.39	0.68	0.45	0.40	0.37	2.81	0.35
Calorific Value :									
Gross(MJ/KG)	19.93	10.12	26.22	18.99	18.47	20.57	19.08	20.42	20.35
Gross(cal/gm)	4764	2419	6266	4538	4415	4916	4560	4880	4864
ULTIMATE ANALYSIS									
Carbon	54.99	33.05	69.66	52.69	51.82	56.59	53.80	53.45	56.98
Hydrogen	1.88	1.08	2.21	1.71	1.63	1.90	1.43	1.91	1.74
Nitrogen	0.64	0.36	0.81	0.67	0.64	0.66	0.62	0.70	0.62
Oxygen	3.56	2.05	3.31	3.30	3.12	3.48	2.90	2.39	3.52
ASH FUSION (deg C)									
Oxidizing									
Initial	1248	1225	1269	1264	1287	1282	1254	1198	1236
Softening	1277	1251	1300	1296	1318	1300	1278	1273	1252
Hemispherical	1297	1268	1318	1315	1336	1317	1294	1286	1262
Fluidizing	1365	1316	1368	1364	1393	1396	1405	1332	1299
Reducing									
Initial	1215	1171	1215	1211	1240	1222	1206	1149	1203
Softening	1239	1192	1256	1240	1260	1243	1211	1171	1218
Hemispherical	1256	1203	1275	1261	1276	1263	1222	1187	1226
Fluidizing	1327	1251	1351	1341	1370	1377	1364	1246	1271
ASH MINERAL ANALYSIS									
SiO ₂	57.94	57.22	52.23	54.59	58.71	55.83	56.20	52.26	53.12
Al ₂ O ₃	18.58	14.37	21.53	19.47	19.11	20.60	17.01	15.90	17.86
Fe ₂ O ₃	5.32	9.47	6.56	7.50	6.35	5.71	5.73	12.37	7.45
TiO ₂	1.12	0.82	1.04	1.06	0.97	1.13	1.15	0.87	1.09
P ₂ O ₅	0.74	0.46	1.72	0.88	0.68	0.76	1.27	1.01	0.80
CaO	5.97	5.93	5.03	4.96	3.85	4.99	7.53	5.49	7.96
MgO	3.64	4.29	3.99	3.85	2.99	3.32	4.31	3.11	5.04
SO ₃	2.14	2.41	2.40	2.43	1.72	2.38	2.39	4.27	2.19
Na ₂ O	1.90	1.50	2.16	1.85	1.87	2.21	1.52	1.52	1.90
K ₂ O	0.99	1.23	1.21	1.42	1.31	1.01	1.16	0.82	1.04

NOTE : Table represents a straight averaging of diamond drill hole coal quality data for those seams used in resource calculations.

Selected samples underwent proximate analysis, as well as sulphur and calorific value determinations. Table 8.3 summarizes these straight averaged values of known seams.

Table 8.3
LOST-FOX AREA
AVERAGE ANALYTICAL RESULTS OF 1986 TRENCHING PROGRAM

Proximate Analysis

SEAM	K	L	N	O	P
Residual Moisture	6.35	6.04	7.88	9.0	8.0
Ash	40.72	31.50	36.89	29.34	22.47
Volatile	16.20	19.09	21.86	27.64	25.93
F.C.	36.73	43.37	33.37	34.02	43.60
Sulphur	0.29	0.32	0.26	0.32	0.38
C.V.	3373 cal/gm	4087	5736	3384	4237

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APPENDIX A

LEGAL DESCRIPTION OF LICENCES

Appendix A

MOUNT KLAPPAN ANTHRACITE PROJECT LICENCES
1986

Lost-Fox Area

Licence	Effective Date	Hectares	Series	Block
7129	Sept. 1/81	281	104-H-2	K
7130	Sept. 1/81	281	104-H-2	K
7133	Sept. 1/81	281	104-H-2	K
7134	Sept. 1/81	281	104-H-2	K
7135	Sept. 1/81	281	104-H-2	K
7138	Sept. 1/81	281	104-H-2	K
7139	Sept. 1/81	281	104-H-2	K
7140	Dec. 31/82	281	104-H-2	K
7143	Dec. 31/82	281	104-H-2	K
7144	Dec. 31/82	281	104-H-2	K
7145	Dec. 31/82	281	104-H-2	K
7146	Sept. 1/81	281	104-H-2	L
7147	Dec. 31/82	281	104-H-2	L
7148	Sept. 1/81	281	104-H-2	L
7149	Sept. 1/81	281	104-H-2	L
7151	Dec. 31/82	281	104-H-2	L
7152	Dec. 31/82	281	104-H-2	L
7153	Sept. 1/81	281	104-H-2	L
7160	Dec. 31/82	281	104-H-7	C
7161	Dec. 31/82	281	104-H-7	C
7162	Dec. 31/82	281	104-H-7	C
7164	Dec. 31/82	280	104-H-7	C
7165	Dec. 31/82	280	104-H-7	C
7166	Dec. 31/82	280	104-H-7	C
7167	Sept. 1/81	75	104-H-7	C
7168	Sept. 1/81	142	104-H-7	C
7169	Dec. 31/82	281	104-H-7	D

Lost-Fox Area (cont'd)

Licence	Effective Date	Hectares	Series	Block
7170	Dec. 31/82	281	104-H-7	D
7171*	Dec. 31/82	140.5	104-H-7	D
7172	Dec. 31/82	280	104-H-7	D
7173*	Dec. 31/82	140	104-H-7	D
7175	Sept. 1/81	94	104-H-7	D
7527	Oct. 21/82	281	104-H-2	K
7529	Oct. 21/82	281	104-H-2	L
7561	June 30/83	21	104-H-7	C

* Licence split between Lost-Fox and Summit-Nass-Skeena Areas

Lost-Fox Area Total Hectares = 8 757.5

Appendix A

MOUNT KLAPPAN ANTHRACITE PROJECT LICENCES

1986

SUMMIT-NASS-SKEENA AREA

Summit Area				
Licence	Effective Date	Hectares	Series	Block
7171*	Dec. 31/82	140.5	104-H-7	D
7173*	Dec. 31/82	140.0	104-H-7	D
7174	Dec. 31/82	280.0	104-H-7	D
7176	Dec. 31/82	277.0	104-H-7	D
7177	Sept. 1/81	280.0	104-H-7	D
7382	Mar. 15/82	280.0	104-H-6	H
7383	Mar. 15/82	108.0	104-H-6	H
7384	Mar. 15/82	281.0	104-H-7	D
7385	Mar. 15/82	204.0	104-H-7	D
7386	Mar. 15/82	280.0	104-H-7	D
7387	Mar. 15/82	280.0	104-H-7	D
7388	Mar. 15/82	172.0	104-H-7	D
7389	Mar. 15/82	275.0	104-H-7	D
7390	Mar. 15/82	280.0	104-H-7	D
7391	Mar. 15/82	115.0	104-H-7	E
7392	Mar. 15/82	260.0	104-H-7	E
7423	Mar. 15/83	281.0	104-H-7	D
7424	Mar. 15/83	280.0	104-H-7	D
7425	Mar. 15/83	280.0	104-H-7	D
7426	Mar. 15/83	280.0	104-H-7	D
7726	Jan. 10/84	280.0	104-H-6	A
7727	Jan. 10/84	280.0	104-H-6	A
7728	Jan. 10/84	280.0	104-H-6	A
7729	Jan. 10/84	280.0	104-H-6	A
7730	Jan. 10/84	280.0	104-H-6	A

Summit Area (cont'd)		Hectares	Series	Block
Licence	Effective Date			
7731	Jan. 10/84	280.0	104-H-6	A
7732	Jan. 10/84	280.0	104-H-6	A
7733	Jan. 10/84	280.0	104-H-6	A
7734	Jan. 10/84	280.0	104-H-6	A
7735	Jan. 10/84	280.0	104-H-6	G
7736	Jan. 10/84	280.0	104-H-6	G
7737	Jan. 10/84	280.0	104-H-6	G
7738	Jan. 10/84	280.0	104-H-6	G
7739	Jan. 10/84	280.0	104-H-6	G
7740	Jan. 10/84	280.0	104-H-6	G
7741	Jan. 10/84	280.0	104-H-6	G
7742	Jan. 10/84	280.0	104-H-6	G
7743	Jan. 10/84	280.0	104-H-6	G
7744	Jan. 10/84	280.0	104-H-6	G
7745	Jan. 10/84	280.0	104-H-6	G
7746	Jan. 10/84	280.0	104-H-6	H
7747	Jan. 10/84	280.0	104-H-6	H
7748	Jan. 10/84	280.0	104-H-6	H
7749	Jan. 10/84	280.0	104-H-6	H
7750	Jan. 10/84	261.0	104-H-6	H
7751	Jan. 10/84	280.0	104-H-6	H
7752	Jan. 10/84	280.0	104-H-6	H
7753	Jan. 10/84	280.0	104-H-6	H
7754	Jan. 10/84	154.0	104-H-6	H
7755	Jan. 10/84	274.0	104-H-6	H
7756	Jan. 10/84	280.0	104-H-6	D
7757	Jan. 10/84	280.0	104-H-6	D
8047	Mar. 29/85	280.0	104-H-6	A
8048	Mar. 29/85	280.0	104-H-6	A

* Licence split between Summit-Nass-Skeena and Lost-Fox Areas.

Summit Area Total Hectares = 14 142.5

Nass Area Licence	Effective Date	Hectares	Series	Block
7150	Sept. 1/81	281	104-H-2	L
7154	Sept. 1/81	281	104-H-2	L
7421	Mar. 15/83	281	104-H-2	L
7422	Mar. 15/83	281	104-H-2	L
7427	Mar. 15/83	281	104-H-3	I
7428	Mar. 15/83	281	104-H-3	I
7429	Mar. 15/83	281	104-H-3	I
7430	Mar. 15/83	281	104-H-3	I
7431	Mar. 15/83	281	104-H-3	I
7432	Mar. 15/83	281	104-H-3	I
7487	Oct. 21/82	281	104-H-3	J
7488	Oct. 21/82	281	104-H-3	J
7505	Oct. 21/82	281	104-H-3	H
7506	Oct. 21/82	281	104-H-3	H
7507	Oct. 21/82	281	104-H-3	H
7508	Oct. 21/82	281	104-H-3	H
7509	Oct. 21/82	281	104-H-3	H
7510	Oct. 21/82	281	104-H-3	H
7511	Oct. 21/82	281	104-H-3	H
7512	Oct. 21/82	281	104-H-3	I
7513	Oct. 21/82	281	104-H-3	I
7514	Oct. 21/82	281	104-H-3	I
7515	Oct. 21/82	281	104-H-3	I
7516	Oct. 21/82	281	104-H-3	I
7517	Oct. 21/82	281	104-H-3	I
7518	Oct. 21/82	281	104-H-3	I
7519	Oct. 21/82	281	104-H-3	I
7520	Oct. 21/82	281	104-H-3	I

Nass Area (cont'd) Licence	Effective Date	Hectares	Series	Block
7521	Oct. 21/82	281	104-H-3	I
7522	Oct. 21/82	281	104-H-3	I
7523	Oct. 21/82	281	104-H-3	I
7530	Oct. 21/82	281	104-H-2	L
7531	Oct. 21/82	281	104-H-2	L
7532	Oct. 21/82	281	104-H-2	L
7533	Oct. 21/82	281	104-H-2	L
7534	Oct. 21/82	281	104-H-2	L
7535	Oct. 21/82	281	104-H-2	L
7536	Oct. 21/82	281	104-H-2	L
8032	Mar. 29/85	281	104-H-3	J
8033	Mar. 29/85	281	104-H-3	J
8034	Mar. 29/85	281	104-H-3	J
8035	Mar. 29/85	281	104-H-3	J
8036	Mar. 29/85	281	104-H-3	J
8037	Mar. 29/85	281	104-H-3	J
8038	Mar. 29/85	281	104-H-3	J
8039	Mar. 29/85	281	104-H-3	J
8040	Mar. 29/85	281	104-H-3	J
8041	Mar. 29/85	281	104-H-3	J
8042	Mar. 29/85	281	104-H-3	J
8043	Mar. 29/85	281	104-H-3	J
8044	Mar. 29/85	281	104-H-3	J
8045	Mar. 29/85	281	104-H-3	J
8046	Mar. 29/85	281	104-H-3	J
8049	Mar. 29/85	281	104-H-6	B
8050	Mar. 29/85	281	104-H-6	B
8051	Mar. 29/85	281	104-H-6	B
8052	Mar. 29/85	281	104-H-6	B
8053	Mar. 29/85	281	104-H-6	B

Nass Area Total Hectares = 16 298

Skeena Area Licence	Effective Date	Hectares	Series	Block
7489	Oct. 21/82	282	104-H-2	G
7490	Oct. 21/82	282	104-H-2	G
7491	Oct. 21/82	282	104-H-2	G
7492	Oct. 21/82	282	104-H-2	G
7493	Oct. 21/82	282	104-H-2	G
7494	Oct. 21/82	282	104-H-2	G
7495	Oct. 21/82	282	104-H-2	G
7496	Oct. 21/82	282	104-H-2	G
7497	Oct. 21/82	281	104-H-2	G
7498	Oct. 21/82	281	104-H-2	G
7499	Oct. 21/82	281	104-H-2	G
7500	Oct. 21/82	281	104-H-2	G
7501	Oct. 21/82	281	104-H-2	G
7502	Oct. 21/82	281	104-H-2	J
7503	Oct. 21/82	281	104-H-3	K
7504	Oct. 21/82	281	104-H-3	K
7524	Oct. 21/82	281	104-H-2	K
7525	Oct. 21/82	281	104-H-2	K
7526	Oct. 21/82	281	104-H-2	K
7528	Oct. 21/82	281	104-H-2	L
7537	Oct. 21/82	281	104-H-2	F
7538	Oct. 21/82	281	104-H-2	F
7539	Oct. 21/82	281	104-H-2	F
7714	Jan. 10/84	281	104-H-2	G
7715	Jan. 10/84	281	104-H-2	G
7716	Jan. 10/84	281	104-H-2	G
7717	Jan. 10/84	281	104-H-2	G
7718	Jan. 10/84	281	104-H-2	G
7719	Jan. 10/84	281	104-H-2	G

Skeena Area cont'd Licence	Effective Date	Hectares	Series	Block
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7720	Jan. 10/84	281	104-H-2	G
7721	Jan. 10/84	281	104-H-2	G
7722	Jan. 10/84	281	104-H-2	G

Skeena Area Total Hectares = 9 000

Appendix A

MOUNT KLAPPAN ANTHRACITE PROJECT LICENCES 1986

Hobbit-Broatch Area

Licence	Effective Date	Hectares	Series	Block
7118	Sept. 1/81	281	104-H-2	J
7119	Sept. 1/81	281	104-H-2	J
7120	Sept. 1/81	32	104-H-2	J
7121	Sept. 1/81	224	104-H-2	J
7122	Dec. 31/82	281	104-H-2	J
7123	Dec. 31/82	281	104-H-2	J
7124	Sept. 1/81	98	104-H-2	J
7125	Dec. 31/82	281	104-H-2	J
7126	Dec. 31/82	281	104-H-2	J
7127	Sept. 1/81	281	104-H-2	K
7128	Sept. 1/81	281	104-H-2	K
7131	Sept. 1/81	281	104-H-2	K
7132	Sept. 1/81	281	104-H-2	K
7136	Dec. 31/82	281	104-H-2	K
7137	Sept. 1/84	281	104-H-2	K
7141	Dec. 31/82	281	104-H-2	K
7142	Dec. 31/82	281	104-H-2	K
7155	Sept. 1/81	61	104-H-7	B
7156	Sept. 1/81	167	104-H-7	B
7157	Sept. 1/81	265	104-H-7	B
7158	Dec. 31/82	281	104-H-7	C
7159	Dec. 31/82	281	104-H-7	C
7163	Dec. 31/82	257	104-H-7	C
7381	Mar. 18/82	281	104-H-2	J
7416	Mar. 15/83	281	104-H-2	J
7417	Mar. 15/83	281	104-H-2	J
7418	Mar. 15/83	281	104-H-2	J
7419	Mar. 15/83	278	104-H-2	J
7420	Mar. 15/83	281	104-H-2	J

Hobbit-Broatch Area (cont'd)

Licence	Effective Date	Hectares	Series	Block
7559	June 30/83	22	104-H-7	B
7560	June 30/83	153	104-H-7	C
7723	Jan. 10/84	281	104-H-2	J
7724	Jan. 10/84	250	104-H-2	J
7725	Jan. 10/84	7	104-H-2	J

Hobbit-Broatch Area Total Hectares = 7 996

APPENDIX B
DISTRIBUTION OF WORK BY LICENCE LOST-FOX AREA

Distribution of Work by Licence

Diamond Drill Holes

Licence

KPNLRDDH86001	7152
KPNLRDDH86002	7152
KPNLRDDH86003	7170
KPNLRDDH86004	7151
KPNLRDDH86005	7152
KPNLRDDH86006	7169
KPNLRDDH86007	7151
KPNLRDDH86008	7151
KPNLRDDH86009	7151
KPNLRDDH86010	7151
KPNLRDDH86011	7145
KPNLRDDH86012	7151
KPNLRDDH86013	7145
KPNLRDDH86014	7151
KPNLRDDH86015	7151
KPNLRDDH86016	7151
KPNLRDDH86017	7151
KPNLRDDH86018	7152
KPNLRDDH86019	7151
KPNLRDDH86020	7171
KPNLRDDH86021	7151
KPNLRDDH86022	7147
KPNLRDDH86023	7171
KPNLRDDH86024	7153
KPNLRDDH86025	7148
KPNLRDDH86026	7154
KPNLRDDH86027	7148
KPNLRDDH86028	7173
KPNLRDDH86029	7152
KPNLRDDH86030	7145
KPNLRDDH86031	7148
KPNLRDDH86032	7169
KPNLRDDH86033	7145
KPNLRDDH86034	7145
KPNLRDDH86035	7145
KPNLRDDH86036	7145
KPNLRDDH86037	7147
KPNLRDDH86038	7170

Hand Trenches

Licence

KPNLRTRC86001	7151
KPNLRTRC86002	7151
KPNLRTRC86003	7151
KPNLRTRC86004	7151
KPNLRTRC86005	7151
KPNLRTRC86006	7151
KPNLRTRC86007	7151
KPNLRTRC86008	7147
KPNLRTRC86009	7149
KPNLRTRC86010	7149
KPNLRTRC86011	7149
KPNLRTRC86012	7153
KPNLRTRC86013	7153
KPNLRTRC86014	7152
KPNLRTRC86015	7147
KPNLRTRC86016	7153
KPNLRTRC86017	7153
KPNLRTRC86018	7147

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KPNLRADT86001	7152
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APPENDIX C

LISTING OF FOSSILS COLLECTED IN 1986

SAMPLE NUMBER	GEOGRAPHIC LOCATION	STRATIGRAPHIC LOCATION	IDENTIFICATION (IF KNOWN)
MS86001	Mt Gunanoot near spire	Malloch, 10m below Rhondda contact	Czekanowskia rigida Nilssonina nigracollensis Ginkgo nana
OTC85011	two ridges W of Horseshoe Ridge	mid Malloch	Ctenis borealis Podozamites lanceolatus Czekanowskia rigida Cladophlebis virginienensis fisheri Nilssonina nigracollensis
MSC86002	Hobbit cliff above J seam	above J seam in tiger stripe	Ctenis borealis Cladophlebis virginienensis Pityophyllum nordenskioldii
MSC86003	in pit, 3 cm below I seam	3 cm below I seam	Nilssonina tenuicaulis ONLY
MSC86004	in pit on high wall	above I seam	Sphenopteris brulensis
MSC86005	Outfitters Gate	lowermost Klappan	bivalves
SM860101	corkscrew ocp on BCR	lower Klappan-Spatsizi	Pityophyllum nordenskioldii Czekanowskia rigida Cladophlebis virginienensis Nilssonina tenuicaulis Helminthopsis bivalves
KH86001	"	"	unknown-sampled
SM860202	ocp after corkscrew, 91 km mark	Klappan?	bivalves
SM860203	ocp after above, 90 km mark	spatsizi	belemnite
PC86001	south side of Lost Ridge	roof of N	Ferganoconcha
SM860301	On BCR, 100m south of 98km mark	lowermost Klappan	bivalve
SM860302	On BCR, between 98-99 km mark	lowermost Klappan	Large trunk, coalified plants
KJ860101	on BCR, 90 km mark	Spatsizi	belemnites
SL860101	L.R. tiger stripes at TRC82032	floor of K	bivalves Nilssonina tenuicaulis Pityophyllum nordenskioldii

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<i>Czekanowskia rigida</i> <i>Sphenopteris?</i>
SL860102	L.R. tiger stripes at TRC82031	1m above M	<i>Sphenopteris brulensis</i> <i>Staffinella</i> minor <i>Czekanowskia rigida</i> minor <i>Baiera furcata</i> minor <i>Ptilophyllum montanense</i>
SL860103	L.R. tiger stripes above TRC82031	30m above M	<i>Sphenopteris brulensis?</i>
SL860104	L.R. on slopes, TRC84290	seam O	<i>Cladophlebis virginiensis</i> <i>Podozamites? Ginkgo nana? Nilssonina?</i>
SL860105	Avalanche area	N-O interseam	<i>Pityophyllum nordenskioldii</i> <i>Nilssonina schaubergensis</i> <i>Nilssonina tenuicaulis</i> <i>Ginkgo nana</i> <i>Czekanowskia rigida</i>
SL860106	Haul road, TRC84324	seam K-M?	<i>Nilssonina tenuicaulis</i> <i>Nilssonina canadensis</i> <i>Czekanowskia rigida</i> <i>Nilssonina schaubergensis</i> <i>Pityophyllum nordenskioldii</i> <i>Ptilophyllum montanense</i> <i>Pterophyllum rectangulare</i> <i>Sphenopteris?</i> <i>Baiera furcata?</i> bivalves others
SL860107	Haul Rd, TRC84325	near seam N	<i>Nilssonina schaubergensis</i> <i>Pityophyllum nordenskioldii</i> <i>Nilssonina tenuicaulis</i>
SM850201	L.R. large and small hogbacks	floor of J	<i>Nilssonina tenuicaulis</i> <i>Czekanowskia rigida</i> <i>Sphenopteris</i> <i>Pterophyllum rectangulare</i> <i>Baiera furcata</i> <i>Cladophlebis virginiensis</i>
BV8602	Haul road, TRC84297	I seam	gastropod <i>Nilssonina tenuicaulis</i> <i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i> <i>Sphenopteris</i> <i>Cladophlebis virginiensis</i> <i>Pterophyllum rectangulare</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<i>Nilssonia</i> sp.(cf. <i>N. tenuicaulis</i>)
BVB601	Haul Rd east of km 6	10 cm below J	<i>Czekanowskia rigida</i> <i>Nilssonia tenuicaulis</i> <i>Baiera furcata</i> <i>Nilssonia schaubergensis</i> bivalve
SM860401	outside of pit above I	just above I	bivalve <i>Czekanowskia rigida</i> unknown plant(sampled)
SM860402	Haul Rd,TRC84203	I seam	<i>Baiera furcata</i> <i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i> * <i>Sphenopteris</i>
SM860403	Haul Rd area,TRC84210	M seam	<i>Czekanowskia rigida</i> (minor) seeds?
SM860404	Haul Rd,TRC85026	J seam roof	<i>Nilssonia tenuicaulis</i> <i>Baiera furcata</i>
SM860405	Haul Rd roadcut	above J	<i>Pityophyllum nordenskioldii</i> other plants unidentified
SM860406	20 m west of TRC84295	K seam	<i>Cladophlebis virginiensis</i> * <i>Baiera furcata</i> <i>Pterophyllum rectangulare</i>
SM851903	Haul Rd,TRC85029	M seam	<i>Czekanowskia rigida</i> <i>Nilssonia schaubergensis</i> <i>Pityophyllum nordenskioldii</i>
SM860407	Haul Rd,TRC84295	K seam	<i>Nilssonia schaubergensis</i> <i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i> <i>Sphenopteris</i>
SM860408	Haul Rd,TRC84299	K seam	plant scraps only
SM860409	Haul Rd,TRC84300	K seam	plant scraps only
SM860410	Haul Rd,east of TRC84300	L seam	<i>Sphenopteris</i> <i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i> <i>Baiera furcata</i> <i>Cladophlebis virginiensis</i> <i>Ginkgo nana</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
DDH84006	L.R,116m from top	10 m above I seam	<i>Sphenopteris brulensis</i> <i>Nilssonia tenuicaulis</i>
DDH84005	L.R,32m from top	between Ph and above G seam	<i>Czekanowskia rigida</i>
SM85002	L.R,west end	above F seam	<i>Nilssonia tenuicaulis</i> <i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i> <i>Pterophyllum rectangulare</i> <i>Nilssonia nigracollensis</i>
SM850201	Lost Ridge	I-J interseam	<i>Sphenopteris brulensis</i> <i>Nilssonia sp.</i> <i>Czekanowskia rigida</i>
SM850303	L.R.(AntiSyn Hill)	F-G interseam	<i>Nilssonia sp. A</i> <i>Baiera furcata</i> <i>Czekanowskia rigida</i>
SM851806	Haul Rd south of s.p. 2971	coaster zone above J	<i>Ginkgo nana</i>
SM851903	Haul Rd,TRC85029	above N seam	<i>Czekanowskia rigida</i> <i>Nilssonia schaubergensis</i> <i>Pityophyllum nordenskioldii</i>
OTC85014	Lost Ridge	around O seam	<i>Sphenopteris brulensis</i> <i>Nilssonia schaubergensis</i> <i>Nilssonia tenuicaulis</i> <i>Pityophyllum nordenskioldii</i> <i>Baiera furcata</i> <i>Podozamites lanceolatus</i> <i>Ctenis borealis</i> bivalves
JT85A	L.R. front east slope	around M seam	<i>Pityophyllum nordenskioldii</i> <i>Nilssonia canadensis</i> <i>Nilssonia nigracollensis</i> <i>Ginkgo nana</i> <i>Sphenopteris brulensis</i> <i>Podozamites lanceolatus</i> <i>Nilssonia schaubergensis</i> <i>Nilssonia tenuicaulis</i> <i>Pterophyllum rectangulare</i> bivalves
JT85001	Lost Ridge	around N seam	<i>C. virginensis fisheri</i>
DDH85003	Lost Ridge	10-20m above K seam	<i>Pityophyllum nordenskioldii</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<i>Nilssonia</i> sp. <i>Czekanowskia rigida</i> <i>Ginkgo nana</i> <i>Sphenopteris</i>
JT858	L.R. west end	just below G seam	<i>Sphenopteris</i> <i>Cladophlebis virginiensis</i> <i>Nilssonia canadensis</i> <i>Pterophyllum rectangulare</i> <i>Pityophyllum nordenskioldii</i>
JT8507	L.R. near s.c.# 19	near J seam	<i>Sphenopteris brulensis</i> <i>Pterophyllum rectangulare</i>
MB85001	L.R. east side	K-M interseam area	<i>Ginkgo pluripartita</i>
MB85001B	L.R. east side	just above N seam	<i>Nilssonia</i> sp.
SM860501	L.R. Haul Rd.	up to 3m above M seam	<i>Nilssonia canadensis</i> <i>Cladophlebis virginiensis</i> <i>Czekanowskia rigida</i> <i>Baiera furcata</i> <i>Pityophyllum nordenskioldii</i> <i>Sagenopteris williamsii?</i>
SM860502	L.R. Haul Rd	M-N interseam	<i>Baiera furcata</i> (sparse)
SM860503	L.R. Haul Rd.	N-O-P interseams	all barren
KJ860601	L.R. S.E. slope	N-O interseam?	bivalve
KJ860602	L.R. TRC84230	roof of M seam	<i>Ginkgo nana</i>
JT860902	Haul Road	N-O interseam	<i>Ginkgo nana</i> <i>Nilssonia</i> sp. <i>Nilssonia tenuicaulis</i> <i>Baiera furcata</i> wood branches
JT860901	Haul Road	M-N interseam	<i>Staffinella</i>
BV86F03	Haul Road	G-I region	bivalves <i>Nilssonia tenuicaulis</i>
KJ86071A	L.R. S.E. slope	upper section	<i>Podozamites lanceolatus</i>
KJ860601	L.R. S.E. slope	floor of M	<i>Staffinella</i>
SL8602	Mt Klappan canyon	above K	<i>Nilssonia canadensis</i> <i>Nilssonia tenuicaulis</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<p>Ginkgo nana Cladophlebis virginiensis Baiera furcata Baiera gracilis Podozamites lanceolatus Czekanowskia rigida Pterophyllum rectangulare Pityophyllum nordenskioldii Sphenopteris Staffinella Equisitites lyelli</p>
SM86070104	Tahtsedle canyon	uppermost Klappan	<p>Ginkgo nana Nilssonina schaubergensis Pityophyllum nordenskioldii Cladophlebis virginiensis Baiera furcata Czekanowskia rigida</p>
LS860103	Tahtsedle Creek area	lowermost Malloch	Cladophlebis virginiensis fisheri
LS860104	"	"	Podozamites lanceolatus
KH86003	Hobbit Creek	upper Klappan	<p>Nilssonina canadensis Nilssonina tenuicaulis Ginkgo nana Baiera furcata Sphenopteris Pityophyllum nordenskioldii worm burrows helminthopsis bivalves</p>
SM860802	Tahtsedle Creek area	upper Klappan	<p>Pterophyllum rectangulare Ginkgo nana Baiera furcata Nilssonina tenuicaulis Czekanowskia rigida Podozamites lanceolatus?</p>
PT860702	Baiera Peak	mid to upper Klappan	<p>Baiera furcata** Cladophlebis virginiensis martiniana Nilssonina schaubergensis Nilssonina tenuicaulis Nilssonina nigracollensis Nilssonina sp.(new) petrified wood</p>
BV8611	L.R. TRC84219	M seam	<p>Pterophyllum rectangulare Nilssonina tenuicaulis</p>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<i>Czekanowskia rigida</i>
SM860901	westernmost Nass	Klappan-lower Malloch	<i>Czekanowskia rigida</i>
SM860903	"	"	<i>Podozamites lanceolatus</i> <i>Sphenopteris</i> <i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i>
SM861001	west Nass Lake	uppermost Klappan	<i>Nilssonia canadensis**</i> <i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i> <i>Podozamites lanceolatus</i> bivalve
SM861002	"	"	<i>Cladophlebis virginensis fisheri**</i> <i>Baiera furcata</i> <i>Sphenopteris</i>
SM861003	"	"	<i>Pterophyllum rectangulare</i> <i>Cladophlebis virginensis fisheri</i> <i>Podozamites lanceolatus</i>
KH8602	creek flowing into Klappan River	upper Klappan?	bivalves
SM861101	Mount Klappan Baiera Peak	Malloch	<i>Pterophyllum rectangulare</i> <i>Cladophlebis virginensis fisheri</i> <i>Cladophlebis virginensis martiniana</i> <i>Baiera furcata</i> <i>Nilssonia tenuicaulis</i> <i>Nilssonia schaubergensis</i> <i>Pterophyllum plicatum</i> <i>Ptilophyllum montanense</i> <i>Pityophyllum nordenskioldii</i> tree branches
SM861102	Mount Klappan south side	upper Klappan?	<i>Ginkgo nana</i> <i>Sphenopteris</i> <i>Cladophlebis virginensis</i> <i>Baiera furcata</i> <i>Pterophyllum rectangulare</i> <i>Nilssonia canadensis</i> <i>Ptilophyllum montanense</i> <i>Pityophyllum nordenskioldii</i>
SL860301	Summit in Big Valley	lower Klappan	bivalves <i>Nilssonia tenuicaulis</i> <i>Ginkgo nana?</i> <i>Ostrea</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
SL860302	Summit in Big Valley down from 01	lower Klappan	bivalves Ostrea
SL860304	Summit Big Valley N. fork	lower Klappan	bivalves
SM8611	Nass Clyde Creek	Klappan	Pityophyllum nordenskioldii Pterophyllum rectangulare Nilssonia tenuicaulis Ginkgo nana Baiera furcata new species
LS86009	ridge east of Nass Lake	upper Klappan	Nilssonia schaubergensis Baiera furcata Ginkgo nana Cladophlebis virginiensis acuta Sphenopteris
SM861401	east of Nass Lake	upper Klappan	Baiera furcata Cladophlebis virginiensis martiniana Czekanowskia rigida
SM861501	OTC86002 east of Nass Lake	lower Malloch	Cladophlebis virginiensis Nilssonia tenuicaulis Pityophyllum nordenskioldii Czekanowskia cf. rigida
SM861502	"	"	Cladophlebis virginiensis? Podozamites lanceolatus Nilssonia tenuicaulis Cladophlebis virginiensis fisheri Czekanowskia rigida seeds
SM861503	"	"	Czekanowskia rigida Podozamites lanceolatus Nilssonia canadensis Ginkgo nana Baiera furcata
SM861504	"	"	Sphenopteris? Baiera furcata large trees
SM861505	"	"	Cladophlebis virginiensis martiniana Baiera furcata Baiera gracilis? Nilssonia schaubergensis bivalves

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
SM861506	"	"	<i>Gingo nana</i> <i>Cladophlebis virginiensis</i> <i>Pityophyllum nordenskioldii</i>
SM861507	"	"	<i>Nilssoniaschaumbergensis</i> <i>Sagenopteris williamsii</i> <i>Podozamites lanceolatus</i> <i>Nilssoniasp.(cf. tenuicaulis)</i> <i>Ginkgo nana</i>
SM8616 (KJ8611)	5 miles SW of Mass Lake	Malloch	<i>Nilssonianigracollensis</i> <i>Czekanowskia rigida</i> <i>Cladophlebis virginiensis</i> <i>Baiera furcata</i>
JT862101	NW Lost Ridge	seam E	wood pieces <i>Nilssoniaschaumbergensis</i> <i>Czekanowskia rigida</i> <i>Nilssoniasp.</i>
		seam F	bivalve <i>Pityophyllum nordenskioldii</i> wood pieces <i>Nilssoniasp?</i>
JT862102	"	below seam B	bivalves <i>Czekanowskia rigida</i> <i>Nilssoniatenuicaulis</i> wood pieces
JT862103	"	below seam D	bivalves <i>Nilssonianigracollensis</i>
JT862204	"	at A'-2 seam	<i>Czekanowskia rigida</i> <i>Nilssoniatenuicaulis</i> new species?(cf. <i>N. canadensis</i>)
JT862205	"	A-B interseam	bivalves
SM861701 (KJ8613)	N. Mass new leases	upper Spatsizi	bivalves
SM861702	"	"	bivalves
SM861703	"	"	bivalves
SM861704	"	"	bivalves
SM861705	"	"	bivalves

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
JT862306	NW Lost Ridge	below B seam	bivalves (2+ species)
SM861801	NW Nass	upper Spatsizi-lowermost Klappen	bivalves
SM861702	"	30m above 01	bivalves
SM861703	"	10m above 02	bivalves
SM861704	"	above 03 in roof and floor of coal	<i>Pterophyllum rectangulare</i> <i>Nilssonina tenuicaulis</i> <i>Czekanowskia rigida?</i> new species <i>Pterophyllum plicatum</i>
SM861705	"	3m above 04; roof of carb mdst	bivalves
SM861706	"	15 above 05	bivalves
SM861707	"	5m above 06; floor of coal	<i>Cladophlebis virginiensis</i> <i>Pityophyllum nordenskioldii</i> bivalves
SM861708	"	20m above 07; roof of carb mdst	<i>Pityophyllum nordenskioldii</i> <i>Sphenopteris</i> <i>Nilssonina tenuicaulis</i>
SM861709	"	10m above last; roof of carb mdst	<i>Pityophyllum nordenskioldii</i>
SM861710	"	30m above 09	bivalves (Herzogina?) belemnites
SM861711	"	same bed as 10 repeated	Herzogina?
SM861712	"	"	bivalves
SM861713	"	10m below 12; same as 08	<i>Sphenopteris brulensis</i> <i>Pityophyllum nordenskioldii</i> <i>Nilssonina tenuicaulis</i>
LS86014	N Summit	upper Spatsizi-lower Klappen	bivalve
JT862408	NW Lost Ridge	below seam B	bivalves plant hash
JT862409	NW Lost Ridge	D Seam	<i>Nilssonina tenuicaulis</i> plant hash bivalve infills
JT862410	NW Lost Ridge	Below b seam	bivalves plant hash

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
JT862411	NW Lost Ridge	A-B interseam	small bivalves <i>Cladophlebis virginiensis</i>
JT862412	NW Lost Ridge	below A seam	small bivalves
SM861901	SC Summit	lowermost Klappan sequence	<i>Staffinella</i> and other bivalves
SM861902	SC Summit	lowermost Klappan sequence	<i>Nilssonina tenuicaulis</i> <i>Pityophyllum nordenskioldii</i>
SM861903	SC Summit	25 m above SM861901	<i>Staffinella</i> and other bivalves
SM861904	SC Summit	lowermost Klappan sequence	<i>Nilssonina tenuicaulis</i> <i>Pityophyllum nordenskioldii</i>
SM862006	SC Summit	lowermost Klappan sequence	<i>Staffinella</i> and other bivalves
SM862009	SC Summit	lowermost Klappan sequence	belemnite (in skree) bivalve
JT862613	W of West Pond	below seam A-2 ?	<i>Nilssonina tenuicaulis</i> <i>Nilssonina nigracollensis</i> <i>Cladophlebis virginiensis</i>
JT862614	W of West Pond	seam A-3 or A-4 ?	bivalve infills <i>Nilssonina tenuicaulis</i> plant hash
JT862615	below TRC84249	2 m below A-5 ?	<i>Nilssonina tenuicaulis</i> <i>Equisetites lyelli</i>
JT862616	below TRC84250	1 m below A-5 ?	<i>Ginkgo nana</i> <i>Ginkgo pluripartita</i> <i>Baiera furcata</i> small bivalves <i>Nilssonina tenuicaulis</i> <i>Pityophyllum nordenskioldii</i> <i>Elitides curvifolia</i>
BV862501	Lost Ridge	Klappan sequence	bivalves (2 species) <i>Helminthopsis</i>
SM862101	SC Summit	lower Klappan sequence	bivalves
SM862201	SC Summit	mid-lower Klappan sequence	<i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i> <i>Baiera furcata</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
LS861701	E Skeena	lower Malloch sequence	<i>Cladophlebis virginiensis martiniana</i> <i>Cladophlebis virginiensis fisheri</i>
KJ861701	N Summit	upper Spatsizi sequence	<i>Ostrea</i> <i>Modiolus</i>
KJ861702	N Summit	lowermost Klappan sequence	small bivalves <i>Ostrea</i>
KJ861703	N Summit	lower Klappan sequence	bivalves belemnites <i>Ostrea</i>
KJ861704	N Summit	upper Spatsizi sequence	turritellid gastropods snails bivalve
DW86002	N Summit	lower Klappan sequence	<i>Ptilophyllum montanense</i> <i>Pityophyllum nordenskioldii</i> <i>Podozamites lanceolatus</i>
LS86018-5	S Summit	mid-lower Klappan sequence	bivalve casts
JT863001	W Lost Ridge	2-3 m above seam A-1 ? 1 m above seam A-1 ?	belemnites bivalves
DW86004	Lost Ridge waste dump	"lower I seam"	<i>Nilssonia canadensis</i> <i>Pityophyllum nordenskioldii</i> <i>Baiera furcata</i> <i>Pterophyllum rectangulare</i>
DW86005	Lost Ridge waste dump	scree below DW86004	bivalve
GMB60105	C Summit	uppermost Spatsizi	<i>Modiolus</i> and other bivalves
SM86STF-2	Spatsizi type section	543 m from top of section	<i>Trigonia</i> and other bivalves
SM86STF-3	Spatsizi type section	520 m from top of section	bivalves
SM86STF-5	Spatsizi type section	507 m from top of section	bivalves
SM86STF-6	Spatsizi type section	475 m from top of section	bivalves
SM86STF-7	Spatsizi type section	465 m from top of section	<i>Trigonia</i>
SM86STF-11	Spatsizi type section	222 m from top of section	bivalves
SM86STF-12	Spatsizi type section	195 m from top of section	bivalves

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
SM86STF-13	Spatsizi type section	135 m from top of section	bivalves belemnites ammonite
SM86STF-14	Spatsizi type section	47 m from top of section	bivalves serpulid worm ? belemnite
SM86RTF-1	Rhondda type section	Lowermost Rhondda sequence	Czekanowskia rigida Baiera furcata
SM86RTF-2	Rhondda type section	Lowermost Rhondda sequence	petrified wood
SM86MTF-1	Malloch type section	25-30 m from top	Czekanowskia rigida conifer seeds fresh water pelecypod
SM86MTF-1A	Malloch type section	25-30 m from top	Podozamites cf. lanceolatus Cladophlebis virginienensis martiniana
SM86MTF-1B	Malloch type section	25-30 m from top	Cladophlebis virginienensis
SM86MTF-1C	Malloch type section	25-30 m from top	Czekanowskia rigida
SM86MTF-2	Malloch type section	942 m from top	Nilssonia tenuicaulis Ctenis borealis Czekanowskia rigida Podozamites ?
SM86MTF-2B	Malloch type section	932 m from top	Czekanowskia rigida
SM86MTF-2C	Malloch type section	909 m from top	Czekanowskia rigida
SM86MTF-2D	Malloch type section	840 m from top	Czekanowskia rigida Cladophlebis virginienensis fisheri Podozamites lanceolatus
SM86MTF-3	Malloch type section	800 m from top	Cladophlebis virginienensis
SM86MTF-3B	Malloch type section	673 m from top	Cladophlebis virginienensis Czekanowskia rigida
SM86MTF-3C	Malloch type section	646 m from top	Czekanowskia rigida
SM86MTF-3D	Malloch type section	646 m from top	Cladophlebis virginienensis Ginkgo nana Czekanowskia rigida Pityophyllum nordenskioldii

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
SM86MTF-3E	Malloch type section	564 m from top	Czekanowskia rigida Cladophlebis virginiensis
SM86MTF-3F	Malloch type section	564 m from top	Equisetites tyelli
SM86MTF-3G	Malloch type section	564 m from top	Czekanowskia rigida
SM86MTF-4	Malloch type section	516 m from top	petrified wood
SM86MTF-4B	Malloch type section	410 m from top	Czekanowskia rigida
SM86MTF-4C	Malloch type section	410 m from top	Czekanowskia rigida
SM86MTF-5	Malloch type section	492 m from top	petrified wood
SM86MTF-5B	Malloch type section	483 m from top	Podozamites lanceolatus
SM86MTF-5C	Malloch type section	442 m from top	Czekanowskia rigida
SM86MTF-5D	Malloch type section	414 m from top	Nilssonia tenuicaulis Podozamites lanceolatus Czekanowskia rigida
SM86MTF-5E	Malloch type section	391 m from top	Pityophyllum nordenskioldii Czekanowskia rigida Baiera furcata
SM86MTF-5F	Malloch type section	353 m from top	Cladophlebis virginiensis Czekanowskia rigida
SM86MTF-5G	Malloch type section	341 m from top	Czekanowskia rigida
SM86MTF-5H	Malloch type section	292 m from top	Czekanowskia rigida
SM86MTF-5I	Malloch type section	266 m from top	Czekanowskia rigida
SM86MTF-5J	Malloch type section	265 m from top	Czekanowskia rigida Cladophlebis virginiensis
SM86MTF-5K	Malloch type section	186 m from top	Czekanowskia rigida
SM86MTF-5L	Malloch type section	185 m from top	Czekanowskia rigida
SM86MTF-5M	Malloch type section	153 m from top	Czekanowskia rigida Pityophyllum nordenskioldii Cladophlebis virginiensis
SM86MTF-5N	Malloch type section	142 m from top	Ginkgo nana
SM86MTF-5O	Malloch type section	125 m from top	Czekanowskia rigida

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
SN86MTF-5P	Malloch type section	110 m from top	<i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i>
SN86MTF-5Q	Malloch type section	96 m from top	<i>Cladophlebis virginiensis</i>
SN86MTF-5R	Malloch type section	80 m from top	<i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i>
KH8601301	Summit South	low-mid Klappan sequence	wood fragments
KH8601303	Summit South	low-mid Klappan sequence	wood fragments <i>Nilssonina tenuicaulis</i> <i>Czekanowskia rigida</i> ? bivalves <i>Sphenopteris</i>
KH8601304	Summit South TRC83065	E seam ?	<i>Nilssonina canadensis</i> <i>Pityophyllum nordenskioldii</i> branches
KH8601307	Summit South	lower Klappan	<i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i>
KH8601401	Summit South TRC83075	Klappan sequence	<i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i> ?
KH8601404	Summit South	Klappan sequence	bivalves plant fragments
SL8600402	Summit South	Klappan sequence	bivalves plant fragments
SL8600403	Summit South TRC85009	Klappan sequence	<i>Pterophyllum rectangulare</i> <i>Pityophyllum nordenskioldii</i> <i>Cladophlebis virginiensis</i>
SL8600502	Fox Ck. at SC 11	mid Klappan around K seam	tree trunks <i>Pityophyllum nordenskioldii</i> <i>Baiera furcata</i> <i>Nilssonina tenuicaulis</i> <i>Pterophyllum rectangulare</i> <i>Nilssonina schaubergensis</i> <i>Podozamites lanceolatus</i> <i>Staffinella</i> <i>Sphenopteris brulensis</i>
SL8600507	Fox Ck. at SC 11	mid Klappan around K seam	logs <i>Staffinella</i> <i>Nilssonina</i> sp.

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
SL8606	Summit South TRC83052	1 m above G upper seam	<i>Nilssonia tenuicaulis</i> <i>Baiera furcata</i> <i>Cladophlebis virginiensis</i> <i>Sphenopteris brulensis</i> <i>Czekanowskia rigida</i> <i>Nilssonia schaubergensis</i> <i>Pityophyllum nordenskioldii</i> <i>Pterophyllum rectangulare</i> <i>Coniopteris</i> sp. <i>Nilssonia canadensis</i> <i>Sagenopteris williamsii</i> <i>Podozamites lanceolatus</i>
GM860102	Summit South	lower Klappan-upper Spatsizi	<i>Ostrea</i> bivalves belemnites
GM860104	Summit South	upper Spatsizi sequence	bivalves
JM860201	Summit Big Valley	upper Spatsizi sequence	bivalves
JM860202	Summit Big Valley	upper Spatsizi sequence	bivalves
DW860201	Summit South east of OTC84004	lower Klappan sequence	<i>Cladophlebis virginiensis</i> <i>Pityophyllum nordenskioldii</i> <i>Helminthopsis</i>
DW860202	Summit South below OTC84004	lower Klappan sequence	<i>Ostrea</i>
DW860203	Summit South below Otc84004	lower Klappan sequence	<i>Nilssonia tenuicaulis</i> <i>Coniopteris</i> sp. <i>Czekanowskia rigida</i> <i>Sphenopteris brulensis</i> <i>Cladophlebis virginiensis</i> <i>Podozamites lanceolatus</i> <i>Baiera gracilis</i> <i>Equisetites lyelli</i>
JT863804	Summit Repeater Ridge	lower Klappan-upper Spatsizi	belemnites bivalves
JT863314	Lower Klappan River gorge	200-300 m below A seam	large turritellid gastropod bivalves
JT863804	Repeater Ridge TRC85005	lower Klappan-upper Spatsizi	<i>Baiera furcata</i> <i>Baiera gracilis</i> <i>Nilssonia tenuicaulis</i> cone seed pod

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<i>Coniopteris</i> sp.
JT862601	Lost Ridge West Pond	Klappan sequence below TRC84249	<i>Elatides curvifolia</i> <i>Coniopteris berryi</i> <i>Nilssonina tenuicaulis</i>
DDH86022A	Box 42, 98 m from top	1 m below K seam	<i>Nilssonina canadensis</i> <i>Cladophlebis virginiensis</i> <i>Czekanowskia rigida</i>
DDH86022B	Box 44, 100 m from top	few m below K seam	bivalves
DDH86030A	Box 12, 41 m from top	I-J interseam	<i>Pterophyllum rectangulare</i> <i>Equisetites lyelli</i> <i>Nilssonina tenuicaulis</i> <i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i>
DDH86030B	Box 34, 71 m from top	floor of I seam	<i>Nilssonina tenuicaulis</i>
DDH86030C	Box 43, 89 m from top	just below I seam	<i>Czekanowskia rigida</i>
DDH86030D	Box 48, 99 m from top	just below I seam	<i>Czekanowskia rigida</i> <i>Pityophyllum nordenskioldii</i> <i>Cladophlebis virginiensis</i> <i>Equisetites lyelli</i> <i>Pterophyllum rectangulare</i>
DDH86030E	Box 49, 101 m from top	just below I seam	<i>Czekanowskia rigida</i>
DDH86030F	Box 51, 106 m from top	just below I seam	<i>Sphenopteris brulensis</i> <i>Czekanowskia rigida</i>
DDH86030G	Box 52, 107 m from top	just below I seam	<i>Sphenopteris brulensis</i> <i>Czekanowskia rigida</i>
DDH86030H	Box 68, 140 m from top	just below Ph seam	<i>Staffinella</i> <i>Ferganoconcha</i>
DDH86030I	Box 69, 142 m from top	just above Ph seam	bivalves
DDH86030J	Box 70, 146 m from top	just above Ph seam	<i>Ferganoconcha</i>
DDH86030K	Box 72, 150 m from top	within Ph seam	<i>Nilssonina</i> sp.
DDH86034A	Box 3, 20 m from top	roof of K/L seam	<i>Czekanowskia rigida</i> <i>Nilssonina tenuicaulis</i> <i>Nilssonina canadensis</i>
DDH86034B	Box 6, 25 m from top	floor of K/L seam	<i>Cladophlebis virginiensis</i>

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
			<i>Nilssonia canadensis</i> <i>Pityophyllum nordenskioldii</i> <i>Czekanowskia rigida</i>
DDH86034C	Box 38, 19 m from top	just below K/L seam	<i>Czekanowskia rigida</i> <i>Nilssonia</i> sp. cf. <i>tenuicaulis</i>
DDH86034D	Box 72, 153 m from top	floor of H/I seam	<i>Nilssonia</i> sp. <i>Pityophyllum nordenskioldii</i>
DDH86034E	Box 73, 155 m from top	floor of H/I seam	<i>Pityophyllum nordenskioldii</i>
DDH86022C	Box 32, 73 m from top	just below L seam	<i>Equisetites lyelli</i> <i>Pterophyllum rectangulare</i> <i>Pityophyllum nordenskioldii</i> <i>Sphenopteris brulensis</i>
DDH86022D	Box 33, 74 m from top	just below L seam	<i>Sphenopteris brulensis</i>
DDH86022E	Box 38, 87 m from top	just above K/L seam	<i>Czekanowskia rigida</i>
DDH86022F	Box 43, 96 m from top	midway between K/L and L seams	<i>Nilssonia tenuicaulis</i>
DDH86022G	Box 45, 101 m from top	midway between K/L and L seams	<i>Staffinella</i> ?
DDH86028A	Box 22, 54 m from top	D-C interseam	bivalve fragments
DDH86028B	Box 23, 56 m from top	D-C interseam	bivalve fragments
DDH86028C	Box 23, 57 m from top	D-C interseam	bivalve fragments
DDH86028D	Box 24, 59 m from top	D-C interseam	bivalve fragments
DDH86022E	Box 25, 60 m from top	D-C interseam	bivalve fragments
DDH86028F	Box 25, 60 m from top	D-C interseam	bivalves turritellid gastropods
DDH86028G	Box 39, 85 m from top	C-B interseam	bivalve fragments
DDH86028H	Box 40, 88.5 m from top	C-B interseam	bivalve fragments
DDH86028I	Box 41, 94 m from top	C-B interseam	bivalve fragments gastropods
DDH86028J	Box 44, 97 m from top	C-B interseam	bivalve fragments
DDH86028K	Box 45, 98 m from top	C-B interseam	bivalve fragments
DDH86028L	Box 60, 130 m from top	A-B interseam	bivalve fragments

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
DDH86028M	Box 61, 131 m from top	A-B interseam	bivalve fragments
DDH86028N	Box 71, 151 m from top	A-B interseam	Czekanowskia rigida Pityophyllum nordenskioldii
DDH86037A	Box 3, 14 m from top	just above O seam	Czekanowskia rigida
DDH86037B	Box 4, 16 m from top	just above O seam	Czekanowskia rigida Pityophyllum nordenskioldii
DDH86037C	Box 5, 17.5 m from top	just above O seam	Czekanowskia rigida Pityophyllum nordenskioldii Baiera furcata
DDH86037D	Box 5, 18 m from top	just above O seam	Pterophyllum rectangulare
DDH86037E	Box 7, 21 m from top	floor of O seam	Pityophyllum nordenskioldii Czekanowskia rigida Ginkgo pluripartita ?
DDH86037F	Box 29, 64 m from top	just above M seam	Pityophyllum nordenskioldii
DDH86037G	Box 47, 100 m from top	20 m below M seam	Pityophyllum nordenskioldii
DDH86037H	Box 49, 103 m from top	about 20 m below M seam	Podozamites lanceolatus
DDH86038I	Box 54, 114 m from top	about 30 m below M seam	Podozamites lanceolatus Czekanowskia rigida Pityophyllum nordenskioldii
DDH86023A	Box 8, 25 m from top	above and below A zone	bivalves
DDH86023B	Box 19, 44 m from top	above and below A zone	Nilssonina canadensis
DDH86023C	Box 21, 49 m from top	above and below A zone	Nilssonina canadensis Czekanowskia rigida Nilssonina sp.
DDH86024A	Box 43, 86 m from top	10 m above A-5	gastropods unknown star shaped species
DDH86025A	Box 2, 7 m from top	roof of O seam	Sphenopteris brulensis Nilssonina sp.
DDH86025B	Box 29, 66 m from top	floor of O seam	Nilssonina tenuicaulis
DDH86025C	Box 31, 70 m from top	4 m below O seam	Ferganoconcha
DDH86025D	Box 32, 72 m from top	6 m below O seam	Ferganoconcha

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
DDH86025E	Box 33, 73 m from top	7 m below O seam	bivalves
DDH86025F	Box 33, 75 m from top	8 m below O seam	Ferganoconcha ?
DDH86025G	Box 44, 95 m from top	floor of N seam	Nilssononia schaubergensis
DDH86025H	Box 44, 96.5 m from top	floor of N seam	Nilssononia tenuicaulis
DDH86025I	Box 51, 110 m from top	15 m below N seam	Nilssononia schaubergensis
DDH86025J	Box 89, 189 m from top	floor of J seam	Nilssononia tenuicaulis Czekanowskia rigida Pityophyllum nordenskioldii Pterophyllum rectangulare
DDH86026A	Box 10, 28 m from top	just above A-2 seam	Ginkgo nana
DDH86026B	Box 11, 29.5 m from top	just above A-2 seam	turritellid snail bivalves
DDH86026C	Box 12, 31 m from top	just above A-2 seam	turritellid gastropods bivalves Staffinella
DDH86026D	Box 13, 32.5 m from top	just above A-2 seam	bivalves
DDH86026E	Box 14, 34 m from top	just above A-2 seam	Staffinella turritellid gastropods
DDH86026F	Box 15, 36 m from top	roof of A-2 seam	bivalves
DDH86026G	Box 24, 53 m from top	A-2-A-3 interseam	bivalves
DDH86026H	Box 26, 58 m from top	A-2-A-3 interseam	bivalves
DDH86026I	Box 27, 60 m from top	A-2-A-3 interseam	bivalves
DDH86026J	Box 28, 62 m from top	A-2-A-3 interseam	bivalves
DDH86026K	Box 29, 63 m from top	A-2-A-3 interseam	bivalves
DDH86026L	Box 52, 109 m from top	Below A-3 seam	bivalve and plant hash
DDH86026M	Box 53, 110 m from top	below A-3 seam	bivalve and plant hash
DDH86026N	Box 54, 112 m from top	below A-3 seam	bivalves
DDH86026O	Box 55, 114 m from top	below A-3 seam	bivalves

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
DDH86026P	Box 57, 120 m from top	below A-3 seam	bivalves
DDH86026Q	Box 58, 121 m from top	below A-3 seam	bivalves
DDH86026R	121-126 m from top	below A-3 seam	bivalves
DDH86026S	Box 64, 133 m from top	below A-3 seam	bivalves
DDH86026T	Box 65, 135 m from top	below A-3 seam	bivalves
DDH86026U	Box 68, 141 m from top	below A-3 seam	bivalves
DDH86026V	Box 70, 145 m from top	below A-3 seam	bivalves
DDH86026W	146-155 m from top	below A-3 seam	bivalves
DDH86031A	Box 16, 41 m from top	2 m above I seam	bivalves
DDH86027A	Box 34, 81 m from top	floor of K/L seam	<i>Nilssonina tenuicaulis</i>
DDH86032A	Box 11, 29 m from top	10-15 m below I seam	<i>Nilssonina canadensis</i>
DDH86004A	Box 25, 64 m from top	8 m below K/L seam	bivalve
DDH86004B	Box 28, 71 m from top	13 m below K/L seam	<i>Nilssonina tenuicaulis</i>
DDH86004C	Box 83, 177 m from top	10-15 m above H seam	bivalve
DDH86006A	Box 17, 62 m from top	I-H interseam	bivalves
DDH86006B	Box 22, 72 m from top	10 m above H seam	<i>Nilssonina tenuicaulis</i> <i>Cladophlebis virginensis</i>
DDH86008A	Box 29, 79 m from top	I-H interseam	bivalves
DDH86008B	Box 31, 83 m from top	roof of H seam	<i>Nilssonina tenuicaulis</i>
DDH86009A	Box 3, 21 m from top	30 m above K seam	bivalves
DDH86009B	Box 5, 29 m from top	20 m above K seam	bivalves
DDH86012A	Box 16, 36 m from top	15 m below O seam	bivalves
DDH86012B	99-105 m from top	O-N interseam	bivalves
DDH86012C	119-121 m from top	floor of N seam	bivalves
DDH86017A	Box 41, 86 m from top	15-20 m below I seam	bivalves
DDH86020A	Box 2, 18 m from top	20 m above C seam	bivalves

SAMPLE NO.	LOCATION	POSITION	IDENTIFICATION
DDH86020B	Box 20, 53 m from top	midway between C and A seams	bivalves
DDH86020C	Box 31, 76 m from top	5 m below A seam	bivalves
SM86027-6	DDH85016	roof of I seam	Sphenopteris brulensis
SMKT85016	DDH85016	floor of J seam	Nilssonina tenuicaulis
SA2712=SA1612	DDH85016	10 m below D seam	gastropods bivalves
SA2714	DDH85027	40 m above O seam	Czekanowskia rigida Nilssonina tenuicaulis Nilssonina new sp ?
SM2712	DDH85027	0.25 m below O seam	Nilssonina canadensis Cladophlebis virginiensis Pterophyllum rectangulare Sphenopteris brulensis
SM27MSC	DDH85027	5 m below K seam	Nilssonina tenuicaulis
DDH85016A	DDH85016	5 m below J seam	Nilssonina tenuicaulis
SM86027-6	DDH85016	8 m above I seam	Sphenopteris brulensis
SM86027-14	DDH85016	C-B interseam	bivalves gastropods

APPENDIX E
SURVEY CONTROL POINTS
1986

<u>HOLE #</u>	<u>NORTHINGS</u>	<u>EASTINGS</u>	<u>ELEVATIONS</u>
39	6345302.547	507565.480	1497.85
40	6345360.275	507627.046	1492.93
41	6345432.895	507713.103	1490.01
42	6346535.499	504401.964	1321.02
43	6346578.782	504359.983	1307.42
44	6346621.488	504285.953	1315.42
45	6348530.333	505959.389	1279.00
R-46	6347185.492	504469.990	1296.89
47	6347448.809	504790.661	1290.35
48	6347586.565	505046.964	1286.55
49	6347711.712	505284.886	1283.85
50	6346588.901	504189.332	1318.75
51	6346500.013	504217.083	1310.21

TRONNES SURVEYS (1976)LTD. - OUR#86-0065

GULF CANADA CORPORATION
 MT. KLAPPAN PROJECT
 UTM COORDINATES AND ELEVATIONS IN METRES

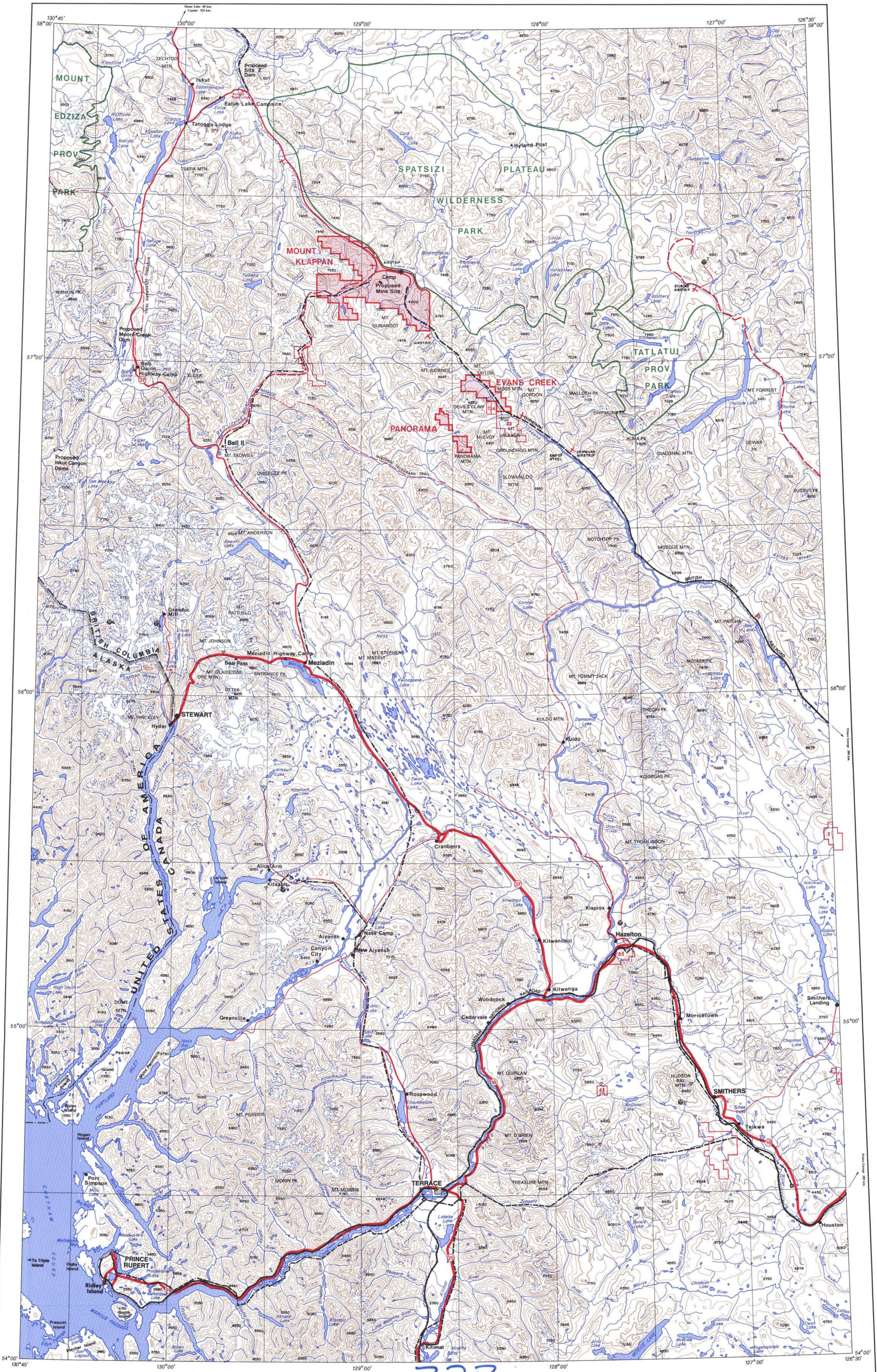
 DIAMOND DRILL HOLE TYPES

HOLE # -----	NORTHINGS -----	EASTINGS -----	ELEVATIONS -----
86-01	6344069.884	505992.127	1797.32
86-02	6343591.599	506123.138	1715.83
86-03	6345041.585	505846.361	1606.64
85-021	6345235.206	505629.894	1540.35
86-04	6344684.048	507152.411	1632.52
86-05	6344884.165	506166.912	1623.33
86-06	6344957.143	506566.251	1592.60
86-07	6344780.272	507445.517	1568.88
86-08	6344918.719	507080.969	1614.37
86-09	6344517.022	507379.703	1595.68
86-10	6344713.656	507615.754	1547.13
86-11	6344537.913	507835.458	1534.42
86-12	6344327.220	507019.084	1717.87
86-13	6344244.147	507847.038	1537.42
86-14	6344042.474	506891.674	1705.90
86-15	6344290.232	507601.842	1562.52
86-16	6343292.930	506636.289	1647.09
86-17	6343722.595	506526.637	1702.67
86-18	6343398.242	506220.252	1696.27
86-19	6343215.160	506835.256	1622.17
86-20D	6345278.619	504613.600	1434.61
86-21	6343068.198	506427.852	1642.65
86-22	6343008.168	506732.903	1634.91
86-23	6345300.657	503627.251	1396.65
86-24	6344707.379	503600.228	1438.85
86-25	6342860.009	506215.011	1656.94
86-26	6343948.109	502857.712	1400.07
86-27	6343060.587	505969.105	1672.19
86-28	6346990.109	506187.540	1366.45
86-29	6343175.778	505751.567	1690.89
86-30	6344803.802	507888.146	1531.20
86-31	6343071.866	505509.461	1699.75
86-32	6345039.194	507804.483	1519.34
86-33	6344323.771	508088.855	1523.54
86-34	6344599.807	508167.423	1503.64
86-35	6344512.406	508451.577	1502.46
86-36	6344851.685	508346.887	1507.54
86-37	6342290.840	506750.413	1641.62
86-38	6346177.331	505424.753	1388.95

APPENDIX F

1:500000 MAP

NORTHWESTERN BRITISH COLUMBIA

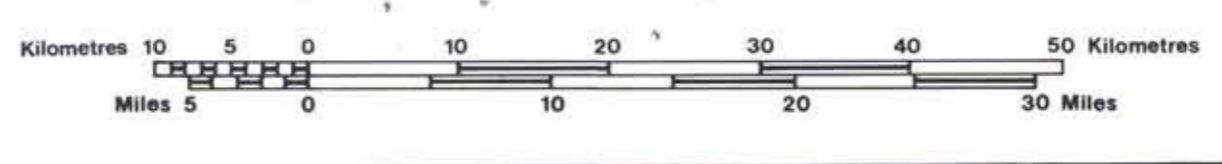


723



NORTHWEST BRITISH COLUMBIA

SCALE 1:500,000



- Legend**
- Paved Highway
 - Gravel Highway
 - Gravel Road (Restricted use)
 - Proposed Road
 - Railway
 - Existing Transmission Lines
 - Proposed Transmission Lines
 - Electrical Sub Stations
 - Proposed Dam Site
 - Proposed Park or Reserve
 - Boundary, International
 - Spot Elevation (feet above sea level)
 - Mine (see separate list)
 - Prospect
 - Cities, Towns
 - Contours (1000 foot interval)

- COAL PROPERTIES**
- 16 GULF CANADA PROPERTIES LTD.
 - 33 SUNCOR INC.
 - 134 DOMINION ANTHRACITE LTD.
 - 45 SHELL CANADA RESOURCES INC.
 - 15 D. GROOT LOGGING LTD.
 - 18 ESSO RESOURCES CANADA LTD.
 - 2 ASHTON W. MULLAN
 - 3 JOE HIBBER

- MINES**
- 2 DUTHIE — Ag, Pb, Zn, Au, Cd, Cu
 - 3 SILVER STANDARD — Ag, Pb, Zn, Au, Cu
 - 4 KITSALT — Mo
 - 5 SCOTTIE GOLD — Au, Ag
 - 6 GRANDUC — Cu, Ag, Au
 - 7 BAKER — Au, Ag

Produced jointly by GULF CANADA DRAFTING DEPT. and HARDY ASSOC. (1978) LTD., MAPPING SECTION.
Revised to Sept. 1986

This map has been compiled by Gulf from several sources and is presented as a convenience to the user.
Gulf does not guarantee or warrant its accuracy in any respect.
Any reliance placed on this map is at the user's risk.

REFERENCE NOTE

Mines: from The Northwest Region - B.C. Regional Economic Study, 1982.

Prospects: from Kitimat-Stone Regional District - 1:500,000 Regional Resource Map, 1981.

Base Map: from Dept. of Energy, Mines and Resources, Surveys and Mapping Branch, current N.T.S. series maps.



MOUNT KLAPPAN ANTHRACITE PROJECT
LOST - FOX AREA
GEOLOGICAL REPORT
1986

APPENDIX I

COAL TRENCH DATA
MEASURED SECTIONS



GULF CANADA CORPORATION
COAL DIVISION

APPENDIX I
LOST-FOX AREA
COAL TRENCH DATA

DATA SOURCE

SUMMARY

GULF CANADA CORPORATION - COAL DIVISION
 03/MAR/87 PROJECT DATA SOURCE SUMMARY PAGE 1

DATA SOURCE	LOCATION		ELEVATION	LENGTH	ANGLE	AZIMUTH	LOG TYPE
	NORTHING	EASTING					
KPNLRTRC86001	6344031.0	507369.0	1625.0	3.1			
KPNLRTRC86002	6344067.0	507370.0	1625.0	0.6			
KPNLRTRC86003	6344058.0	507371.0	1625.0	2.0			
KPNLRTRC86004	6343358.0	506387.0	1679.0	3.6			
KPNLRTRC86005	6343536.0	507012.0	1654.0	4.3			
KPNLRTRC86006	6343844.0	507203.0	1639.0	1.0			
KPNLRTRC86007	6343985.0	506967.0	1686.0	2.9	10.0	15.0	
KPNLRTRC86008	6341800.0	506500.0	1717.6	1.8	31.0	16.0	
KPNLRTRC86009	6342984.0	504228.0	1749.0	3.4	0.0	34.0	
KPNLRTRC86010	6342950.0	504213.0	1742.0	2.3	0.0	52.0	
KPNLRTRC86011	6342953.0	503959.0	1696.0	4.7	3.0	6.0	
KPNLRTRC86012	6343483.0	503653.0	1558.0	6.0	43.0	110.0	
KPNLRTRC86013	6343518.0	503690.0	1564.0	0.9	35.0	135.0	
KPNLRTRC86014	6343637.0	503800.0	1580.0	2.4	35.0	110.0	
KPNLRTRC86015	6341850.0	506600.0	1723.0	2.5	44.0	36.0	
KPNLRTRC86016	6343389.0	503806.0	1570.0	5.0	20.0	118.0	

GULF CANADA CORPORATION - COAL DIVISION
03/MAR/87 PROJECT DATA SOURCE SUMMARY PAGE 2

DATA SOURCE	LOCATION		ELEVATION	LENGTH	ANGLE	AZIMUTH	LOG TYPE
	NORTHING	EASTING					
KPNLRTRC86017	6343344.0	504042.0	1632.0	6.0	45.0	165.0	
KPNLRTRC86018	6341900.0	506630.0	1723.0	5.1	29.0	220.0	

S I M P L E S A M P L E

S U M M A R Y

05/MAR/87 GULF CANADA CORPORATION - COAL DIVISION PAGE 1
SIMPLE SAMPLE SUMMARY
TRUE THICKNESS
KLAPPAN PROJECT

DATA SOURCE	SEAM	SAMPLE ID	DEPTH FROM	DEPTH TO	PERCENT REC	RECOVERED COAL	ROCK	MISSING COAL	ROCK	TOTAL COAL - ROCK
TRC86001	N	5251	1.07	2.22	100.00	1.150				1.150- 0.000
TRC86002	P	5252	0.15	0.46	100.00	0.310				0.310- 0.000
TRC86003	O	5253	1.00	1.30	100.00	0.300				0.300- 0.000
TRC86006	L	5254	1.16	2.52	100.00	1.360				1.360- 0.000
TRC86007	K	5255	0.00	2.21	100.00	2.120	0.090			2.120- 0.090
TRC86008	K	5302	0.48	1.53	100.00	1.030	0.020			1.030- 0.020
TRC86009		5257	0.25	2.11	100.00	1.680	0.180			1.680- 0.180
TRC86010		5258	0.57	1.07	100.00	0.500				0.500- 0.000
TRC86011		5261	0.25	1.03	100.00	0.750	0.030			0.750- 0.030
TRC86012		5262	1.34	3.77	100.00	2.110	0.320			2.110- 0.320
		5263	3.77	5.87	100.00	2.100				2.100- 0.000
TRC86015		5265	0.27	1.29	100.00	0.940	0.080			0.940- 0.080
TRC86016		5264	0.11	0.91	100.00	0.780	0.020			0.780- 0.020
TRC86018		5266	0.36	2.56	100.00	1.170	1.030			1.170- 1.030
		5267	3.01	3.89	100.00	0.880				0.880- 0.000

KPNLRTRC84245

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC84245

DATE - 02/13/87

- HISTORY -

START DATE - 11/08/84

END DATE - 11/08/84

CONTRACTOR - GCRI

OPERATOR - GCRI

GEOLOGIST - W. QUINN

SURVEYOR -

REMARKS - FLOOR AND ROOF ROCK NOT AVAILABLE; NEARBY ROCK ATTITUDE 296/27 S; TOPS UNKNOWN; LOGGED FROM BOTTOM OF TRENCH; NOT A TRUE THICKNESS; TRENCH NOT DUG PERPENDICULAR TO STRIKE; COAL/COAL+ROCK 0.98/0.98; Sample no. 1505 (1984), resampled 5260 (1986).

- LOCATION -

PROVINCE - BC

ELEVATION - 1760.00

LICENCE/LEASE NUMBER - 7153

ZONE - 9

NORTHING - 6343238.00

EASTING - 504410.00

LATITUDE - 571403

LONGITUDE - 1285537

- ORIENTATION -

LENGTH - 4.80

INCLINATION - 0.0

AZIMUTH - 76.0

SIZE WIDTH - 1.3

SIZE HEIGHT - 1.4

ROOF STRIKE - 296

ROOF DIP - 27

ROOF DIR - S

FLOOR STRIKE - 0

FLOOR DIP - 0

FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====



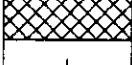
GULF CANADA CORPORATION

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR TRC84245 SEAM : INTERVAL(M) : 0.34 - 1.32 ELEVATION(M) : 1760.0
 GEOLOGIST : W. QUINN SCALE: 1:40 DATE : FEB 13/87 DRAWING NO. :

SEAM COMP.	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.						
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL. VAL MJ/KG	
1 2 3 4 5 6	0.34	↑ 														
	1.32	↓  	0.98	100.0	5260	5260	↑ ↓	0.98 / 0.00 0.98	3.68	22.25	8.60	87.27	0.52	24.90	—	

COAL DIVISION	HEAD	PROJ	KPN	BLK	LR	LG	TR08-045
=====	=====	=====	=====	=====	=====	=====	=====
SAMPLE ID	05260	DATA TYPE (REAL, SCRD, AVER, CALO)					REAL
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/08/82					
		ANALYSIS BASIS TYPE (AD, DB, AR, EM)					AD
NAME OF STANDARD (ASTM, JIS, DIN, BS, AS, GOST, ISO)							ASTM
TOP SIZE (MM)		----					
SURFACE MOISTURE %		----			TOTAL SULPHUR %		0.52
TOTAL MOISTURE %		12.92			PHOSPHORUS %		-----
EQUILIBRIUM MOISTURE %		----			CHLORINE (PPM)		-----
					SPECIFIC GRAVITY		-----
RESIDUAL MOISTURE %		3.68			ROI		-----
ASH %		22.25			ROI		-----
VOLATILE MATTER %		61.80			OCI %		-----
FIXED CARBON %		67.27					
GROSS CALORIFIC VALUE (MJ/KG)		24.90					
NET CALORIFIC VALUE (MJ/KG)		-----					

PROJECT: KPN BLOCK: LR DATA SOURCE: YRCB4245

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.34	0.34	*90		MUDSTONE	M.GY COALIFIED LEAF IMPRESSIONS; 90% IRON STAINED
	0.34	0.52	0.18	*90	05260	COAL	BLK FROZEN; VERY HARD
	0.52	1.05	0.53	*90	05260	COAL	C-2 VERY WEATHERED; BROKEN; PEARLY LUSTRE ON LARGER FRAGMENTS; SOME IRON STAINING
	1.05	1.32	0.27	*90	05260	COAL	SPOIL; ROOF ZONE
	1.32	1.64	0.32	*90		OVERBURDEN	

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC84248

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRTRC84248

DATE - 02/13/87

- HISTORY -

START DATE - 12/08/84
END DATE - 12/08/84

CONTRACTOR - GCR1
GEOLOGIST - W. QUINN

OPERATOR - GCR1
SURVEYOR -

REMARKS - HAND TRENCH; APPARENT ATTITUDE 355/60E FROM COAL;
TRUENESS OF THICKNESS IS UNCERTAIN; NO ROOF FOUND;
COAL/COAL+ROCK 1.48/2.14; SAMPLE NO. 1504 (1984),
RESAMPLED 5256 (1986).

- LOCATION -

PROVINCE - BC
ELEVATION - 1785.00

ZONE - 9
NORTHING - 6343116.00
EASTING - 504392.00

LICENCE/LEASE NUMBER - 7153

LATITUDE - 571359
LONGITUDE - 1285538

- ORIENTATION -

LENGTH - 4.75

INCLINATION - 0.0
AZIMUTH - 60.0

SIZE WIDTH - 1.2
SIZE HEIGHT - 1.2

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

1991 COAL DIVISION	HEAD	PROJ	KPN	BUY	LR	TS	TR084248		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	05256	DATA TYPE (REAL,BORD,AVR,CALC)						REAL	
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/08/86							
		ANALYSIS BASIS TYPE (AD,DR,AR,BK)						AD	
NAME OF STANDARD (ASTM, JIS, DIN, BS, AS, GOST, ISO)								ASTM	
TOP SIZE (MM)		----							
SURFACE MOISTURE %		----			TOTAL SULPHUR %			0.57	
TOTAL MOISTURE %		19.96			PHOSPHORUS %			-----	
EQUILIBRIUM MOISTURE %		----			CHLORINE (PPM)			-----	
					SPECIFIC GRAVITY			-----	
RESIDUAL MOISTURE %		4.35			PSI			-----	
ASH %		31.65			HCI			-----	
VOLATILE MATTER %		12.10			CO2 %			-----	
FIXED CARBON %		51.90							
GROSS CALORIFIC VALUE (MJ/KG)		19.54							
NET CALORIFIC VALUE (MJ/KG)		-----							

87/02/16

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPW BLOCK: LR DATA SOURCE: TRC84248

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.20	0.20	*90			CLAYSTONE	WEATH.BN EXTREMELY SOFT
	0.20	0.32	0.12	*90			COAL	C-2 SMALL CHIPS IN MUD
	0.32	0.45	0.13	*90			MUDSTONE	WEATH.BLK SMALL NONDESCRIPT COAL CHIPS
	0.45	1.20	0.75	*90	05256		COAL	C-3
	1.20	1.29	0.09	*90	05256		CLAYSTONE	WEATH IRON STAINED; SOFT; MINOR CHIPS OF COAL
	1.29	1.35	0.06	*90	05256		COAL	C-2 EXTREMELY IRON STAINED AND WEATHERED
	1.35	1.39	0.04	*90	05256		CLAYSTONE	WEATH.BN IRON STAINED; MINOR CHIPS OF COAL
	1.39	1.44	0.05	*90	05256		COAL	C-2 WEATHERED
	1.44	1.69	0.25	*90	05256		MUDSTONE	CARB.DK.GY COAL STRINGERS; MINOR IRON STAINING
	1.69	1.76	0.07	*90	05256		COAL	NONDESCRIPT; EXTREMELY WEATHERED

* DENOTES MEASURED BCA

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPW BLOCK: LR DATA SOURCE: TRC84248

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.76	1.86	0.10	*90	05256		COAL	C-2
	1.86	1.89	0.03	*90	05256		CLAYSTONE	WEATH.BN BROWN-ORANGE COLOUR; EXTREMELY WEATHERED AND IRON STAINED
	1.89	2.16	0.27	*90	05256		COAL	C-2 MINOR IRON STAINING
	2.16	2.28	0.12	*90	05256		CLAYSTONE	WEATH.BN BROWN-ORANGE COLOUR; IRON STAINED; SOFT
	2.28	2.34	0.06	*90	05256		COAL	C-3 VERY WEATHERED
	2.34	2.54	0.20	*90			CLAYSTONE	WEATH.BN EXTREMELY WEATHERED; IRON STAINED; CONTAINS SOME COAL AND MUD; LARGE PIECES OF EXTREMELY IRON STAINED FINE GRAINED SANDSTONE
	2.54	2.62	0.08	*90			CLAYSTONE	H.GY VERY SOFT; NO FLOOR ATTITUDE

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC84251

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRTRC84251

DATE - 02/13/87

- HISTORY -

START DATE - 12/08/84
END DATE - 12/08/84

CONTRACTOR - GCRI
GEOLOGIST - W. QUINN

OPERATOR - GCRI
SURVEYOR -

REMARKS - HAND TRENCH; COAL LARGELY SPOIL; LOGGED FROM N.E.;
COAL/COAL+ROCK 1.17/1.17; SAMPLE NO. 1507 (1984),
RESAMPLED 5259 (1986).

- LOCATION -

PROVINCE - BC
ELEVATION - 1702.00

ZONE - 9
NORTHING - 6343025.00
EASTING - 503962.00

LICENCE/LEASE NUMBER - 7149

LATITUDE - 571356
LONGITUDE - 1285604

- ORIENTATION -

LENGTH - 3.00

INCLINATION - 1.0
AZIMUTH - 41.0

SIZE WIDTH - 1.2
SIZE HEIGHT - 1.2

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 308
FLOOR DIP - 72
FLOOR DIR - E

*** NOTE *** 0 INDICATES NO VALUE

=====

GULF CANADA CORPORATION

SEAM DETAIL

COAL DIVISION
MOUNT KLAPPAN PROJECT

TRUE THICKNESS

DATA SOURCE: KPN LR TRC84251 SEAM : INTERVAL(M) : 0.47 - 1.17 ELEVATION(M) : 1702.0
 GEOLOGIST : W. QUINN SCALE: 1:40 DATE : FEB 13/87 DRAWING NO. :

SEAM COMP. 1 2 3 4 5 6	DRILL DEPTH METRES	COAL SEAM LOG	INTERVAL METRES		% REC.	SAMPLE ID		COAL/ROCK TOTAL		COAL QUALITY A.D.B.							
			ROCK	COAL		SIMP	COMP	COMPOS	MINING SECTION	RES MOIST	ASH	VM	FC	TS	CAL. VAL MJ/KG		
	0.47	↑															
	1.17	↓		0.70	100.0	5259	5259	0.70 / 0.00 0.70		7.62	12.18	16.93	83.27	0.48	23.57	—	

```

WORLDWIDE DIVISION HEAD FROM WPM BUN LP 01 1985-12
#####
SAMPLE ID 05257 DATA TYPE (REAL,SCOR,AVG,UNCD) 00.00
SPLIT SAMPLE ID 001 DATE ANALYSED 12/02/84
ANALYSIS BASIC TYPE (40,55,64,EM) 40
NAME OF STANDARD (ASTM,UIS,DIN,BS,AS,GBT,ISO) ASTM

TOP SIZE (UM) -----
SURFACE MOISTURE % 11.11 TOTAL SULPHUR % 11.11
TOTAL MOISTURE % 11.11 FIBRE % 11.11
EQUILIBRIUM MOISTURE % 11.11 CALORIFIC VALUE 11.11
SPECIFIC GRAVITY 11.11
MOISTURE MOISTURE % 11.11
AS % 11.11
RELATIVE HUMIDITY % 11.11
TOTAL CARBON % 11.11

SPECIFIC CALORIFIC VALUE (MJ/KG) 11.11
SPECIFIC CALORIFIC VALUE (MJ/KG) 11.11

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC84251

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.47	0.47	*90		COAL	IN MUD (SPOIL)
	0.47	0.62	0.15	*90	05259	COAL	C-2 SOME MUD
	0.62	1.17	0.55	*90	05259	COAL	MUD AND ABUNDANT CHIPS OF VERY FINE SIL TSTONE: SPOIL
	1.17	1.54	0.37	*90		CLAYSTONE	HEATH. BLK MINOR AMOUNTS OF VERY FINE COAL CHIPS
	1.54	1.74	0.20	*90		MUDSTONE	CLYY. LT. GY FLOOR

-854- NOW IN CONTACT WITH SYSTEM 2000 -
***** GEX - 03.01 - COCC. COAL/21
-855- NO LONGER IN CONTACT WITH SYSTEM 2000 -

ALLOCATED.

KPNLRTRC86001

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86001

DATE - 02/13/87

- HISTORY -

START DATE - 12/06/86
END DATE - 12/06/86

CONTRACTOR - OPERATOR - G.C.C.
GEOLOGIST - VANDENBUSSCH SURVEYOR -

REMARKS - SEAM N, SUBVERTICAL, C/C+R=1.15/1.15 TRC LOG & SAM
PLE TAKEN 2 M ABOVE HAUL ROAD.

- LOCATION -

PROVINCE - BC ZONE - 9
ELEVATION - 1625.00 NORTHING - 6344031.00
LICENCE/LEASE NUMBER - EASTING - 507369.00
LATITUDE - 571428
LONGITUDE - 1285240

- ORIENTATION -

LENGTH - 3.08 INCLINATION - 0.0
AZIMUTH - 0.0
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0
ROOF STRIKE - 115 FLOOR STRIKE - 115
ROOF DIP - 88 FLOOR DIP - 85
ROOF DIR - FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====


```

SIRI COAL DIVISION HEAD      PRD J  KPN      BLK  LR      DS  TPO86001
=====
SAMPLE ID          05251      DATA TYPE (REAL,BORG,AVER,CALC)  REAL
SPLIT SAMPLE ID   HD1        DATE ANALYSED  14/10/86
ANALYSIS BASIS TYPE (AD,DR,AP,EP)  AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOET,ISO)  ASTM

TOP SIZE (MM)      -----
SURFACE MOISTURE %  -----
TOTAL MOISTURE %   30.77
EQUILIBRIUM MOISTURE % -----

RESIDUAL MOISTURE %  7.98
ASH %               35.99
VOLATILE MATTER %   21.96
FIXED CARBON %      33.37

TOTAL SULPHUR %     -----
PHOSPHORUS %       -----
CHLORINE (PPM)     -----
SPECIFIC GRAVITY    -----
FS1                -----
FC1                -----
COD %              -----

GROSS CALORIFIC VALUE (MJ/KG)  24.98
NET CALORIFIC VALUE (MJ/KG)    -----

```

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86001

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	1.00	1.00	*90			MUDSTONE	SLTY. M.GY GRADATIONALLY SILTYER WITH DISTANCE FROM SEAM. BIVALVES VERY ABUNDANT. WEATHERED ORANGE NODULES OF SILTSTONE.
	1.00	1.07	0.07	*90			MUDSTONE	M. ORNG UNCONSOLIDATED. INTENSELY WEATHERED BRIGHT ORANGE TO RED (FE STAINING).
	1.07	1.97	0.90	*90	05251 N		COAL	C-4 DIFFICULT TO DETERMINE GRADE DUE TO INTENSE SHEARING. ABUNDANT LITRIFIC SURFACE S. MINOR IRON STAINING DOMINANTLY NEAR TOP.
	1.97	2.22	0.25	*90	05251 N		COAL	C-4 DOMINANTLY CARB MUDST TO C-6 WITH ABUNDANT VERY THIN BANDS OF VITRAIN STRINGERS. QUARTZ BANDS ASSOC. WITH MUCH OF VITRAIN BANDING, CONTORTIONS WITH MINOR FE STAINING.
	2.22	2.28	0.06	*90			MUDSTONE	CARB. DK. GY ABUNDANT COALIFIED PLANT FRAGMENTS.
	2.28	3.08	0.80	*90			MUDSTONE	M. GY BANDS OF IRON STAINING, NO APPARENT FOS SILS.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86002

COPI COAL DIVISION	HEAD	PROJ	KPN	SLY	LR	DB	TR080002
=====	=====	=====	=====	=====	=====	=====	=====
SAMPLE ID	05252	DATA TYPE (REAL,BORG,AYER,CALI)					REAL
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/86					
		ANALYSIS BASIS TYPE (AD,DB,LR,EM)					AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)							ASTM
TOP SIZE (MM)		----					
SURFACE MOISTURE %		----			TOTAL SULPHUR %		0.08
TOTAL MOISTURE %		15.14			PHOSPHOROUS %		-----
EQUILIBRIUM MOISTURE %		----			CHLORINE (PPM)		-----
					SPECIFIC GRAVITY		-----
RESIDUAL MOISTURE %		0.00			FSI		-----
ASH %		20.47			HGI		-----
VOLATILE MATTER %		35.93			CCI %		-----
FIXED CARBON %		43.60					
GROSS CALORIFIC VALUE (MJ/KG)		17.73					
NET CALORIFIC VALUE (MJ/KG)		-----					

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86002

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.15	0.15	*90		MUDSTONE	SLTY. GY SOFT. MINOR SULFUR PPT., MINOR BN WEATH ERING COLOR.
	0.15	0.43	0.28	*90	05252 P	COAL	C-2. BLK WELL DEVELOPED CLEAT. ABUNDANT FE STAIN ING DOMINENTLY ON CLEAT SURFACES. CONTA INS 0.5 CM MUDST BANDS.
	0.43	0.46	0.03	*90	05252 P	COAL	C-4
	0.46	0.58	0.12	*90		MUDSTONE	SLTY. LT. BN ROOF OF SEAM DEFORMED BUT APPEARS TO BE THE SAME ATTITUDE AS FLOOR.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86003

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86003

DATE - 02/13/87

- HISTORY -

START DATE - 12/06/86
END DATE - 12/06/86

CONTRACTOR -
GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - SEAM D, SUBVERTCAL, ROAD CUT LOG. C/C+ R=0.3/0.3

- LOCATION -

PROVINCE - BC
ELEVATION - 1625.00

ZONE - 9
NORTHING - 6344058.00
EASTING - 507371.00

LICENCE/LEASE NUMBER -

LATITUDE - 571429
LONGITUDE - 1285240

- ORIENTATION -

LENGTH - 2.03
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 125
ROOF DIP - 75
ROOF DIR - S

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

SCRI COAL DIVISION	HEAD	PROJ	KPN	SLY	LF	DS	TR064063		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	05053	DATA TYPE (REAL, BORG, AVER, CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/86							
		ANALYSIS BASIS TYPE (AD, DB, AR, B)					AD		
NAME OF STANDARD (ASTM, JIS, DIN, BS, AS, GOST, ISO)		ASTM							
TOP SIZE (MM)		----							
SURFACE MOISTURE %		----			TOTAL SULPHUR %		0.30		
TOTAL MOISTURE %		35.65			PHOSPHOROUS %		-----		
EQUILIBRIUM MOISTURE %		----			CHLORINE (PPM)		-----		
RESIDUAL MOISTURE %		9.30			SPECIFIC GRAVITY		-----		
ASH %		29.34			FSI		-----		
VOLATILE MATTER %		27.64			AGI		-----		
FIXED CARBON %		34.02			CO2 %		-----		
GROSS CALORIFIC VALUE (MJ/KG)		14.16							
NET CALORIFIC VALUE (MJ/KG)		-----							

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86003

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	1.00	1.00	*90		SILTSTONE	CLYY.M.GY QUITE SOFT OVER FIRST 0.2M, THEN BECOME S MORE CONSOLIDATED.
	1.00	1.30	0.30	*90	05253 0	COAL	C-2 INTENSELY WEATHERED AND FRIABLE. GOOD C LEAT DEVELOPMENT. FE STAINING.
	1.30	2.30	1.00	*90		MUDSTONE	CARB.DK.GY INTERPRETED TO BE A SLUMP FEATURE (MIXT URE OF MUDST AND COAL). VERY DISTORTED AND PROBABLY UNREPRESENTATIVE OF SEAM. CONTAINS 30 TO 50 CM SLST AND MUDST CON CRETIONS WITHIN.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86004

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86004

DATE - 02/13/87

- HISTORY -

START DATE - 13/06/86
END DATE - 13/06/86

CONTRACTOR -
GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - SEAM J, SUBVERTICAL, ROAD CUT LOG. TOP S TO THE NO
RTH. C/C+R=.26/.64

- LOCATION -

PROVINCE - BC
ELEVATION - 1679.00

ZONE - 9
NORTHING - 6343358.00
EASTING - 506387.00

LICENCE/LEASE NUMBER -

LATITUDE - 571407
LONGITUDE - 1285339

- ORIENTATION -

LENGTH - 3.61

INCLINATION - 0.0
AZIMUTH - 0.0

SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

ROOF STRIKE - 125
ROOF DIP - 72
ROOF DIR - S

FLOOR STRIKE - 127
FLOOR DIP - 90
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

WEST COAL DIVISION HEAD PROJ KPN BLK LP DS TFCB&006

=====

SAMPLE ID	05254	DATA TYPE (REAL,SCRD AVER,CALC)	REAL
SPLIT SAMPLE ID	HD1	DATE ANALYSED	14/10/86
		ANALYSIS BASIS TYPE (AD,DS,AR,EM)	AD

NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM)	-----		
SURFACE MOISTURE %	-----	TOTAL SULPHUR %	0.32
TOTAL MOISTURE %	19.95	PHOSPHOROUS %	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)	-----
		SPECIFIC GRAVITY	-----
RESIDUAL MOISTURE %	6.04	FSI	-----
ASH %	31.50	HGI	-----
VOLATILE MATTER %	13.09	CO2 %	-----
FIXED CARBON %	43.37		
GROSS CALORIFIC VALUE (MJ/KG)	17.10		
NET CALORIFIC VALUE (MJ/KG)	-----		

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86004

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.40	0.40	*90			MUDSTONE	CARB MINOR SLTST NODULES IN THIN BANDS. QUITE CONTORTED WITH INTENSELY FE STAINED BANDS.
	0.40	0.46	0.06	*90			SILTSTONE	M.GY WEATHERED COLOR IS ORG-BN.
	0.46	0.58	0.12	*90			MUDSTONE	CARB.BLK FE STAINED BANDS THROUGHOUT. (ALTERED Q TZ OR CARBONATE?)
	0.58	0.61	0.03	*90			MUDSTONE	CLYY.LT.BN
	0.61	0.68	0.07	*90			MUDSTONE	CARB.BLK
	0.68	0.75	0.07	*90			MUDSTONE	CLYY.LT.BN
	0.75	0.81	0.06	*90			MUDSTONE	CARB.BLK MINOR FE STAINING THROUGHOUT.
	0.81	1.13	0.32	*90			SILTSTONE	M.GY WEATHERS TO A LT GY-ORG COLOR.

* DENOTES MEASURED BCA

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86004

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.13	1.43	0.30	*90	J		MUDSTONE	CARB.BLK COALY STRINGERS THROUGHOUT. OCCASIONAL SLTST NODULES WITHIN MINOR CONTORTIONS.
	1.43	1.82	0.39	*90	J		SILTSTONE	M.GY.VTHNB WEATHERS TO A LT GY COLOR.
	1.82	1.97	0.15	*90	J		COAL	C-6 ABUNDANT COALY STRINGERS & THIN BANDS OF FE STAINED QTZ BANDS WITHIN.
	1.97	2.09	0.12	*90	J		MUDSTONE	SLTY
	2.09	2.10	0.01	*90	J		COAL	C-2 FE STAINED, GOOD CLEAT DEVELOPMENT.
	2.10	2.11	0.01	*90	J		MUDSTONE	CARB.BLK
	2.11	2.12	0.01	*90	J		COAL	C-2 FE STAINED, GOOD CLEAT DEVELOPMENT.
	2.12	2.14	0.02	*90	J		MUDSTONE	CARB.BLK
	2.14	2.17	0.03	*90	J		COAL	C-2 FE STAINED, GOOD CLEAT DEVELOPMENT.

* DENOTES MEASURED BCA

KPNLRTRC86005

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86005

DATE - 02/13/87

- HISTORY -

START DATE - 18/06/86
END DATE - 18/06/86

CONTRACTOR -
GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - SEAM J, SUBVERTICAL, ROAD CUT LOG. C/C+R=.08/1.19

- LOCATION -

PROVINCE - BC
ELEVATION - 1654.00

ZONE - 9
NORTHING - 6343536.00
EASTING - 507012.00

LICENCE/LEASE NUMBER -

LATITUDE - 571412
LONGITUDE - 1285302

- ORIENTATION -

LENGTH - 4.33
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 126
ROOF DIP - 83
ROOF DIR - S

FLOOR STRIKE - 125
FLOOR DIP - 75
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

GORT COAL DIVISION	HEAD	PROJ	KPN	BLK	LR	DS	TROB&007		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	05255	DATA TYPE (REAL,BORO,AVR,CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/86							
		ANALYSIS BASIS TYPE (AD,DS,AR,ER)					AD		
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)								ASTM	
TOP SIZE (MM)		----							
SURFACE MOISTURE %		----			TOTAL SULPHUR %		0.20		
TOTAL MOISTURE %		31.48			PHOSPHOROUS %		-----		
EQUILIBRIUM MOISTURE %		----			CHLORINE (PPM)		-----		
					SPECIFIC GRAVITY		-----		
RESIDUAL MOISTURE %		7.92			FSI		-----		
ASH %		51.21			HGI		-----		
VOLATILE MATTER %		18.95			COB %		-----		
FIXED CARBON %		21.92							
GROSS CALORIFIC VALUE (MJ/KG)		9.02							
NET CALORIFIC VALUE (MJ/KG)		-----							

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	1.00	1.00	*90			MUDSTONE	SLTY. M. GY. LAM COASTER ZONE.
	1.00	2.05	1.05	*90			MUDSTONE	CARB. DK. GY. CONTORTED OVER UPPER 0.3 M; SOFT; CONTAINS NUMEROUS CM THICK BANDS WHICH WEATHER ORANGE.
	2.05	2.14	0.09	*90			SILTSTONE	LT. GY. VERY HARD AND MASSIVE; WEATHERS LT. BN.
	2.14	2.19	0.05	*90			MUDSTONE	CARB. DK. GY.
	2.19	2.27	0.08	*90			SILTSTONE	LT. GY. VERY HARD AND MASSIVE; WEATHERS LT. BN.
	2.27	2.37	0.10	*90		J	MUDSTONE	CARB. DK. GY. CONTAINS CM SCALE SLTY. BANDS WHICH WEATHER ORG/BN.
	2.37	2.73	0.36	*90		J	MUDSTONE	SLTY. M. GY. WEATHERS LT. GY TO LT. BN. QUITE DISTURBED.
	2.73	2.83	0.10	*90		J	MUDSTONE	CARB. DK. GY. CONTAINS COALY SPECS THROUGHOUT.

* DENOTES MEASURED BCA

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

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PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	2.83	3.01	0.18	*90		J	MUDSTONE	SLTY. M. GY. WEATHERS LT. GY; HARD; SLIGHTLY FISSILE.
	3.01	3.09	0.08	*90		J	COAL	C-6.
	3.09	3.18	0.09	*90		J	MUDSTONE	SLTY. LT. GY. WEATHERS LT. GY TO LT. BN; APPEARS TO BE PART OF A NODULE OR LENS.
	3.18	3.22	0.04	*90		J	MUDSTONE	CARB. DK. GY.
	3.22	3.25	0.03	*90		J	SILTSTONE	LT. GY. WEATHERS LT. BN; HARD.
	3.25	3.33	0.08	*90		J	MUDSTONE	CARB. DK. GY. MINOR COALY STRINGERS.
	3.33	4.33	1.00	*90			SANDSTONE	SLTY. VFG. LT-M. GY. WEATHERS LT. BN TO LT. GY; CONTAINS PLANT FRAGMENTS NEAR TOP OF UNIT.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86006

COAL DIVISION HEAD	PROJ KPN	BLK LR	DB	TROS&008
=====	=====	=====	=====	=====
SAMPLE ID	05302	DATA TYPE (REAL,BORO,AVER,CALC)		REAL
SPLIT SAMPLE ID	FD1	DATE ANALYSED		14/10/52
		ANALYSIS BASIS TYPE (AD,DB,AR,EM)		AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)				ASTM
TOP SIZE (MM)	----			
SURFACE MOISTURE %	16.25	TOTAL SULPHUR %		1.38
TOTAL MOISTURE %	16.25	PHOSPHOROUS %		-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)		-----
		SPECIFIC GRAVITY		-----
RESIDUAL MOISTURE %	4.79	RGI		-----
ASH %	30.22	HGI		-----
VOLATILE MATTER %	13.45	ODI %		-----
FIXED CARBON %	51.54			
GROSS CALORIFIC VALUE (MJ/KG)	19.21			
NET CALORIFIC VALUE (MJ/KG)	-----			

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86006

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	1.00	1.00	*90		SILTSTONE	CLYY.M.GY.LAM WEATHERS LT GY TO LT BR. INTERBEDDED HARD SILTY BANDS WITH SOFTER MUDDY BANDS, ABUNDANT PLANT FOSSILS WITHIN.
	1.00	1.14	0.14	*90		MUDSTONE	CARB.DK.GY COALY STRINGERS WITHIN, MINOR CM. SCALE LT. GY MUDST BANDS, ORANGE WEATHERING PRODUCT EVIDENT.
	1.14	1.16	0.02	*90		MUDSTONE	CLYY.DK.GY WEATHERS DARK BROWN.
	1.16	1.67	0.51	*90	05254 L	COAL	C-2 CONTAINS PODS AND THIN BANDS OF ORANGE WEATHERED MUDST., AREAS OF SHEARING AND CONTORTION.
	1.67	2.52	0.85	*90	05254 L	COAL	C-3 INTENSELY SHEARED AND CONTORTED SHOWING LISTRIC SURFACES THROUGHOUT. TRUE THICKNESS IS APP. DUE TO DEFORMATIONAL EFFECTS.
	2.52	2.59	0.07	*90		SANDSTONE	YFG.LT.BN.MAS VERY HARD
	2.59	3.59	1.00	*90		SANDSTONE	MG.LT.BN EASILY WEATHERED AND FRIABLE.

* DENOTES MEASURED BCA NEWPAGE

KPNLRTRC86007


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COAL DIVISION HEAD PROJ KPN BLK LR DB 17088809
=====
SAMPLE ID 05257 DATA TYPE (REAL,BORO,AVER,CALC) REAL
SPLIT SAMPLE ID HD1 DATE ANALYSED 15/08/86
ANALYSIS BASIS TYPE (AD,DB,AR,EM) AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO) ASTM

TOP SIZE (MM) -----
SURFACE MOISTURE % -----
TOTAL MOISTURE % 28.13
EQUILIBRIUM MOISTURE % -----

RESIDUAL MOISTURE % 7.78
ASH % 29.66
VOLATILE MATTER % 19.82
FIXED CARBON % 42.73

TOTAL SULPHUR % 0.36
PHOSPHOROUS % -----
CHLORINE (PPM) -----
SPECIFIC GRAVITY -----
FSI -----
AGI -----
OSI % -----

GROSS CALORIFIC VALUE (MJ/KG) 17.10
NET CALORIFIC VALUE (MJ/KG) -----

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86007

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.22	0.22	*90 05255	K	COAL	C-2.DK.BLK POORLY CONSOLIDATED, MODERATELY CLEATED
	0.22	0.24	0.02	*90 05255	K	MUDSTONE	LT.GY POORLY CONSOLIDATED.
	0.24	0.35	0.11	*90 05255	K	COAL	C-4.DK.BLK POORLY CONSOLIDATED.
	0.35	0.37	0.02	*90 05255	K	MUDSTONE	LT.GY
	0.37	0.49	0.12	*90 05255	K	COAL	C-2.DK.BLK POORLY CONSOLIDATED, MODERATELY CLEATED INTERMIXED WITH MUD.
	0.49	0.50	0.01	*90 05255	K	MUDSTONE	DK.ORNG
	0.50	1.25	0.75	*90 05255	K	COAL	C-2.DK.BLK POORLY CONSOLIDATED, WELL CLEATED LOCAL LY. 2 TO 3 THIN FE STAINED BANDS.
	1.25	1.29	0.04	*90 05255	K	MUDSTONE	LT.ORNG

* DENOTES MEASURED BCA

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86007

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.29	1.86	0.57	*90 05255	K	COAL	C-5.DK.BLK POORLY CONSOLIDATED AND CLEATED, MUDDY WEATHERING.
	1.86	2.21	0.35	*90 05255	K	COAL	C-4.DK.BLK MINOR CLEATING. MODERATELY TO POORLY CO NSOLIDATED.

* DENOTES MEASURED BCA
NEWPAGEF
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1

KPNLRTRC86008

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPMLRTRC86008

DATE - 02/13/87

- HISTORY -

START DATE - 21/06/86
END DATE - 21/06/86

CONTRACTOR -
GEOLOGIST - LEE

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - SEAM K ?

- LOCATION -

PROVINCE - BC
ELEVATION - 1717.60

ZONE - 9
NORTHING - 6341800.00
EASTING - 506500.00

LICENCE/LEASE NUMBER -

LATITUDE - 571316
LONGITUDE - 1285333

- ORIENTATION -

LENGTH - 1.76
SIZE WIDTH - 0.5
SIZE HEIGHT - 1.2

INCLINATION - 31.0
AZIMUTH - 16.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 15
FLOOR DIP - 39
FLOOR DIR - E

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86008

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.30	0.30	*90			MUDSTONE	DK.GY HIGHLY FRACTURED; QTZ VEINING.
	0.30	0.48	0.18	*90			MUDSTONE	DK.GY WEATHERED BRIGHT ORANGE BANDS; INTERBED S OF COAL (C-1) .05 TO 1.5CM THICK, WELL CLEATED, 20% COAL.
	0.48	0.58	0.10	*90	05302	K	COAL	C-2.BLK WELL CLEATED; MINOR FE STAIN.
	0.58	0.74	0.16	*90	05302	K	COAL	C-3.BLK MINOR BANDS OF C-1 COAL; FE STAIN.
	0.74	0.87	0.13	*90	05302	K	COAL	C-4.BLK PARTLY UNCONSOLIDATED; FE STAINED.
	0.87	0.94	0.07	*90	05302	K	COAL	C-2.YEL FE STAINED; WELL CLEATED.
	0.94	1.19	0.25	*90	05302	K	COAL	C-4.BLK UNCONSOLIDATED IN PARTS; FE STAINED.
	1.19	1.39	0.20	*90	05302	K	COAL	C-3.BLK FE STAINED; WELL CLEATED.
	1.39	1.41	0.02	*90	05302	K	MUDSTONE	DK.GY UNCONSOLIDATED; FE STAINED.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86008

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.41	1.53	0.12	*90	05302	K	COAL	C-2.ORNG HIGHLY FE STAINED; CONCHOIDAL FRACTURES ; PARTLY FROZEN.
	1.53	1.63	0.10	*90			MUDSTONE	LT.BW BROWN-GREY; LAMINATED; PARTLY UNCONSOLI DATED.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86009

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86009

DATE - 02/13/87

- HISTORY -

START DATE - 26/07/86
END DATE - 26/07/86

CONTRACTOR -
GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - C/C+R = 1.65/1.86 (C-2, C-4), SAME LOCATION AS TRC
84249.

- LOCATION -

PROVINCE - BC
ELEVATION - 1749.00

ZONE - 9
NORTHING - 6342984.00
EASTING - 504228.00

LICENCE/LEASE NUMBER -

LATITUDE - 571355
LONGITUDE - 1285548

- ORIENTATION -

LENGTH - 3.39
SIZE WIDTH - 0.9
SIZE HEIGHT - 1.5

INCLINATION - 0.0
AZIMUTH - 34.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86009

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.25	0.25	*90		OVERBURDEN	ROOF SLUMP.
	0.25	0.29	0.04	*90	05257	COAL	C-3 FROZEN, MINOR THIN C-1 BANDS.
	0.29	0.34	0.05	*90	05257	COAL	C-1 FE STAIN.
	0.34	1.09	0.75	*90	05257	COAL	C-2 GOOD CLEAT, PERIODIC CM SCALE MUD BANDS
	1.09	1.18	0.09	*90	05257	MUDSTONE	CLYY MINOR VITRAIN BANDS.
	1.18	1.30	0.12	*90	05257	COAL	C-2 GOOD CLEAT.
	1.30	1.33	0.03	*90	05257	MUDSTONE	
	1.33	1.48	0.15	*90	05257	COAL	C-2
	1.48	1.52	0.04	*90	05257	COAL	C-4 POWDERED.
	1.52	1.75	0.23	*90	05257	COAL	C-2 GOOD CLEAT.

* DENOTES MEASURED BCA

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86009

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.75	1.79	0.04	*90	05257	MUDSTONE	FE STAIN, COALY STRINGERS.
	1.79	1.99	0.20	*90	05257	COAL	C-4 POWDERED, FROZEN.
	1.99	2.01	0.02	*90	05257	MUDSTONE	FE STAIN.
	2.01	2.11	0.10	*90	05257	COAL	C-4 POWDERED, FROZEN.
	2.11	2.19	0.08	*90		MUDSTONE	SLTY FE STAIN.
	2.19	2.44	0.25	*90		SANDSTONE	FG FLOOR.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86010

GOVT COAL DIVISION	HEAD	PROJ	KPN	BLK	LR	DE	75025010	
=====								
SAMPLE ID	05258	DATA TYPE (REAL,BORO,AVER,CALC)					95	LL
SPLIT SAMPLE ID	HD1	DATE ANALYSED 15/08/86						
ANALYSIS BASIS TYPE (AD,DS,AR,EM)							90	
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOBT,I90)							ASTM	
TOP SIZE (MM)	-----							
SURFACE MOISTURE %	-----	TOTAL SULPHUR %					-----	-----
TOTAL MOISTURE %	18.82	PHOSPHOROUS %					-----	-----
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)					-----	-----
RESIDUAL MOISTURE %	6.96	SPECIFIC GRAVITY					-----	-----
ASH %	14.62	R61					-----	-----
VOLATILE MATTER %	16.24	T61					-----	-----
FIXED CARBON %	62.18	D02 %					-----	-----
GROSS CALORIFIC VALUE (MJ/KG)	23.89							
NET CALORIFIC VALUE (MJ/KG)	-----							

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86010

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.25	0.25	*90			SILTSTONE	ROOF, SLIGHT COASTER APPEARANCE.
	0.25	0.55	0.30	*90			MUDSTONE	CARB SPOIL AND OYERBURDEN.
	0.55	0.57	0.02	*90			CLAYSTONE	
	0.57	0.82	0.25	*90	05258		COAL	C-2 GOOD CLEAT.
	0.82	1.02	0.20	*90	05258		COAL	C-1 VERY HARD, CONCHOIDAL FRACTURE.
	1.02	1.07	0.05	*90	05258		COAL	C-6 ABUNDANT COALIFIED PLANT FRAGS AND MUJDS T.
	1.07	1.09	0.02	*90			CLAYSTONE	
	1.09	1.19	0.10	*90			MUDSTONE	CARB SPOIL APPEARANCE.
	1.19	1.44	0.25	*90			MUDSTONE	FLOOR.

* DENOTES MEASURED BCA NEWPAGE

KPNLRTRC86011

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRTRC86011

DATE - 02/13/87

- HISTORY -

START DATE - 26/07/86

END DATE - 26/07/86

CONTRACTOR -

GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.

SURVEYOR -

REMARKS - C/C+R = 0.75/0.78, SAME LOCATION AS TRC84253.

- LOCATION -

PROVINCE - BC

ELEVATION - 1696.00

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6342953.00

EASTING - 503959.00

LATITUDE - 571354

LONGITUDE - 1285604

- ORIENTATION -

LENGTH - 4.68

INCLINATION - 3.0

AZIMUTH - 6.0

SIZE WIDTH - 1.1

SIZE HEIGHT - 2.0

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 0

FLOOR DIP - 0

FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

WORLD COAL DIVISION	HEAD	PROJ	KRM	SEN	LR	DS	TR082011
=====	=====	=====	=====	=====	=====	=====	=====
SAMPLE ID	05261	DATA TYPE (REAL,BORO,AVR,CALC)					REAL
ORIG SAMPLE ID	HD1	DATE ANALYSED 14/10/86					
		ANALYSIS BASIS TYPE (AD,DS,AR,EM)					AD
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)							ASTM
TOP SIZE (MM)		----					
SURFACE MOISTURE %		----		TOTAL SULPHUR %		9.33	
TOTAL MOISTURE %		26.52		PHOSPHORUS %		-----	
EQUILIBRIUM MOISTURE %		----		CHLORINE (PPM)		-----	
RESIDUAL MOISTURE %		4.85		GRAND TOTAL		-----	
ASH %		20.71		FSI		-----	
VOLATILE MATTER %		19.46		HCI		-----	
FIXED CARBON %		50.58		CO2 %		-----	
GROSS CALORIFIC VALUE (MJ/KG)		19.33					
NET CALORIFIC VALUE (MJ/KG)		-----					

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86011

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.25	0.25	*90		OVERBURDEN	SPOIL.
	0.25	0.75	0.50	*90	05261	COAL	C-2 APPROXIMATE THICKNESS AS IT GRADES INTO SPOIL. NOT BEDDED.
	0.75	0.78	0.03	*90	05261	MUDSTONE	CLYY
	0.78	1.03	0.25	*90	05261	COAL	C-2 LOOSE, NOT BEDDED.
	1.03	1.28	0.25	*90		MUDSTONE	CARB

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86012

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRTRC86012

DATE - 02/13/87

- HISTORY -

START DATE - 30/07/86
END DATE - 30/07/86

CONTRACTOR -
GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - BIG SURPRISE !!! C/C+R = 4.21/4.53 (C-1 -> C-2).

- LOCATION -

PROVINCE - BC
ELEVATION - 1558.00

ZONE - 9
NORTHING - 6343483.00
EASTING - 503653.00

LICENCE/LEASE NUMBER -

LATITUDE - 571411
LONGITUDE - 1285622

- ORIENTATION -

LENGTH - 6.00
SIZE WIDTH - 0.4
SIZE HEIGHT - 0.5

INCLINATION - 43.0
AZIMUTH - 110.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

ZIRI COAL DIVISION	HEAD	PROJ	REF	BLK	LR	DB	TR084012		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	05262	DATA TYPE (REAL,BORO,AVER,CALC)					REAL		
SPLIT SAMPLE ID	AD1	DATE ANALYSED 15/08/36							
		ANALYSIS BASIS TYPE (AD,DB,AR,GM)					AD		
NAME OF STANDARD (ASTM,JIS,DIN,B9,AS,GOST,ISO)		ASTM							
TOP SIZE (MM) -----									
SURFACE MOISTURE %		-----		TOTAL SULPHUR %		0.30			
TOTAL MOISTURE %		19.16		PHOSPHOROUS %		-----			
EQUILIBRIUM MOISTURE %		-----		CHLORINE (PPM)		-----			
				SPECIFIC GRAVITY		-----			
RESIDUAL MOISTURE %		7.61		P81		-----			
ASH %		23.47		P83		-----			
VOLATILE MATTER %		19.56		CO2 %		-----			
FIXED CARBON %		49.36							
GROSS CALORIFIC VALUE (MJ/KG) 18.77									
NET CALORIFIC VALUE (MJ/KG) -----									

COKE COAL DIVISION	HEAD	PROD	KPN	BLK	LN	TO	TROB&C'D		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	050263	DATA TYPE (REAL,BORD,AVRP,ALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED					15/08/86		
		ANALYSIS BASIS TYPE (AD,DS,AR,EM)					AD		
NAME OF STANDARD (ASTM,CIS,DIN,BS,AS,GOST,ISO)	ASTM								
TOP SIZE (MM)	-----								
SURFACE MOISTURE %	-----	TOTAL SULPHUR %					0.42		
TOTAL MOISTURE %	11.40	PHOSPHOROUS %					-----		
EQUILIBRIUM MOISTURE %	-----	CHLORINE (PPM)					-----		
		SPECIFIC GRAVITY					-----		
RESIDUAL MOISTURE %	7.08	FCI					-----		
ASH %	6.51	HGI					-----		
VOLATILE MATTER %	11.96	GDD %					-----		
FIXED CARBON %	74.47								
GROSS CALORIFIC VALUE (MJ/KG)	27.80								
NET CALORIFIC VALUE (MJ/KG)	-----								

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86012

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.25	0.25	*90			MUDSTONE	SLTY ROOF ROCK.
	0.25	0.60	0.35	*90			COAL	C-3 WEATHERED, SOFT.
	0.60	1.20	0.60	*90			MUDSTONE	CLYY, GY CARBONACEOUS IN PLACES.
	1.20	1.34	0.14	*90			MUDSTONE	CARB TINY COAL STRINGERS, WEATHERED.
	1.34	1.57	0.23	*90	05262		COAL	C-2 WEATHERED.
	1.57	1.60	0.03	*90	05262		MUDSTONE	CLYY FE- STAINED.
	1.60	1.98	0.38	*90	05262		COAL	C-3 BANDED, MINOR MUDDY BANDS, WEATHERED.
	1.98	2.00	0.02	*90	05262		MUDSTONE	FE- STAINED.
	2.00	2.09	0.09	*90	05262		COAL	C-3
	2.09	2.21	0.12	*90	05262		MUDSTONE	CLYY, LT. GY UNCONSOLIDATED.

* DENOTES MEASURED BCA

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86012

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP ID	SEAM ID	LITHOLOGY	DESCRIPTION
	2.21	2.39	0.18	*90	05262		COAL	C-3 MINOR MUDDY BANDS WITHIN.
	2.39	2.53	0.14	*90	05262		MUDSTONE	CARB COALY STRINGERS THROUGHOUT.
	2.53	2.68	0.15	*90	05262		COAL	C-3
	2.68	2.69	0.01	*90	05262		MUDSTONE	M. GY UNCONSOLIDATED.
	2.69	3.66	0.97	*90	05262		COAL	C-2 APPROACHING C-1 IN PLACES.
	3.66	3.77	0.11	*90	05262		COAL	C-3 BANDED.
	3.77	5.57	1.80	*90	05263		COAL	C-1 VERY HARD, MINERAL STAINING, AND CONCHOIDAL FRACTURE.
	5.57	5.87	0.30	*90	05263		COAL	C-2
	5.87	6.12	0.25	*90			MUDSTONE	FLOOR ROCK.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86013

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86013

DATE - 02/13/87

- HISTORY -

START DATE - 31/07/86

END DATE - 31/07/86

CONTRACTOR -

GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.

SURVEYOR -

REMARKS - C/C+R = 0.27/0.27 (CARBONACEOUS MUDSTONE MAINLY),
NO SAMPLE TAKEN.

- LOCATION -

PROVINCE - BC

ELEVATION - 1564.00

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6343518.00

EASTING - 503690.00

LATITUDE - 571412

LONGITUDE - 1285620

- ORIENTATION -

LENGTH - 0.90

SIZE WIDTH - 0.3

SIZE HEIGHT - 0.1

ROOF STRIKE - 20

ROOF DIP - 40

ROOF DIR - E

INCLINATION - 35.0

AZIMUTH - 135.0

FLOOR STRIKE - 340

FLOOR DIP - 32

FLOOR DIR - E

*** NOTE *** 0 INDICATES NO VALUE

=====

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GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPM BLOCK: LR DATA SOURCE: TRC86013

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	3.50	3.50	*90			MUDSTONE	SLTY ROOF, STRIKING RESEMBLANCE TO THE 'COASTER ZONE'.
	3.50	3.56	0.06	*90			MUDSTONE	CLYY.BN
	3.56	3.62	0.06	*90			COAL	C-4 POWDERED.
	3.62	3.76	0.14	*90			COAL	C-2 CLEAT DEVELOPMENT.
	3.76	3.83	0.07	*90			COAL	C-3
	3.83	4.07	0.24	*90			MUDSTONE	CARB MINOR VITRAIN STRINGERS THROUGHOUT.
	4.07	4.11	0.04	*90			SILTSTONE	MANY PLANT FRAGMNETS WITHIN, WEATHERS INTO ORANGE & GREY BANDS.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86014

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86014

DATE - 02/13/87

- HISTORY -

START DATE - 01/08/86
END DATE - 01/08/86

CONTRACTOR -
GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - UNABLE TO DETERMINE ACCURATE ROOF & FLOOR MEASUREMENTS C/C+R = 0.45/0.45, NO SAMPLE TAKEN.

- LOCATION -

PROVINCE - BC
ELEVATION - 1580.00

ZONE - 9
NORTHING - 6343637.00
EASTING - 503800.00

LICENCE/LEASE NUMBER -

LATITUDE - 571416
LONGITUDE - 1285613

- ORIENTATION -

LENGTH - 2.40

INCLINATION - 35.0
AZIMUTH - 110.0

SIZE WIDTH - 0.6
SIZE HEIGHT - 1.6

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR - E

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR - E

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86014

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.10	0.10	*90			MUDSTONE	OVERBURDEN.
	0.10	0.30	0.20	*90			COAL	C-3 HIGHLY WEATHERED, ABUNDANT THIN MUD BANDS THROUGHOUT, 1 CM QUARTZ BAND AT BASE
	0.30	0.55	0.25	*90			COAL	C-4 HIGHLY WEATHERED, VERY MUDDY, DISTORTED & CONTORTED.
	0.55	0.88	0.33	*90			MUDSTONE	CARB COALY SPECKS THROUGHOUT.
	0.88	0.92	0.04	*90			SILTSTONE	CLYY.LT.GY SOFT, SULPHUR OCCURENCE.
	0.92	1.12	0.20	*90			MUDSTONE	CARB FE- STAINING IN PLACES.
	1.12	1.19	0.07	*90			CLAYSTONE	MH SOFT, SULPHUR OCCURENCE.
	1.19	1.29	0.10	*90			MUDSTONE	CARB FE- STAINED IN PLACES.
	1.29	1.43	0.14	*90			SILTSTONE	CLYY.MH SOFT, SULPHUR OCCURENCE.

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86014

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.43	1.53	0.10	*90			MUDSTONE	DK.GY COLLECTIVE SAMPLE OF LIGHT COLOURED CLAYSTONES TAKEN FOR ANALYSIS & REVIEW BY DAVE LOVE.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86015

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRTRC86015

DATE - 02/13/87

- HISTORY -

START DATE - 19/08/86
END DATE - 20/08/86

CONTRACTOR -
GEOLOGIST - LEE

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - C/C+R = 0.94 / 1.01M.

- LOCATION -

PROVINCE - BC
ELEVATION - 1723.00

ZONE - 9
NORTHING - 6341850.00
EASTING - 506600.00

LICENCE/LEASE NUMBER -

LATITUDE - 571318
LONGITUDE - 1285327

- ORIENTATION -

LENGTH - 2.50
SIZE WIDTH - 1.0
SIZE HEIGHT - 1.0

INCLINATION - 44.0
AZIMUTH - 36.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 118
FLOOR DIP - 50
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

=====

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86015

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.24	0.24	*90			MUDSTONE	M. BN UNCONSOLIDATED.
	0.24	0.27	0.03	*90			MUDSTONE	DK. GY V. FINE COAL LAM. PARTIALLY UNCONSOLIDATED.
	0.27	0.32	0.05	*90	05265		COAL	C-3. DK. BLK WELL CLEATED. PARTIALLY UNCONSOLIDATED.
	0.32	0.88	0.56	*90	05265		COAL	C-2. DK. BLK WELL CLEATED BANDS VARY IN THICKNESS FROM .5 CM. TO 3 CM. WELL CONSOLIDATED.
	0.88	0.94	0.06	*90	05265		COAL	C-5. DK. BLK UNCONSOLIDATED. SOME CI. FRAGS.
	0.94	0.98	0.04	*90	05265		MUDSTONE	DK. ORNG FE STAINED WITH MINOR BN. BANDING.
	0.98	1.09	0.11	*90	05265		COAL	C-5. DK. BLK UNCONSOLIDATED. MINOR CLEAT PRESENT.
	1.09	1.16	0.07	*90	05265		COAL	C-2. DK. BLK SOME CLEATIN. BREAKS EASILY ALONG CLEAT.
	1.16	1.18	0.02	*90	05265		MUDSTONE	DK. GY CONTAINS STRINGERS. VERY SOFT.

* DENOTES MEASURED BCA

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86015

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.18	1.25	0.07	*90	05265		COAL	C-3. DK. BLK SOME CONCHOIDAL FRACTURE. MINERAL STAINING ON CLEAT SURFACES.
	1.25	1.27	0.02	*90	05265		MUDSTONE	M. GY VERY SOFT.
	1.27	1.29	0.02	*90	05265		COAL	C-2. DK. BLK MINOR FE STAIN. CONCH. FRACTURE.
	1.29	1.32	0.03	*90			MUDSTONE	DK. GY WEATHERS BROWN. SOFT.
	1.32	2.08	0.76	*90			MUDSTONE	WEATHERS DARK BROWN. MINOR COAL LAMINATIONS WITHIN.

* DENOTES MEASURED BCA
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7

KPNLRTRC86016

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86016

DATE - 02/13/87

- HISTORY -

START DATE - 14/08/86

END DATE - 14/08/86

CONTRACTOR -

GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.

SURVEYOR -

REMARKS - STILL PARTIALLY WEATHERED AT SAMPLE DEPTH.

- LOCATION -

PROVINCE - BC

ELEVATION - 1570.00

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6343389.00

EASTING - 503806.00

LATITUDE - 571408

LONGITUDE - 1285613

- ORIENTATION -

LENGTH - 5.00

INCLINATION - 20.0

AZIMUTH - 118.0

SIZE WIDTH - 0.7

SIZE HEIGHT - 1.6

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 170

FLOOR DIP - 20

FLOOR DIR - W

*** NOTE *** 0 INDICATES NO VALUE

=====

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86016

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.11	0.11	*90		MUDSTONE	CARB. DK. GY MINOR RUST BANDS THROUGHOUT (ROOF).
	0.11	0.12	0.01	*90 05264		COAL	C-1 FE STAINED.
	0.12	0.14	0.02	*90 05264		MUDSTONE	SLTY. M. GY
	0.14	0.57	0.43	*90 05264		COAL	C-3 FE STAINING, FISSILE, WEATHERED AND SOFT.
	0.57	0.91	0.34	*90 05264		COAL	C-2 WEATHERED, FE STAINED, APPROACHING C-1 QUALITY IN PLACES.
	0.91	1.16	0.25	*90		MUDSTONE	CLYY. M. GY MINOR VITRAIN. STRINGERS WITHIN. ABUNDANT PLANT FRAGS. (FLOOR.)

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86017

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRTRC86017

DATE - 02/13/87

- HISTORY -

START DATE - 16/08/86

END DATE - 16/08/86

CONTRACTOR -

GEOLOGIST - VANDENBUSSCH

OPERATOR - G.C.C.

SURVEYOR -

REMARKS - EXCELLENT COAL FOUND ON SURFACE ,UNABLE TO REACH I
N PLACE COAL, NO DETAILED LOG OR SAMPLE.

- LOCATION -

PROVINCE - BC

ELEVATION - 1632.00

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6343344.00

EASTING - 504042.00

LATITUDE - 571406

LONGITUDE - 1285559

- ORIENTATION -

LENGTH - 6.00

INCLINATION - 45.0

AZIMUTH - 165.0

SIZE WIDTH - 0.7

SIZE HEIGHT - 3.0

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 0

FLOOR DIP - 0

FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

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PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86017

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	4.00	4.00	*		OVERBURDEN	SPOIL, NOT POSSIBLE TO LOG IN DETAIL DUE TO WEATHERING.

* DENOTES MEASURED BCA
NEWPAGE

KPNLRTRC86018

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPnlRTRC86018

DATE - 02/13/87

- HISTORY -

START DATE - 20/08/86
END DATE - 20/08/86

CONTRACTOR -
GEOLOGIST - LEE

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - C / C + R = 2.12 / 3.60

- LOCATION -

PROVINCE - BC
ELEVATION - 1723.00

ZONE - 9
NORTHING - 6341900.00
EASTING - 506630.00

LICENCE/LEASE NUMBER -

LATITUDE - 571319
LONGITUDE - 1285325

- ORIENTATION -

LENGTH - 5.13

INCLINATION - 29.0
AZIMUTH - 220.0

SIZE WIDTH - 1.0
SIZE HEIGHT - 1.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 114
FLOOR DIP - 72
FLOOR DIR - S

*** NOTE *** 0 INDICATES NO VALUE

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GORI COAL DIVISION	HEAD	PROJ	KPN	BLK	LR	DS	TROB6016		
=====	=====	=====	=====	=====	=====	=====	=====		
SAMPLE ID	05264	DATA TYPE (REAL,BORD,AVER,CALC)					REAL		
SPLIT SAMPLE ID	HD1	DATE ANALYSED 14/10/86							
		ANALYSIS BASIS TYPE (AD,DR,AR,EM)					AD		
NAME OF STANDARD (ASTM,JIS,DIN,BS,AS,GOST,ISO)							ASTM		
TOP SIZE (MM)		----							
SURFACE MOISTURE %		----			TOTAL SULPHUR %		0.43		
TOTAL MOISTURE %		20.91			PHOSPHOROUS %		-----		
EQUILIBRIUM MOISTURE %		----			CHLORINE (PPM)		-----		
					SPECIFIC GRAVITY		-----		
RESIDUAL MOISTURE %		7.73			FCI		-----		
ASH %		14.49			HGI		-----		
VOLATILE MATTER %		20.20			CO2 %		-----		
FIXED CARBON %		57.58							
CROSS CALDRIFIC VALUE (MJ/KG)		22.15							
NET CALDRIFIC VALUE (MJ/KG)		-----							

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86018

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.12	0.12	*90		SANDSTONE	BN UNCONSOLIDATED.
	0.12	0.36	0.24	*90		MUDSTONE	M. GY UNCONS, V. WEATHERED.
	0.36	0.48	0.12	*90 05266		COAL	C-3. DK. BLK SOME MINOR MINERAL STAIN, MODERATELY CLEATED.
	0.48	0.53	0.05	*90 05266		COAL	C-4. DK. BLK V. FE STAINED, WEATHERS ORANGE BROWN, INTERBEDDED WITH MUDST.
	0.53	0.67	0.14	*90 05266		COAL	C-2. DK. BLK MOD. - WELL CLEATED, PARTLY UNCONSOLIDATED.
	0.67	0.71	0.04	*90 05266		COAL	C-3. DK. BLK MINOR FE STAINING.
	0.71	0.79	0.08	*90 05266		MUDSTONE	DK. GY THIN BANDS OF WEATHERED MUDST WITHIN, PARTLY CONSOLIDATED, MINOR COAL FLECKS W/S BR AT BASE.
	0.79	0.89	0.10	*90 05266		COAL	C-2. DK. BLK PARTIALLY DEFORMED, FAIRLY WELL CLEATED.

* DENOTES MEASURED BCA

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86018

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.89	1.00	0.11	*90 05266		MUDSTONE	BN MINOR FE STAIN, WELL CONSOLIDATED AT TOP, LESS CONSOLIDATED AT BOTTOM.
	1.00	1.09	0.09	*90 05266		COAL	C-3. DK. BLK DEFORMED.
	1.09	1.62	0.53	*90 05266		MUDSTONE	LT. GY UNCONSOLIDATED W/ 1MM COAL BANDS, QUITE WEATHERED. (G. GY W/ SOME BN AND ORNG BANDS).
	1.62	1.65	0.03	*90 05266		COAL	C-3. DK. BLK WELL CLEATED.
	1.65	1.84	0.19	*90 05266		MUDSTONE	DK. GY INTERBEDDED COAL AND MUDST, POORLY CONSOLIDATED WITH SHEAR SURFACES.
	1.84	1.98	0.14	*90 05266		COAL	C-5. DK. BLK DEFORMED.
	1.98	2.00	0.02	*90 05266		COAL	C-2. DK. BLK WELL CLEATED.
	2.00	2.13	0.13	*90 05266		COAL	C-5. DK. BLK MOD. CLEATED.

* DENOTES MEASURED BCA

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87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86018

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	2.13	2.17	0.04	*90	05266	COAL	C-6.DK.BLK UNCONS.
	2.17	2.30	0.13	*90	05266	COAL	C-3.DK.BLK MOD.CLEATED, FE STAINED BANDS.
	2.30	2.34	0.04	*90	05266	MUDSTONE	GY POORLY CONS.
	2.34	2.35	0.01	*90	05266	COAL	C-6.DK.BLK UNCONS.
	2.35	2.37	0.02	*90	05266	MUDSTONE	BN UNCONS. W/ MINOR C FLECKS.
	2.37	2.50	0.13	*90	05266	COAL	C-3.DK.BLK MOD. CLEATED.
	2.50	2.56	0.06	*90	05266	MUDSTONE	GY INTERBEDDED W/ C-3, PRLY CONS.
	2.56	2.68	0.12	*90		SANDSTONE	BN UNCONSOLIDATED.
	2.68	3.01	0.33	*90		MUDSTONE	M.GY WELL CONS, MINOR SHEAR SURFACES.

* DENOTES MEASURED BCA

87/02/13

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: TRC86018

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	3.01	3.50	0.49	*90	05267	COAL	C-6.BLK UNCONS., SOME DISCONTINUOUS FE STAINED BANDS NOT PARALLEL TO BDG.
	3.50	3.52	0.02	*90	05267	COAL	C-4.DK.BLK
	3.52	3.89	0.37	*90	05267	COAL	C-6.DK.BLK
	3.89	4.09	0.20	*90		MUDSTONE	BN PLANT HASH WITHIN, WELL CONSOLIDATED.

APPENDIX I
LOST-FOX AREA
MEASURED SECTIONS

DATA SOURCE

SUMMARY

GULF CANADA CORPORATION - COAL DIVISION
03/MAR/87 PROJECT DATA SOURCE SUMMARY PAGE 1

DATA SOURCE	LOCATION NORTHING	EASTING	ELEVATION	LENGTH	ANGLE	AZIMUTH	LOG TYPE
KPNLR0TC86001	6341800.0	506740.0	1769.0	24.1			
KPNLR0TC86005	6341860.0	506560.0	1751.0	69.1			

KPNLROTC86001

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLROTC86001

DATE - 02/13/87

- HISTORY -

START DATE - 21/06/86
END DATE - 21/06/86

CONTRACTOR -
GEOLOGIST - LEE

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - OTC IS IN MT. KLAPPAN CANYON. OTC86001 IS STRAT. B
ELOW OTC86005 BY 10 M.

- LOCATION -

PROVINCE - BC
ELEVATION - 1769.00

ZONE - 9
NORTHING - 6341800.00
EASTING - 506740.00

LICENCE/LEASE NUMBER -

LATITUDE - 0
LONGITUDE - 0

- ORIENTATION -

LENGTH - 24.10
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

87/02/16

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPM BLOCK: LR DATA SOURCE: OTC86001

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.13	0.13	*90		MUDSTONE	DK.GY UNCONSOLIDATED. COAL BANDS (C-1) UP TO .5CM THK (30-40%).
	0.13	0.17	0.04	*90		MUDSTONE	DK.GY FE STAIN.
	0.17	0.23	0.06	*90		COAL	C-1.BLK C-1 TO C-2. WELL CLEATED. CONCHOIDAL FRACTURES. POSSIBLY K-L SEAM.
	0.23	0.31	0.08	*90		MUDSTONE	DK.GY HIGHLY FE STAINED. MINOR COAL BANDS (UP TO 3 MM THICK) SOFT. BEDDING 124/ 28 N E.
	0.31	0.38	0.07	*90		COAL	C-3
	0.38	0.60	0.22	*90		MUDSTONE	DK.GY UNCONSOLIDATED. FE STAINED. INTERBEDDED WITH COAL (C-3) <1 CM THICK.
	0.60	0.90	0.30	*90		MUDSTONE	DK.GY POORLY CONSOLIDATED. FE STAINED.
	0.90	1.11	0.21	*90		OVERBURDEN	COVERED INTERVAL.

* DENOTES MEASURED BCA

87/02/16

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPM BLOCK: LR DATA SOURCE: OTC86001

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.11	1.19	0.08	*90		MUDSTONE	M.GY WITHERS LT. GREY.
	1.19	1.51	0.32	*90		MUDSTONE	DK.GY WITHERS M-DK GREY. HIGHLY FRACTURED. PLANT MASH.
	1.51	6.77	5.26	*90		SILTSTONE	M.GY FE STAINED. WITHERS TO GREY & DISCONTINUOUS ORANGE BANDS. ORANGE BANDS ARE .3 M THICK. GREY BANDS ARE .4 M THICK. NOODULAR WITHERING. HIGHLY FRACT. PLANT MASH.
	6.77	8.27	1.50	*90		SILTSTONE	M.BN WITHERS GREY - BROWN. EXTREMELY FRACTURED. FINE GRAIN SS LAMINATIONS (30%).
	8.27	8.64	0.37	*90		SANDSTONE	FG.M-DK.GY WITHERS ORANGE. VERY RESISTIVE. BLOCKY FRACTURE.
	8.64	9.25	0.61	*90		SANDSTONE	FG.M-DK.GY WITHERS M. GREY & LT BROWN. BEDS 8 CM THICK. INTERBEDDED WITH DK GREY MDST <5 CM THICK. RECESSIVE.

* DENOTES MEASURED BCA

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PROJECT: KPW BLOCK: LR DATA SOURCE: OTC86001

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	9.25	10.75	1.50	*90			SANDSTONE	MG. M-DK. GY MOTHERS ORANGE TO BROWN GREY. MUOUST LAMI NATIONS (DK GREY). BLOCKY FRACT. RESIST IVE.
	10.75	12.75	2.00	*90			OVERBURDEN	COVERED INTERVAL.
	12.75	13.75	1.00	*90			SILTSTONE	DK. GY MOTHERS ORANGE- BROWN. PLANT FOSSILS CZE KANONSKIA FRAGMENTS. BDG 097/24 N.
	13.75	14.05	0.30	*90			MUDSTONE	TRCLR86008 ROOF.
	14.05	15.28	1.23	*90	05302		COAL	C-3 TRCLR86008. C/C+R= 1.03/1.23. POSSIBLY K SEAM.
	15.28	15.38	0.10	*90			MUDSTONE	TRCLR86008 FLOOR.
	15.38	16.38	1.00	*90			OVERBURDEN	COVERED INTERVAL.
	16.38	16.68	0.30	*90			MUDSTONE	PETRIFIED WOOD.
	16.68	20.68	4.00	*90			OVERBURDEN	COVERED INTERVAL.
	20.68	23.53	2.85	*90			MUDSTONE	M. GY. THNB MOTHERS IN GREY W/BROWN BANDS. SOME NODU LAR MOTHERED BANDS. HIGHLY FRACTURED PAR ALLEL TO CLEAVAGE COASTERS.

* DENOTES MEASURED BCA

PROJECT: KPW BLOCK: LR DATA SOURCE: OTC86001

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	23.53	23.57	0.04	*90			MUDSTONE	UNCONSOLIDATED. HIGHLY WEATHERED. BANDS OF DK GREY, ORANGE AND GREY-WHITE.
	23.57	23.59	0.02	*90			COAL	C-2. BLK. WELL CLEATED. CONCHOIDAL FRACTURES.
	23.59	23.68	0.09	*90			COAL	C-3. DK. BN RED-BROWN COLOUR. V. FE STAINED. MOD. C LEATED. GREY TOWARDS BASE.
	23.68	23.76	0.08	*90			COAL	C-2 MINOR FE STAIN ON CLEATED SURFACES. MIN OR INTERBEDS OF MUDST. POSSIBLY J SEAM.
	23.76	23.89	0.13	*90			MUDSTONE	LT. TAN SOME SHEARED SURFACES. FAIRLY SOFT.
	23.89	24.01	0.12	*90			COAL	C-3 MOD. CLEATED.
	24.01	24.09	0.08	*90			MUDSTONE	DK. GY SHINY SURFACES. GREEN AND ORANGE STAINI NG.
	24.09	24.29	0.20	*90			COAL	C-3 WELL CLEATED. WELL CONSOLIDATED FLOOR N OT REACHED DUE TO WATER.

* DENOTES MEASURED BCA
NENPAGE

GULF CANADA CORPORATION
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR OTC86001

723

GEOLOGIST : LEE

DATE : FEB 24/87

DRAWING NO. :

LITHOLOGIC SYMBOLS

SCALE : 1:200 1:40



NORTHING: 8341800.0 N
 EASTING: 506740.0 E

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	COVERED		FOSSIL BED

MEASURED
 INTERVAL
 [M]

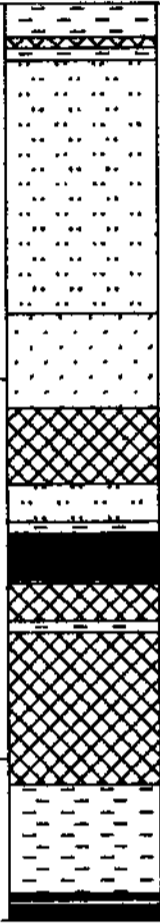
TRUE 1:200
 INTERVAL
 [M]

10 -

10

20 -

20



TOTAL: 24.29

TOTAL: 24.29

KPNLROTC86005

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLROTC86005

DATE - 02/13/87

- HISTORY -

START DATE - 19/08/86
END DATE - 21/08/86

CONTRACTOR -
GEOLOGIST - LEE

OPERATOR - G.C.C.
SURVEYOR -

REMARKS - OTC IS IN MT KLAPPAN CANYON. OTC86005 IS STRAT. ABOVE OTC86001 BY 10 M.

- LOCATION -

PROVINCE - BC
ELEVATION - 1751.00

ZONE - 9
NORTHING - 6341860.00
EASTING - 506560.00

LICENCE/LEASE NUMBER -

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LONGITUDE - 0

- ORIENTATION -

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SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

PROJECT: KPN BLOCK: LR DATA SOURCE: OYCB6005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	2.07	2.07	*90			COAL	TRCLR86015. C/C+R= .94/1.01. POSSIBLY L SEAM.
	2.07	3.84	1.77	*90			MUDSTONE	M-DK.GY MTHERS LT GREY. MED BD. SHEAR SURFACES. MINOR MUD FRAGMENT.
	3.84	4.81	0.97	*90			SILTSTONE	YHNB MTHERS MED BN-YEL. NODULAR MTHERING. BD THICKNESS VARIES YHNB TO 5 CM.
	4.81	4.99	0.18	*90			SILTSTONE	M.GY MTHERS YELLOW. NODULAR MTHERING.
	4.99	5.78	0.79	*90			SILTSTONE	M.GY.THNB WITH MUDST LAMINAE. Y. FRACTURED. MTHERS S DK GREY-BROWN WITH ORANGE BANDS.
	5.78	5.97	0.19	*90			SILTSTONE	LT.GY MTHERS YELLOW WITH MUDST LENSES. MORE Y HKB THAN EAST UNIT.
	5.97	8.67	2.70	*90			SILTSTONE	YHNB WITH SOME FG SS INTERBEDS. MODULAR MTHE RING. MTHERS YELLOW, BROWN AND M GREY. QUITE FRACTURED. INTERBEDS OF THNB DK G REY MUDST. PLANT FRAGMENTS(CZEKANOWSKIA ?)

* DENOTES MEASURED BCA

PROJECT: KPN BLOCK: LR DATA SOURCE: OYCB6005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	8.67	9.17	0.50	*90			SANDSTONE	YFG.M.GY.THNB MTHERS YELLOW WITH SOME GREY BANDS.
	9.17	9.59	0.42	*90			SILTSTONE	M.GY.THNB MTHERS M GREY. HIGHLY FRACTURED.
	9.59	10.24	0.65	*90			SANDSTONE	YFG.LT.GY.MB WITH INTERBEDS OF SLTST. MTHERS YELLOW. MINOR GREYBANDS. FRACTURED.
	10.24	13.74	3.50	*90			OVERBURDEN	COVERED INTERVAL.
	13.74	14.89	1.15	*90			COAL	HIGHLY MTHERED. MOSTLY UNCONSOLIDATED.
	14.89	33.36	18.47	*90			SILTSTONE	DK.GY INTERB OF FG SS. MTHERS OR AND LT-M GRE Y AND BR GY. HIGHLY FRAC. OCC. THIN (<1 CM)DK GY MUDST BEDS. B DG:096/69. PLANT FOSSILS: PODOZAMITES, LANCEOLATUS, CLADOP HLEBIS VIRGINIENSIS, PITYOPHYLLUM NORDEN SKIOLDII, CZEKANOWSKIA RIGIDA, GINKGO NAN A. SPHENOPTERIS.
	33.36	34.36	1.00	*90			OVERBURDEN	COVERED INTERVAL.
	34.36	38.51	4.15	*90			COAL	TRCLR86018. C/C+R= 2.12/3.6. POSSIBLY M SEAM.

* DENOTES MEASURED BCA

87/02/16

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPW BLOCK: LR DATA SOURCE: 0TC86005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	38.51	42.12	3.61	*90			SANDSTONE	MG.M-DK.GY.THNB WTHERS GREY & ORANGE (FLECKED). BEDDING VARIES, BDG:096/69.
	42.12	52.12	10.00	*90			OVERBURDEN	
	52.12	53.26	1.14	*90			SANDSTONE	FG.LT.GY.THNB WTHERS BROWN-GREY. THNB-MB. OCC. THN SLTST BEDS. (WTHER TAN-BROWN). BDG. 115/60. N.E.
	53.26	54.31	1.05	*90			SANDSTONE	VFG.GY GREY-BROWN. WTHERS ORANGE. HIGHLY WEATHERED.
	54.31	56.03	1.72	*90			SANDSTONE	FG.LT.GY.MB WTHERS LT GREY. OCC. SLTST INTERBEDS (WTHERED LT BROWN). HIGHLY FRACTURED.
	56.03	56.49	0.46	*90			OVERBURDEN	POSSIBLY AS ABOVE. COVERED INTERVAL.
	56.49	57.62	1.13	*90			SANDSTONE	FG.M.GY.THNB WTHERS BROWN.

* DENOTES MEASURED BCA

87/02/16

GULF CANADA CORPORATION - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPW BLOCK: LR DATA SOURCE: 0TC86005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	57.62	58.25	0.63	*90			SANDSTONE	FG.THNB VARYING BEDG THICKNESS (<1CM-4CM). THIN MER BEDS IN 6.5 CM BANDS WTHRD BROWN. THICKER BEDS IN 12 CM BANDS AND WTHERED GREY. QUITE FRACTURED.
	58.25	58.58	0.33	*90			SANDSTONE	FG.M.GY.THNB WTHERS BROWN-GREY. HIGHLY FRACTURED.
	58.58	58.80	0.22	*90			SANDSTONE	FG.THNB WTHERS ORANGE-BROWN. HIGHLY FRACTURED.
	58.80	59.42	0.62	*90			SANDSTONE	MG.LT.GY.THNB WTHERS GREY. HIGHLY FRACTURED.
	59.42	59.55	0.13	*90			SANDSTONE	VFG.BM.THNB WTHERS GREY-BROWN. EASILY BROKEN.
	59.55	63.65	4.10	*90			SANDSTONE	FG.M.GY.THNB FG-MG WTHERS BROWN-GREY. V. HARD. SOME LT BROWN WTHERING.
	63.65	63.76	0.11	*90			SANDSTONE	MG WTHERS LT GREY. WITH SLTST PEBBLES (<1 CM TO 10 CM LENGTH) VERY ABUNDANT. PEBBLES WTHERED YELLOW-ORANGE.

* DENOTES MEASURED BCA

PROJECT: KPM BLOCK: LR DATA SOURCE: DTC86005

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	BCA ID	SAMP. ID	SEAM ID	LITHOLOGY	DESCRIPTION
	63.76	69.12	5.36	*90			SANDSTONE	M. GY. THKB WITHERS H GREY, VERY MINOR SILTSTONE PER BLES IN ONE LOCALITY. SOME BROWN HEATRE RED BANDS.

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA CORPORATION
 COAL DIVISION
 KLAPPAN PROJECT
 STRATIGRAPHIC LOG
 KPN LR OTC86005

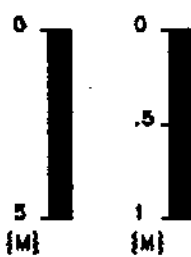
723

GEOLOGIST : LEE

DATE : FEB 24/87

DRAWING NO. :

SCALE : 1:200 1:40



NORTHING: 8341860.0 N
 EASTING: 506560.0 E

LITHOLOGIC SYMBOLS

	SANDSTONE		BENTONITE
	SILTSTONE		BRECCIA
	COAL		CARBONACEOUS
	OVERBURDEN		QUARTZ
	MUDSTONE, CLAYSTONE		PYRITE
	TUFF		FERRUGINOUS
	LIMESTONE		CONGLOMERATE
	COVERED		FOSSIL BED

MEASURED
INTERVAL
{M}

TRUE 1:200
INTERVAL
{M}

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30

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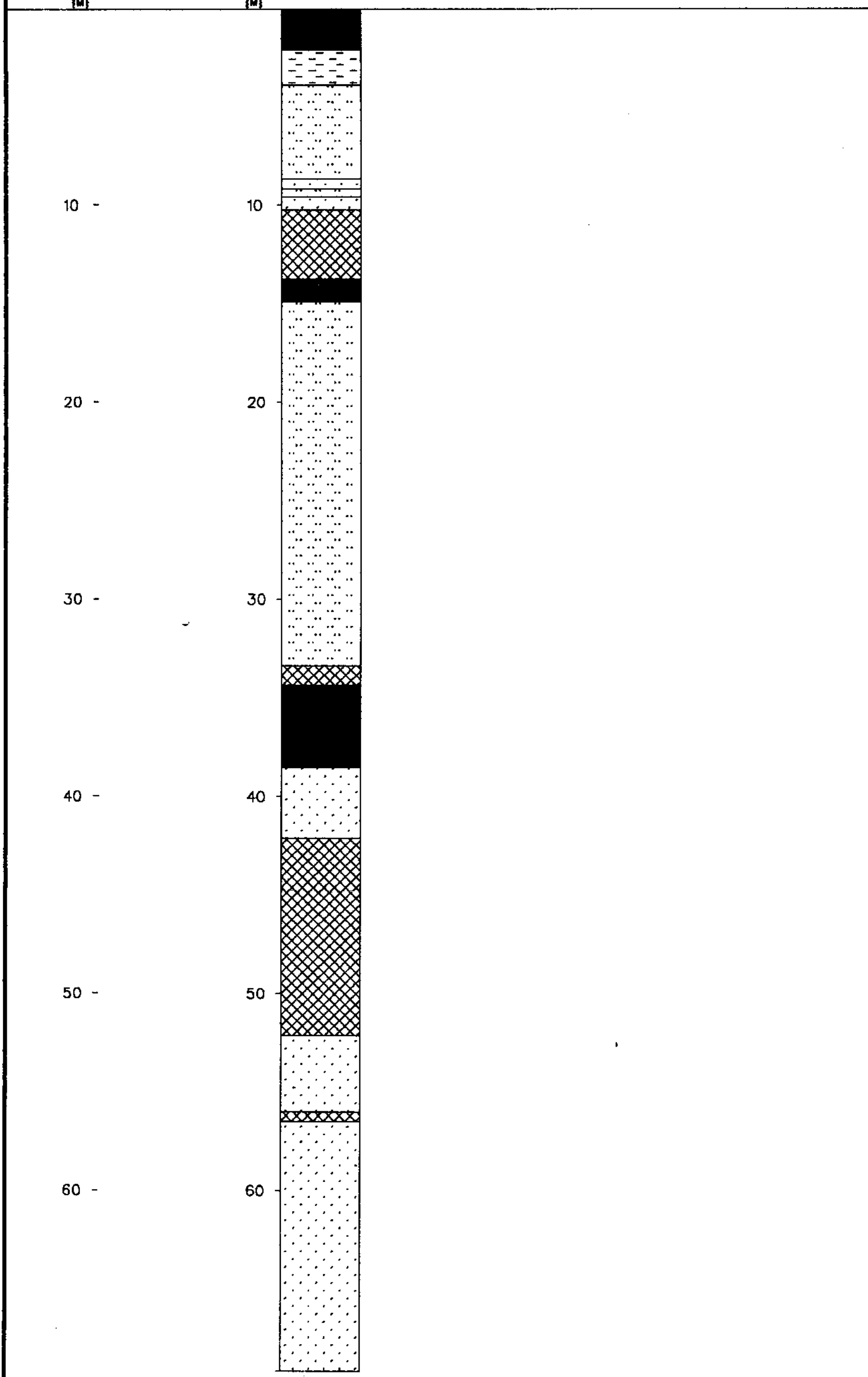
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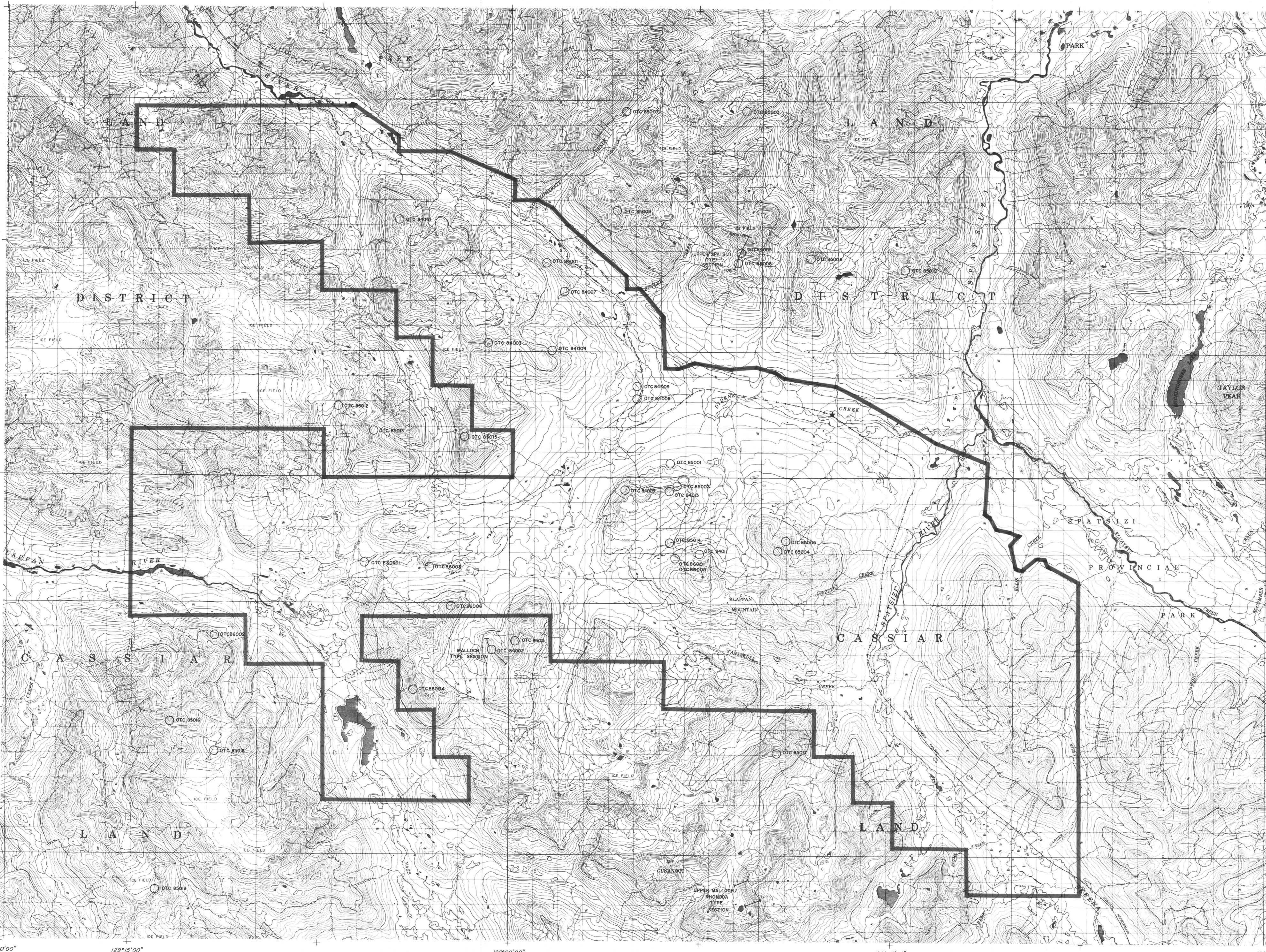
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TOTAL: 69.12

TOTAL: 69.12





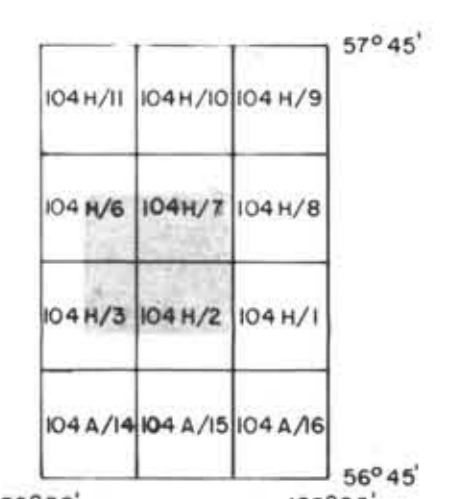
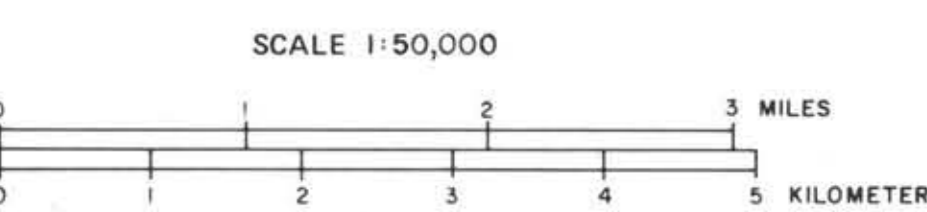
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57°20'
57°15'
57°10'
57°05'
129°20'00"
129°15'00"
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128°45'00"
128°30'00"



LEGEND

ROADS AND RELATED FEATURES	
ROAD SURFACE - ALL WEATHER	—
LOOSE SURFACE	- - -
CART TRACK WATER ROAD - UNDER CONSTRUCTION	- · - · -
TRAIL, CUTLINE, PORTAGE	· · · · ·
BUILT UP AREA	▨
RAILWAY, SOUND STATION STOP	—+—
BRIDGE	—+—
SEAPLANE BASE ANCHORAGE	—+—
LANDMARK FEATURES	
INDIAN BARR	—+—
CHURCH, SCHOOL	—+—
POST OFFICE	—+—
HISTORICAL SITE	—+—
TOWERS, FIRE, RADIO	—+—
WELL, OIL, GAS	—+—
TANK, OIL, GASOLINE, WATER	—+—
TELEPHONE LINE	—+—
POWER TRANSMISSION LINE	—+—
MINE	—+—
CUTTING, EMBANKMENT	—+—
GRAVEL PIT	—+—
BOUNDARIES AND CONTROL	
INTERNATIONAL, PROVINCIAL BOUNDARY MONUMENT	—+—
COUNTY, DISTRICT	—+—
TOWNSHIP, PARISH - SURVEYED	—+—
TOWNSHIP, DLS - SURVEYED	—+—
MUNICIPALITY	—+—
INDIAN RESERVE, PARK, ETC.	—+—
HORIZONTAL CONTROL POINT	—+—
BENCH MARK	—+—
SPOT ELEVATION, ELEVATION APPROXIMATE	—+—
DRAINAGE AND RELATED FEATURES	
STREAM, SHORELINE, INDEFINITE	—+—
DIRECTION OF FLOW	—+—
LAKE, INTERMITTENT	—+—
UNDATED, FLOODED LAND	—+—
MARSH, SWAMP, WOODS	—+—
DRY RIVER BED WITH CHANNELS	—+—
SAND ABOVE WATER	—+—
STRONG BOSS	—+—
TUNDRA PONDS, POLYGENS	—+—
HAPOS	—+—
FORESHORE FLATS	—+—
ROCK	—+—
DAM	—+—
WHARF	—+—
DITCH	—+—
RELIEF FEATURES	
CONTOURS	—+—
APPROXIMATE CONTOUR	—+—
DEPRESSION	—+—
FRIGID	—+—
SAND, SAND DUNES	—+—
PALSA BOSS	—+—
WOODED AREA	—+—

PROPERTY BOUNDARY
MEASURED SECTION
FIELD CAMP LOCATION



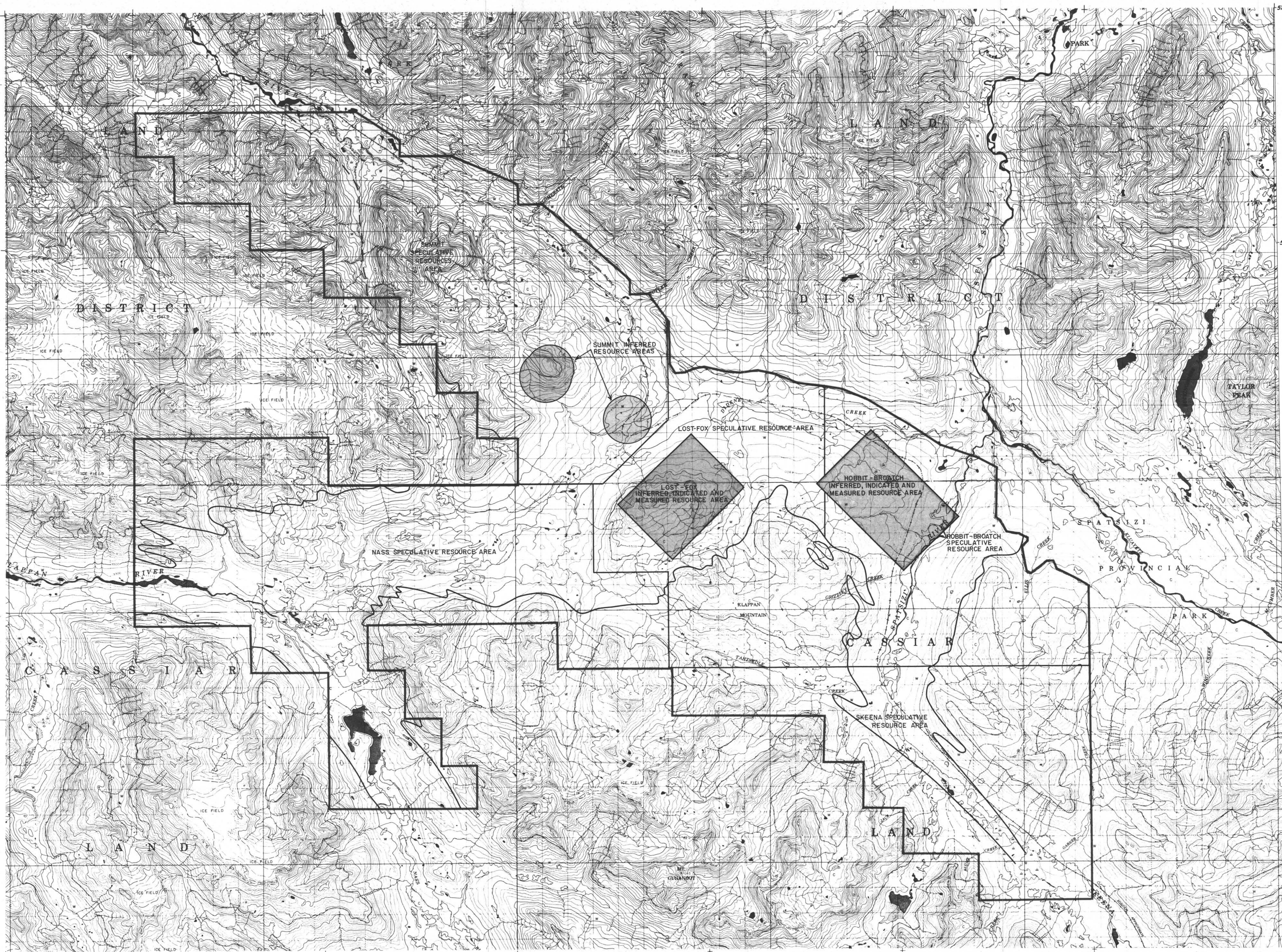
GULF CANADA CORPORATION
Coal Division
CALGARY ALBERTA

Mt. KLAPPAN COAL PROPERTY

1981 - 1986 MEASURED SECTION MAP

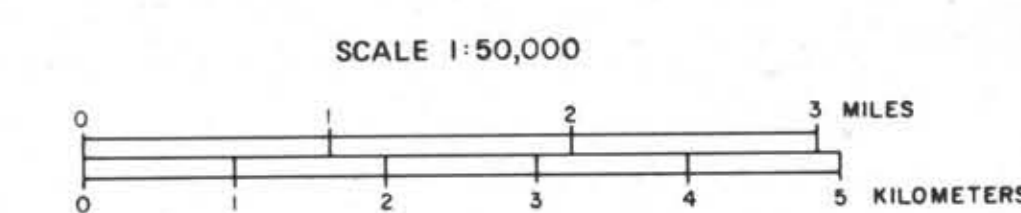
PREPARED BY: S. M. DRAWING No. KPN86002
APPROVED BY: E. S. DATE: MAR. 1987

723



LEGEND

ROADS AND RELATED FEATURES	
HARD SURFACE ALL WEATHER	
LOOSE SURFACE	
CART TRACK, WATER ROAD	
UNDER CONSTRUCTION	
TRAIL, OUTLINE, PORTAGE	
BUILT UP AREA	
RAILWAY, SONG STATION STOP	
BRIDGE	
BEAR LINE BASE, ANCHORAGE	
LANDMARK FEATURES	
HOUSE, BARN	
CHURCH, SCHOOL	
POST OFFICE	
HISTORICAL SITE	
TOWERS, FIRE, RADIO	
WELL, OIL, GAS	
TANK, OIL, GASOLINE, WATER	
TELEPHONE LINE	
POWER TRANSMISSION LINE	
MINE	
CUTTING, EMBANKMENT	
GRAVEL PIT	
BOUNDARIES AND CONTROL	
INTERNATIONAL, PROVINCIAL, BOUNDARY MONUMENT	
COUNTY, DISTRICT	
TOWNSHIP, PARISH - SURVEYED	
TOWNSHIP, PARISH - UNSURVEYED	
TOWNSHIP, PARISH - SURVEYED	
TOWNSHIP, PARISH - UNSURVEYED	
MUNICIPALITY	
INDIAN RESERVE, PARK, ETC.	
HORIZONTAL CONTROL POINT	
BENCH MARK	
SPOT ELEVATION, ELEVATION APPROXIMATE	
8M 845 - 280 - 1211	
DRAINAGE AND RELATED FEATURES	
STREAM, SHOULDER, INDEFINITE	
DIRECTION OF FLOW	
LAKE, INTERMITTENT	
INUNDATED, FLOODED LAND	
MARSH OR SWAMP (WOODED)	
DRY RIVER BED WITH CHANNELS	
SAND, MUD, IN WATER	
STRONG BOG	
TUNDRA, PONDS, POLYDONS	
RAPIDS	
FORESHORE FLATS	
ROCK	
DAM	
WHARF	
DITCH	
RELIEF FEATURES	
CONTOURS	
APPROXIMATE CONTOUR	
DEPRESSION	
ESKER	
FRINGE	
SAND, SAND DUNES	
FALSA BOG	
WOODED AREA	



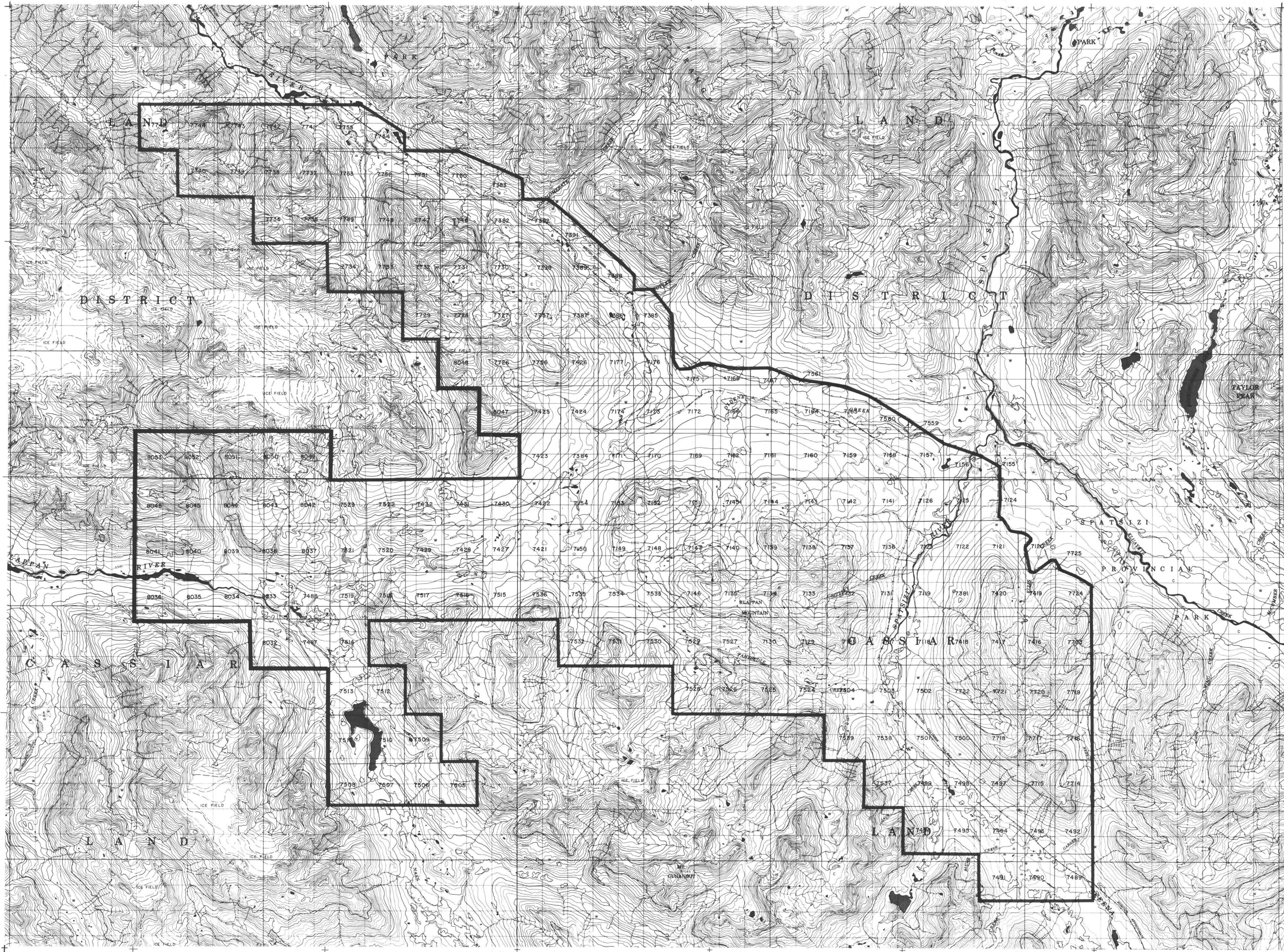
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723

GULF CANADA RESOURCES INC.
 Coal Division
 CALGARY ALBERTA

MOUNT KLAPPAN COAL PROPERTY
 1986
 COAL RESOURCE AREA MAP

PREPARED BY: A.P. DRAWING No. KPN86004
 APPROVED BY: E.S. DATE: MAR. 1987



57°25'
57°20'
57°15'
57°10'
57°05'

129°20'00"
129°15'00"
129°10'00"
128°45'00"
128°30'00"

LEGEND

ROADS AND RELATED FEATURES

- HARD SURFACE, ALL WEATHER
- LOOSE SURFACE
- CART TRACK, WINTER ROAD
- TRAIL, CUTLINE, PORTAGE
- BUILT UP AREA
- RAILWAY SIGNAL, STATION, STOP
- BRIDGE
- SEAPLANE BASE, ANCHORAGE

LANDMARK FEATURES

- HOUSE, BARN
- CHURCH, SCHOOL
- POST OFFICE
- HISTORICAL SITE
- TOWER, FIRE, RADIO
- WELL, OIL, GAS
- TANK, OIL, GASOLINE, WATER
- TELEPHONE LINE
- POWER TRANSMISSION LINE
- RAIL
- CUTLINE, EMBANKMENT
- GRAVEL PIT

BOUNDARIES AND CONTROL

- INTERNATIONAL, PROVINCIAL, COUNTY, DISTRICT
- TOWNSHIP PARISH - SURVEYED
- TOWNSHIP QLS - SURVEYED
- MUNICIPALITY
- INDIAN RESERVE MARK, ETC.
- HORIZONTAL CONTROL POINT
- BENCH MARK
- SPOT ELEVATION, ELEVATION APPROXIMATE

DRAINAGE AND RELATED FEATURES

- STREAM, SHORELINE, INDEFINITE
- DIRECTION OF FLOW
- LAKE, INTERMITTENT
- INDICATED FLOODING LIMIT
- MARSH, OPEN, WOODS
- DRY RIVER BED WITH CHANNELS
- SAND, ABOVE IN WATER
- STRING BOG
- TUNDRA POND, POLYGENIC
- RAPIDS
- FORESHORE FLATS
- ROCK
- DAM
- WHARF
- DITCH

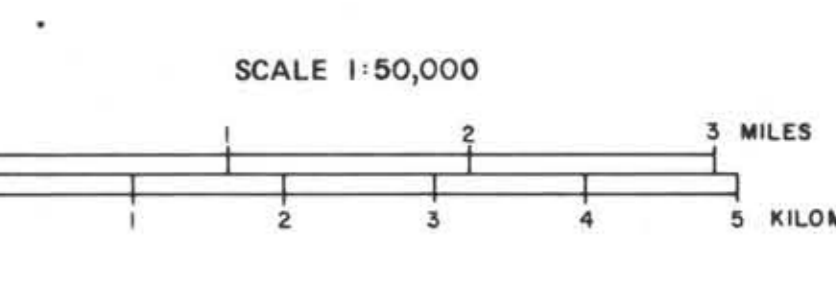
RELIEF FEATURES

- CONTOURS
- APPROXIMATE CONTOUR
- DEPRESSION
- ESKER
- PINGO
- SAND, SAND DUNES
- FALSA BOG
- WOODED AREA

PROPERTY BOUNDARY ———

LICENCE BOUNDARY ———

LICENCE NUMBER 7425



04H/1	04H/2	04H/3	04H/4	04H/5
04H/6	04H/7	04H/8	04H/9	04H/10
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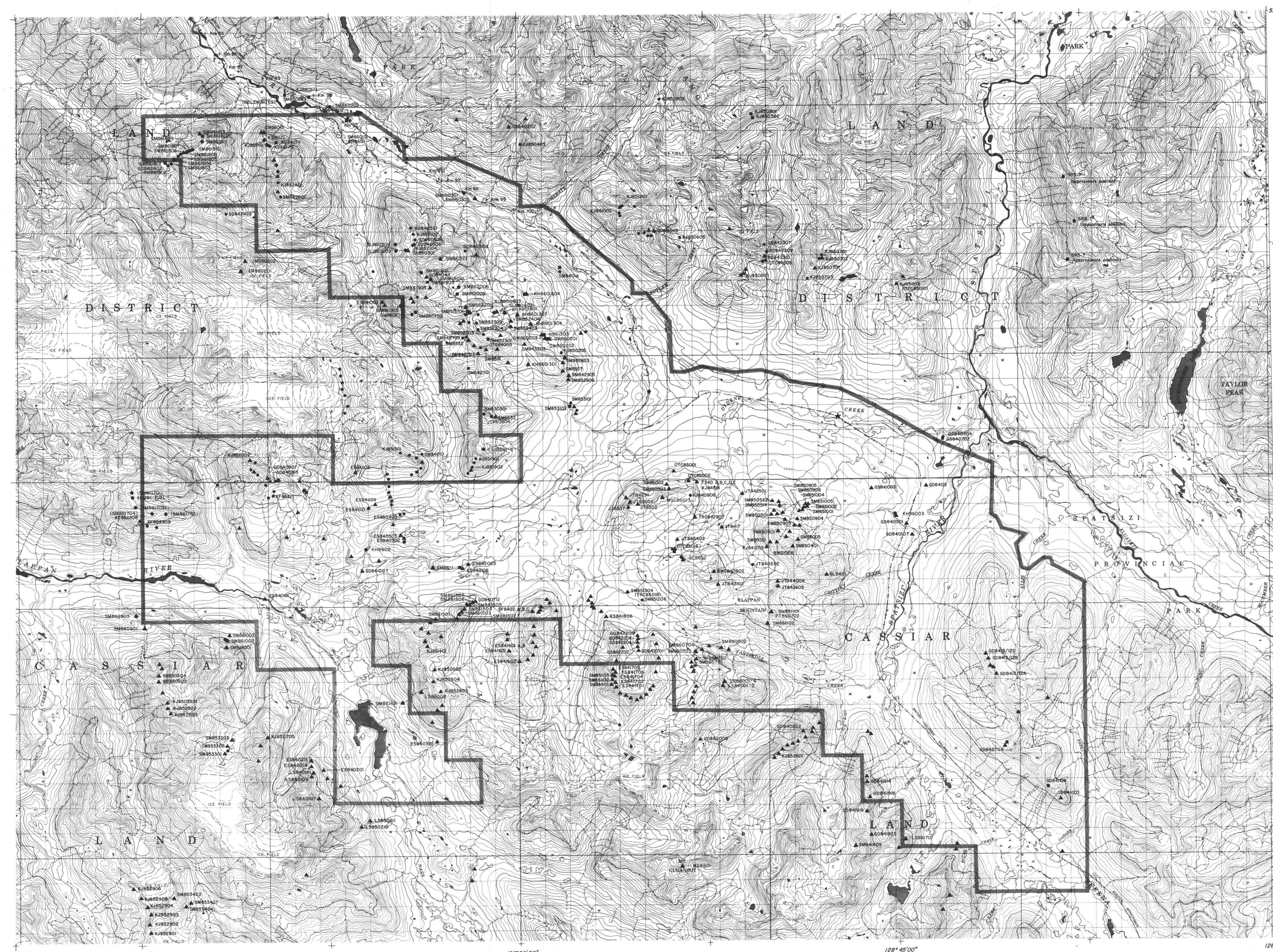
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GULF CANADA RESOURCES INC.
Coal Division

CALGARY ALBERTA

MOUNT KLAPPAN COAL PROPERTY
1986
COAL LICENCE MAP

PREPARED BY: E.S. DRAWING NO. KPN85005
APPROVED BY: E.S. DATE: MAR. 1987



N

LEGEND

ROADS AND RELATED FEATURES

- HARD SURFACE ALL WEATHER
- LOOSE SURFACE
- CART TRACK WINTER ROAD UNDER CONSTRUCTION
- TRAIL CUTLINE PORTAGE
- BUILT UP AREA
- RAILWAY SIGNAL STATION STOP
- BRIDGE
- SEAPLANE BASE ANCHORAGE

LANDMARK FEATURES

- HOUSE BARN
- CHURCH SCHOOL
- POST OFFICE
- HISTORICAL SITE
- TOWERS FIRE RADIO
- WELL OIL GAS
- TANK OIL GASOLINE WATER
- TELEPHONE LINE
- POWER TRANSMISSION LINE
- RAIL
- CUTTING EMBANKMENT
- GRAVEL PIT

BOUNDARIES AND CONTROL

- INTERNATIONAL PROVINCIAL BOUNDARY MONUMENT
- COUNTY DISTRICT
- TOWNSHIP PARISH - SURVEYED
- TOWNSHIP OLS - SURVEYED
- MUNICIPALITY
- SECTION CORNERS
- HORIZONTAL CONTROL POINT
- BENCH MARK
- SPOT ELEVATION ELEVATION APPROXIMATE

DRAINAGE AND RELATED FEATURES

- STREAM SHOULDER INDEFINITE
- DIRECTION OF FLOW
- LAKE INTERMITTENT
- WATERED FLOODED LAND
- MARSH (OR SWAMP) WOODDED
- DRY BURIED W/ CHANNELS
- SAND ABOVE IN WATER
- STRING BOG
- TUNDRA PONDS POLYGONS
- RANGES FORESHORE FLATS
- ROCK
- DAM
- WHARF
- DITCH

RELIEF FEATURES

- CONTOUR
- APPROXIMATE CONTOUR
- DEPRESSION
- ESKER
- PINGO
- SAND SAND DUNES
- PALSA BOG
- WINDSCALED AREA

PROPERTY BOUNDARY

- FIELD CAMP LOCATION
- FLORA MACROFOSSILS
- FAUNA MACROFOSSILS
- TRACE FOSSILS

SCALE 1:50,000

0 1 2 3 4 5 MILES

0 1 2 3 4 5 KILOMETER

129° 20' 00" 129° 15' 00" 129° 00' 00" 128° 45' 00" 128° 30' 00"

57° 25' 57° 20' 57° 15' 57° 10'

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723

GULF CANADA CORPORATION

Calgary Coal Division ALBERTA

MT. KLAPPAN COAL PROPERTY

1984-1986 FOSSIL LOCATION MAP

PREPARED BY: S. MACLEOD DRAWING No. KPM86006
 APPROVED BY: E. SWANBERGSON DATE: MAR. 1987

MOUNT KLAPPAN ANTHRACITE PROJECT

LOST - FOX AREA

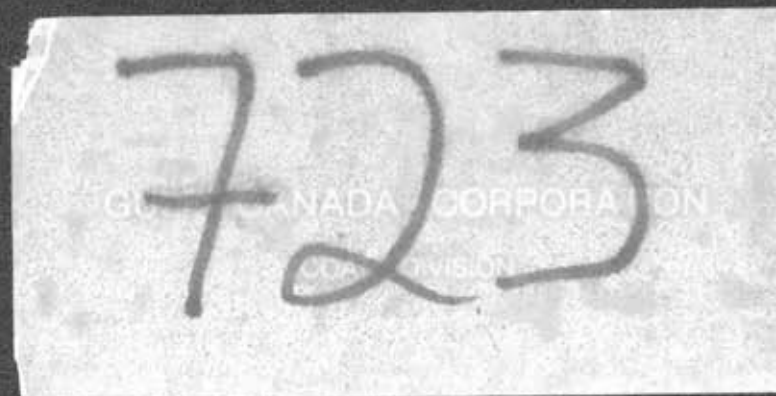
GEOLOGICAL REPORT

1986

APPENDIX II

BULK SAMPLING PROGRAM

ADIT 86001



MOUNT KLAPPAN ANTHRACITE PROJECT

BULK SAMPLING PROGRAM

ADIT 86001

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No.

- 1 Channel Sample Data: (Data Source Records, Descriptive and
Lithological Logs)
- 2 Survey of Adit 86001
- 3 Adit Permitting Correspondence
- 4 Coal Quality Data

SUMMARY

During September and October, 1986, Adit 86001 was completed in Seam H in the Lost-Fox Area of the Mount Klappan property. The adit site was located on the steep, treeless northwest facing slope of Lost Ridge, approximately 220 metres to the southwest of the west end of the Lost-Fox Trial Cargo Pit, on the same limb of the major fold in the area.

The final length of the adit was 43 metres and represents a tunnel approximately two metres square which was driven down an apparent dip of the seam using a rock parting within 0.5 metres of the floor as a guide to stratigraphic position in the seam. The adit was fully within the seam with a coal floor and roof. Roof control was difficult because of shear surfaces near the top of the seam which allowed parting of the strata.

Three unoxidized bulk samples were taken, two ten tonne samples were sent to Calgary for testing and one ten tonne sample was stored on the property. Each sample represents the total seam which averaged 3.92 metres in true thickness comprising 3.36 metres coal and 0.56 metres of rock.

No permafrost was observed during construction of the adit though water seepage from the roof after heavy rainfall created muddy conditions.

1.0 INTRODUCTION

1.1 LOCATION

The Mount Klappan coal property is located in northwestern British Columbia approximately 150 kilometers northeast of Stewart and 530 kilometres northwest of Prince George (Figure 1). The nearest community to the property is Iskut with a population of 500, which is located 100 kilometers to the northwest.

Adit 86001 is within the Lost-Fox Area of the Mount Klappan property (Figure 2).

1.2 ACCESS

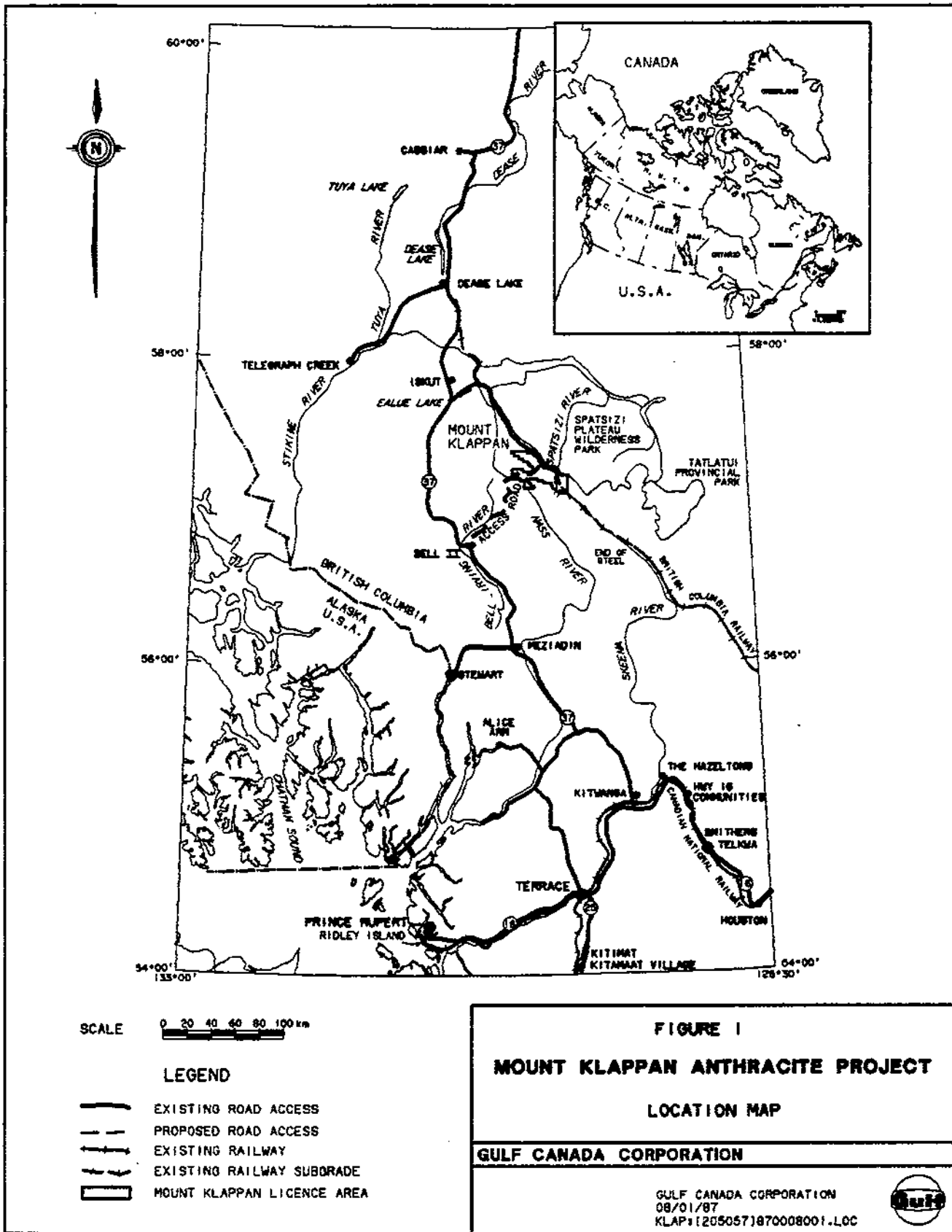
The Mount Klappan property includes a section of the partially completed B.C. Rail line between Prince George and Dease Lake. The railway subgrade was constructed through and beyond the property to the Stikine River south of Dease Lake, while rail was laid to within 80 kilometres south of the property.

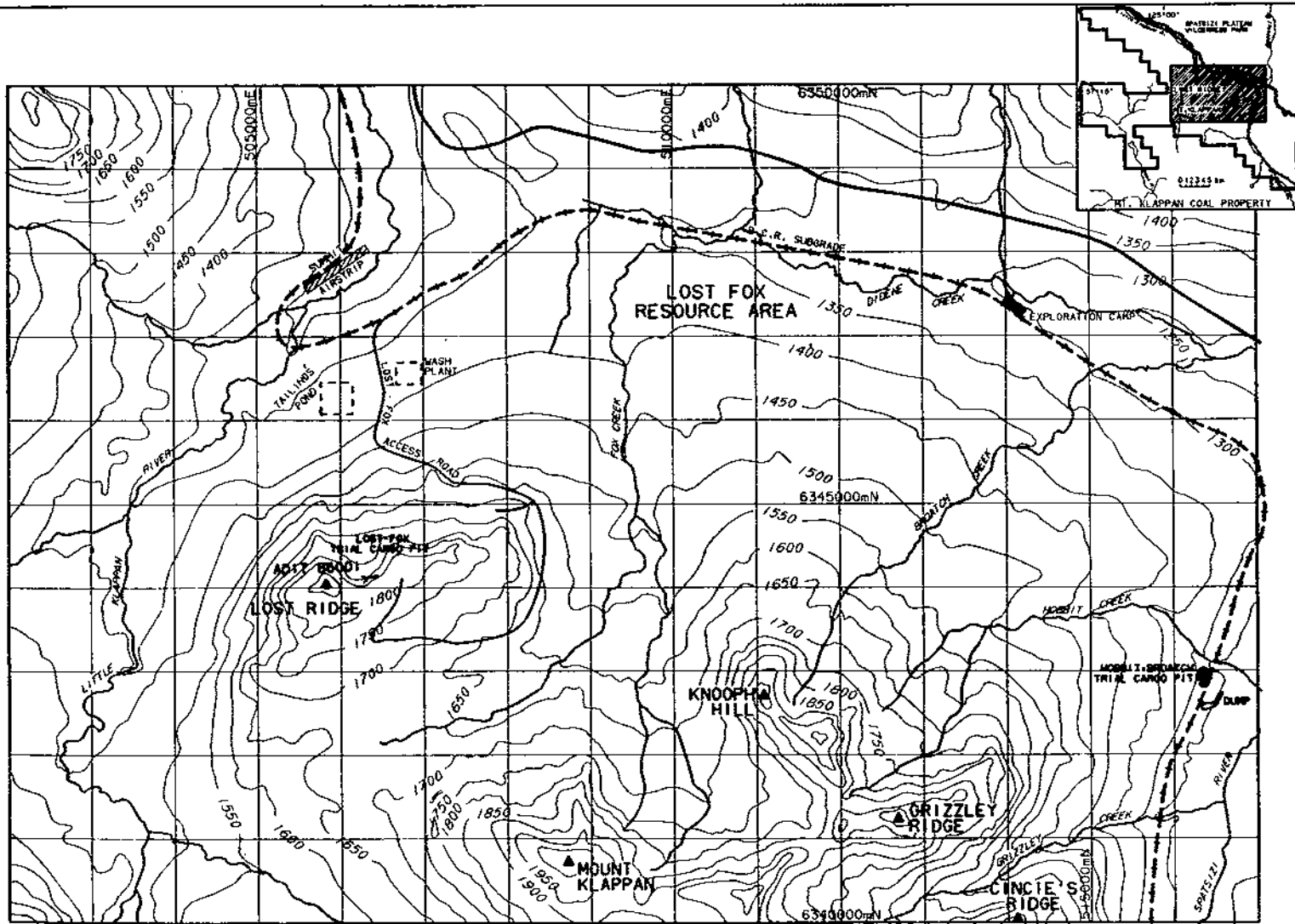
Road access to the property is along the B.C. Rail subgrade from Highway 37 via the Ealue Lake Road. Road distances from Terrace and Stewart to the property are 575 and 426 kilometres respectively.

Fixed wing aircraft use the Summit Airstrip located along the railway subgrade near the centre of the property.

1.3 PHYSIOGRAPHY

The Mount Klappan property is at the headwaters of the Little Klappan, Klappan, Nass, Skeena and Spatsizi Rivers. The property is within the northern extremity of the Skeena Mountains, characterized by generally mountainous terrain with broad northwest to southeast trending valleys.





LEGEND

- RAILWAY SUBGRADE ROAD
- LICENSE BOUNDARY
- ACCESS ROAD
- DRILL HOLES
- Y ADIT
- 1300- CONTOURS IN METRES

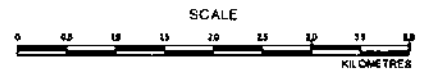


FIGURE 2
MOUNT KLAPPAN ANTHRACITE PROJECT
ACCESS MAP



Elevations on the property range from 990 to over 2000 metres while treeline is at approximately 1500 metres. The valley bottoms are partly covered with coniferous forests while higher elevations are characterized by alpine tundra.

1.4 EXPLORATION HISTORY

Gulf has conducted exploration on Mount Klappan property since 1981. The Lost-Fox Area has had the most exploration including a test mine in the fall of 1985 (Table 1).

The only other adit on the property was completed in 1983. This adit was driven in Seam I and was taken to a total length of 50 metres; a total of 39.24 tonnes of coal were removed as samples. The adit was within the Lost-Fox Trial Cargo Pit area and was mined out in 1985.

1.5 OBJECTIVES OF THE SAMPLING PROGRAM

The main objectives of the Adit 86001 bulk sampling program were:

- 1) to provide a sufficiently large and representative sample for comprehensive study of size distribution, washability characteristics and product analyses.
- 2) to provide information on the natural size distribution of Seam H coal in a mining situation.
- 3) to provide a detailed examination of Seam H to investigate whether the seam thickness variation is due to either structure or depositional history.
- 4) to provide information on the extent of weathering, oxidation and permafrost.

TABLE 1

EXPLORATION SUMMARY 1981 TO 1986
LOST-FOX AREA

	1981	1982	1983	1984	1985	1986	Total
Adits							
Number	-	-	1	-	-	1	2
Tonnes	-	-	39.2	-	-	30	69.2
Diamond Drill Holes							
Number (HQ)	-	1	2	4	34	38	79
Total Metres	-	244	411	1017	6146	5619	13,437
Number (AIX)	-	-	6	-	-	-	6
Total Metres	-	-	126	-	-	-	126
Rotary Drill Holes							
Number	-	-	-	17	6	-	23
Total Metres	-	-	-	897	620	-	1517
Mechanical Trenches							
Number	-	-	-	88	-	-	88
Total Metres	-	-	-	808	-	-	808
Hand Trenches							
Number	9	14	49	55	33	18	178
Total Metres	27	86	265	260	130	58	826
Measured Sections							
Number	-	-	-	5	5	2	12
Total Metres	-	-	-	1368	308	93	1769
Geological Mapping							
Scales	1:10 000	1:10 00	1:10 000	1:5 000	1:5 000	1:5 000	
			1: 5 000	1:2 500	1:2 500	1:2 000	

1.6 PERSONNEL

The following personnel and services contributed to the 1986 adit bulk sample program. R.J. Morris, Norwest Resource Consultants Ltd, supervised the adit operation on-site including construction, sampling, and geological aspects, and contributed substantially to the writing of this report.

TABLE 2

LIST OF PERSONNEL

GULF PERSONNEL

L.J. Pituley, P. Eng.	Manager, Development
V.L. Duford, P. Geol.	Co-ordinator, Coal Geology
E. Swanbergson	Project Geologist
J.W. Innis	Senior Geologist
G. Seve	Senior Geologist
B. Van Den Bussche	Geologist

CONSULTANT

R.J. Morris	Norwest Resource Consultants Ltd.
-------------	--------------------------------------

CONTRACTING COMPANIES

Target Tunnelling	Adit Construction
Higgins Lake Contractors	Road and Site Construction
Loring Laboratories	Coal Analysis
Birtley Coal & Mineral Testing	Coal Analysis

David E. Pearson &
Associates
Tronnes Survey (1976) Ltd.
Smithers Transport

Petrography
Survey
Coal Haulage

1.7 SCHEDULE

Table 3 summarizes the job activities relative to time. All work was completed efficiently, the only extra work was with on-site coal handling caused by the wet conditions. Due to extremely muddy roads, Target Tunnelling's Bob Cat was unable to remove coal from the adit portal and a back hoe had to be used.

1.8 REGULATORY APPROVALS

The 1986 bulk sampling program & adit construction was included in the Form 6/7 (Notice of Work on a Coal Licence/Reclamation Program) submitted to the B.C. Ministry of Energy, Mines and Petroleum Resources in April, 1986.

Verbal approval to begin work on the adit was granted September 16th by Mr. Brian Good, Mines Inspector, Smithers. A site visit was completed September 24th by Mr. Good and approval was given to all mining and coal handling activities related to the adit.

Correspondence relating to the adit permitting process is located in Appendix 3.

TABLE 3 SCHEDULE OF ACTIVITIES

JOB DESCRIPTION	SEPTEMBER																												OCTOBER																				
	SAT		SUN		SAT		SUN		SAT		SUN		SAT		SUN		SAT		SUN		SAT		SUN		SAT		SUN																						
	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10																		
* CONSTRUCT ROAD TO SITE	█		█																																														
* SITE CONSTRUCTION			█																																														
** SITE PREPARATION				█																																													
** PORTAL CONSTRUCTION					█		█																																										
** ADIT DRIVEAGE					█																																												
* ON SITE COAL HANDLING												█		█																																			
** PREPARE ADIT FOR BULK SAMPLING																				█		█																											
** PETROGRAPHIC SAMPLING					█								█								█		█																										
** INCREMENT SAMPLING					(SURFACE)				(8.7m)			(19.0m)								(30.0, 41.0m)																													
** BULK SAMPLING																						█		█																									
** DE-MOBILIZATION																											█																						
* HIGGINS LAKE CONTRACTORS																																																	
** TARGET TUNNELLING																																																	

8

2.0 GEOLOGY

2.1 STRATIGRAPHY

The Mount Klappan property is underlain by uppermost Jurassic to Lower Cretaceous strata consisting of marine to non-marine sediments deposited in the Bowser Basin of northwestern British Columbia.

The sedimentary succession has been subdivided into four conformable, gradational sequences including the Spatsizi, Klappan, Malloch and Rhondda in ascending order, Table 4.

The main coal bearing unit, the Klappan Sequence, occurs over the majority of the property and represents a transition from marine conditions to coastal influenced sediments. At least 24 coal horizons exist within the 900 metre sequence, with seam thicknesses up to 6.75 metres.

Seam H has been intercepted in 40 drill holes in the Lost-Fox Area. Figure 3 illustrates seam correlation in the Lost-Fox Area. A preliminary report by Van Den Bussche (1985) summarizes intercepts in the Lost-Fox Area, provides a typical seam profile and reports average coal quality.

The following tables list thicknesses of Seam H as reported from some Lost-Fox drill holes.

TABLE 5

**SEAM H THICKNESS
LOST-FOX DRILL HOLES**

	83001	84007	84012	85006	Type Seam H
Total Seam Thickness (m)	4.58	3.98	3.12	2.76	3.95
Coal Thickness (m)	3.87	3.26	2.75	2.13	3.45
Rock Thickness (m)	0.71	0.72	0.37	0.63	0.50
% Rock in Full Seam	15.1	18.1	11.9	22.3	12.7

TABLE 4 TABLE OF FORMATIONS

Kr

RHONDDA SEQUENCE

SEQUENCE OF THICK CHERT PEBBLE CONGLOMERATES AND MINOR GRITTY SANDSTONES INTERBEDDED WITH AN INCREASING NUMBER OF SILTSTONES AND MUDSTONES TOWARDS THE BASAL CONTACT. LARGE SCALE TROUGH AND TABULAR CROSS BEDS ARE COMMON. SIX SPECIES OF PLANT FOSSILS ARE FOUND AT THE BASE OF THE SEQUENCE.

Km

MALLOCH SEQUENCE

THICK INTERBEDS OF MUDSTONES, ARGILLACEOUS SILTSTONES, FINE GRAINED SANDSTONES AND THIN INTERBEDS OF ORANGE WEATHERING NODULAR SILTSTONES. MANY CONGLOMERATE BEDS DISPLAY LARGE SCALE CROSS BEDDING AND TEND TO BE LATERALLY DISCONTINUOUS. THICK CLEAN SANDSTONE BEDS AND THIN COAL SEAMS INCREASE IN ABUNDANCE TOWARDS THE BASAL GRADATIONAL CONTACT. TWENTY-THREE SPECIES OF PLANT FOSSILS OCCUR WITHIN THE SEQUENCE.

JKk

KLAPPAN SEQUENCE (MAIN COAL-BEARING UNIT)

FINE TO COARSE GRAINED SANDSTONES INTERBEDDED WITH MUDSTONES, SILTSTONES, OCCASIONAL THIN BANDS OF ORANGE WEATHERING CALCAREOUS SILTSTONES, CONGLOMERATES AND ABUNDANT COAL SEAMS. CONGLOMERATE BEDS GRADE LATERALLY INTO SANDSTONE. SANDSTONES OFTEN DISPLAY TABULAR OR TROUGH CROSS BEDDING. RHYTHMITES OCCUR IN THE MIDDLE OF THE SEQUENCE. TWENTY-THREE SPECIES OF BIVALVES AND UP TO TWENTY-FIVE SPECIES OF PLANTS OCCUR THROUGHOUT. PETRIFIED WOOD AND RARE COQUINA MAY BE PRESENT TOWARDS THE UPPER CONTACT.

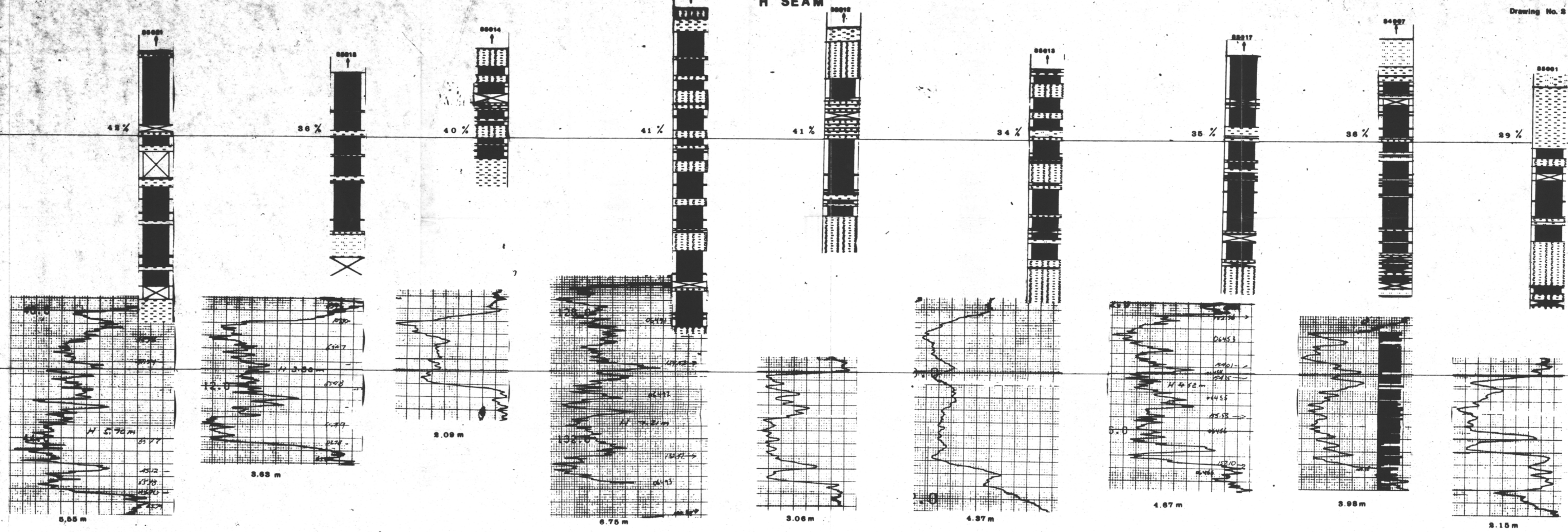
Js

SPATSIZI SEQUENCE

PREDOMINANTLY A MARINE SEQUENCE OF INTERBEDDED MUDSTONES, SILTSTONES, SANDSTONES AND CONGLOMERATES. CARBONACEOUS MUDSTONES, COARSENING UPWARDS SEQUENCES AND CHERT PEBBLE CONGLOMERATES ARE MORE ABUNDANT IN THE UPPER PART OF THE SEQUENCE. NINETEEN SPECIES OF BIVALVES ARE PRESENT. BELEMNITES ARE RARE. PLANT DEBRIS MAY OCCUR NEAR THE UPPER GRADATIONAL CONTACT.

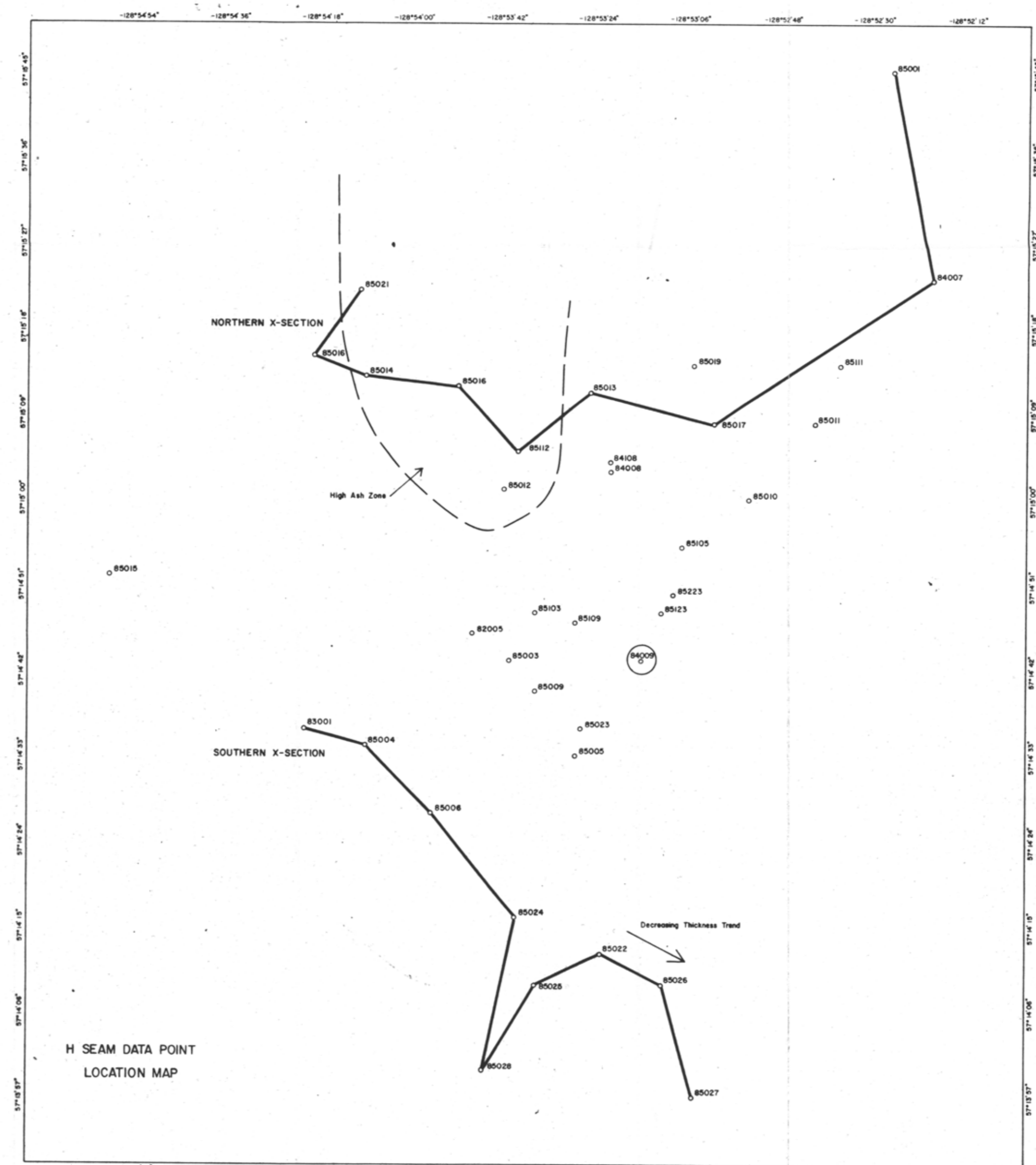
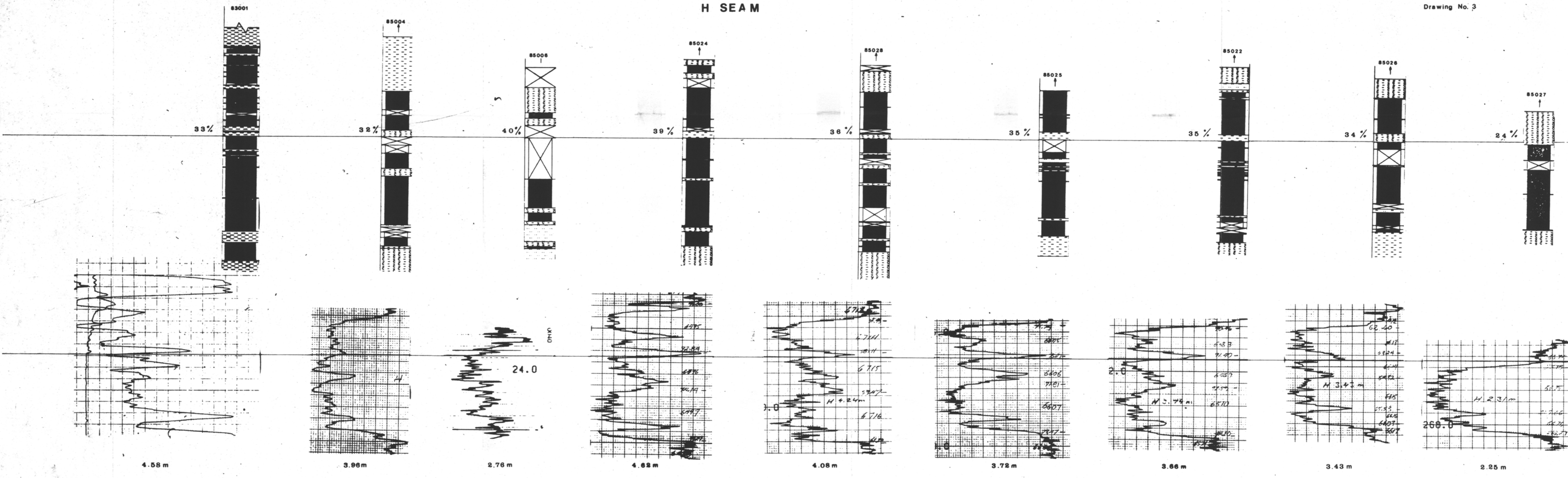
LOST FOX NORTHERN X-SECTION
H SEAM

Drawing No. 3



LOST FOX SOUTHERN X-SECTION
H SEAM

Drawing No. 3



723

GULF CANADA CORPORATION		
CALGARY	ALBERTA	
FIGURE 3		
LOST FOX AREA SEAM H CORRELATION		
PREPARED BY: B. VANDENBUSSCHE		SCALE: N/A
APPROVED BY: V.L.D.		DATE: 1986 DRAWING No.

TABLE 6

STATISTICAL SUMMARY OF 5 SEAM H THICKNESSES - LOST FOX AREA

	Total Seam Thickness	Coal Thickness	% Rock In Full Seam
Arithmetical mean	3.68	3.09	16.2
Standard Deviation	0.73	0.67	4.43

2.2 ADIT 86001, DETAILED STRATIGRAPHY

Figure 4 shows five Seam H profiles along the length of adit 86001 from the surface exposure to 41 metres into the adit. Detailed descriptive logs are located in Appendix I. These detailed descriptions illustrate seam variation and allow a visual estimate of coal quality. The average thickness of Seam H in the adit was 3.85 m comprising 3.27 m of coal and 0.58 m of rock. The following tables demonstrate some simple statistics.

TABLE 7

SEAM H THICKNESS: ADIT 86001

Depth:	Surface				
	0 m	8.7 m	19.0 m	30.0 m	41.0
Total seam thickness	4.28	3.19	3.90	3.95	3.92
coal thickness	3.77	2.49	3.30	3.41	3.36
rock thickness	0.51	0.70	0.60	0.54	0.56
% rock in full seam	11.8	21.9	15.4	13.7	14.3

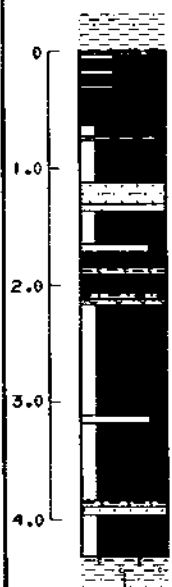
86101

86102

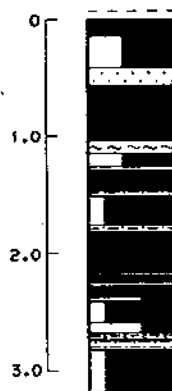
86103

86104

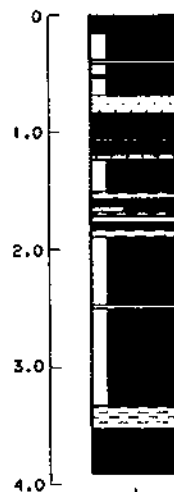
86105



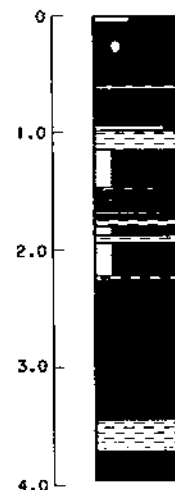
SURFACE EXPOSURE
(4.31m)



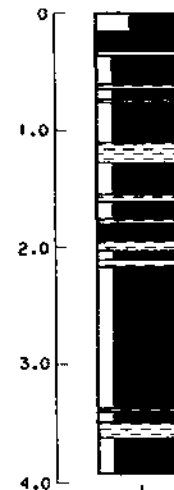
8.7m
(3.19m)



19.0m
(3.90m)



30.0m
(3.95m)



41.0m
(3.92m)

19.0m -DISTANCE ALONG ADIT FROM SURFACE
(3.90m) -SEAM THICKNESS

VERTICAL SCALE



FIGURE 4

MOUNT KLAPPAN ANTHRACITE PROJECT

SEAM H PROFILES
ALONG ADIT 86001

GULF CANADA CORPORATION

GULF CANADA CORPORATION
09/03/87
KLAP1(205057)870027015.L00



TABLE 8

STATISTICAL SUMMARY OF 5 SEAM H THICKNESSES: ADIT 86001

	Total Seam Thickness	% Rock in Full Seam	Coal Thickness
Arithmetical mean	3.85 m	15.42 %	3.27 m
Standard deviation	0.41	3.85	0.47

The surface exposure is dominated by both normal and thrust faults. A shear zone near the centre of the seam is variable in thickness, ranging from 5 to 40 centimetres. The five centimetre thickness was used in Figure 4 and the above tables. The exposure at 8.7 m is considerably thinner than the mean thickness of the seam, 3.19 m compared to 3.85. The thinning can possibly be explained by structure. Two zones of shearing were noted, one at the coal-roof contact and at approximately one metre below the roof. Both shears probably represent normal faults which would have a resultant thinning effect on the seam as shown in Figure 5. The exposures at 19.0, 30.0 and 41.0 metres are very similar in appearance, as shown by the following statistics.

TABLE 9

STATISTICAL SUMMARY OF THICKNESSES AT 19.0 M,
30.0 M, and 41.0 M

	Total Seam Thickness	Coal Thickness	% Rock in Full Seam
Arithmetical mean	3.92 m	3.36 m	14.47 %
Standard deviation	0.03	0.06	0.86

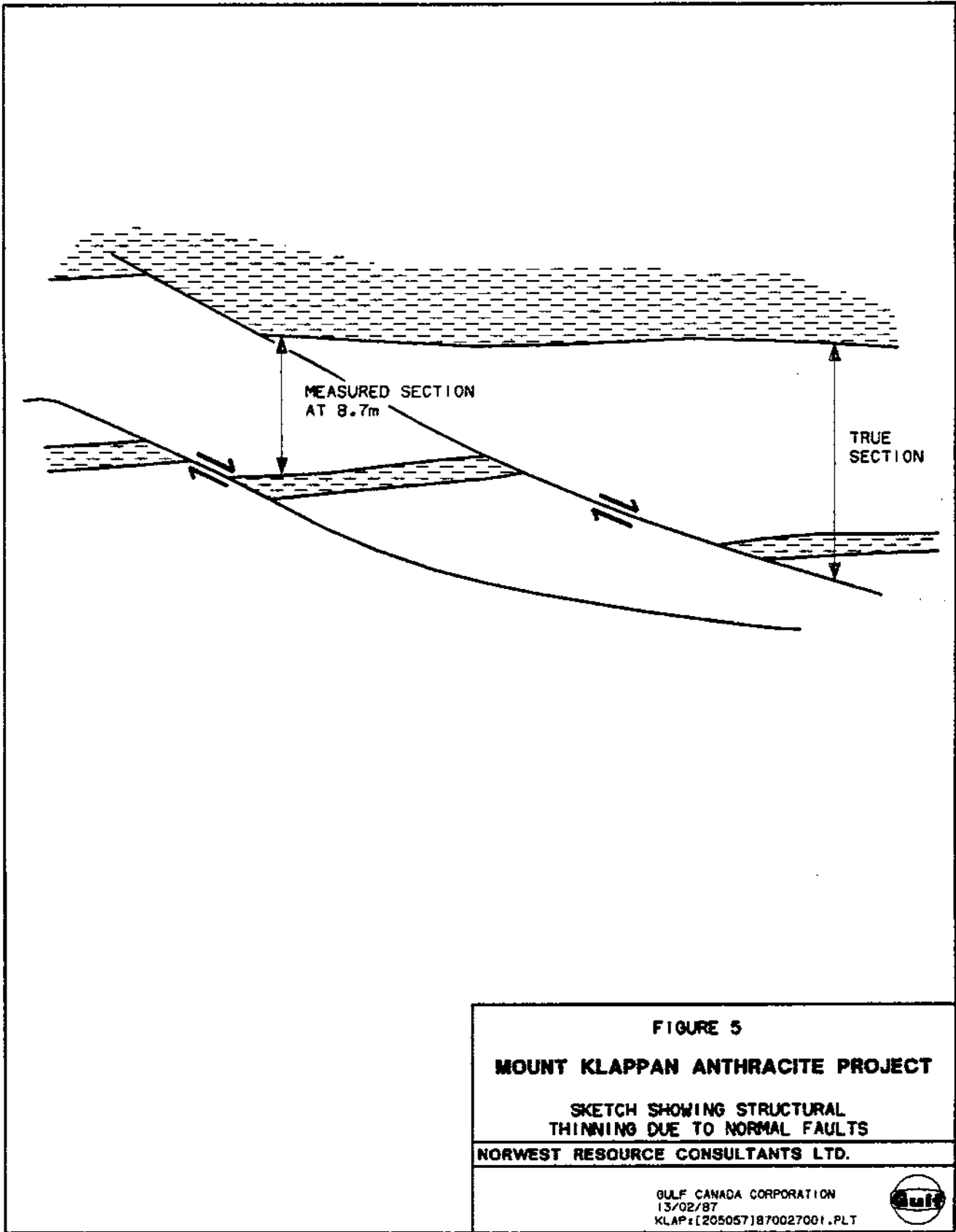



FIGURE 5

MOUNT KLAPPAN ANTHRACITE PROJECT

SKETCH SHOWING STRUCTURAL THINNING DUE TO NORMAL FAULTS

NORWEST RESOURCE CONSULTANTS LTD.

GULF CANADA CORPORATION
13/02/87
KLAP-[205057]870027001.PLT



2.3 STRUCTURE

The sedimentary sequence of the Mount Klappan property has been subjected regionally to two successive phases of deformation resulting in folding and faulting trending in NW-SE and E-W directions (Figure 6). The first phase of deformation (F1) subjected the area to NE-SW compression creating a general NW-SE structural trend. An F1 cleavage is well developed and trends at 135 degrees, parallel to shallow, NW or SE plunging folds. Fold wavelengths are up to 800 metres with amplitudes up to 300 metres. Quartz breccia zones and associated bedding plane slippages are observed along some axes.

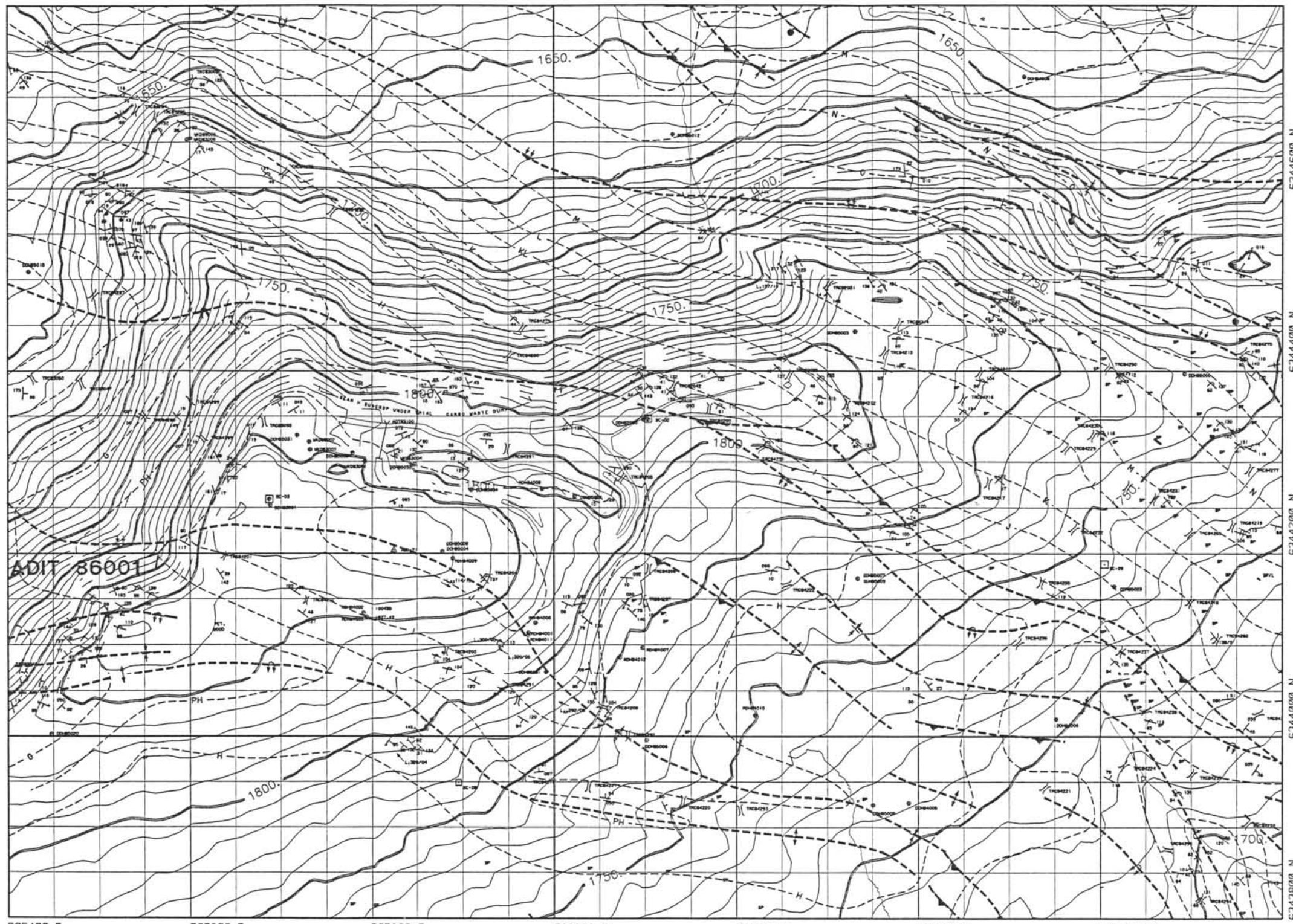
A later deformational event (F2) included N-S compression resulting in right lateral, high angle, faults and broad, open E to W trending folds with relatively rare flat lying thrusts. F2 cleavage trends from 30 - 110 degrees while fold wavelengths are approximately 750 metres with amplitudes up to 150 metres.

2.4 ADIT 86001, DETAILED STRUCTURE

This section of the report is divided into five subsections, the first four review specific structural components observed in the adit area while the final subsection is a compilation of deductions to produce a structural model which will assist in predictive geology in the Lost-Fox Area.

2.4.1 BEDDING

A total of forty bedding attitudes were measured in and around the adit area. Figure 7 is a frequency histogram of the strike of bedding planes while Figure 8 is a stereographic plot of poles to bedding with the average bedding planes and fold axis shown. Figure 7 shows two distinct populations, the southwest limb centred at 313 degrees and the northeast limb centred at 5



LEGEND

- LICENCE BOUNDARY (APPROXIMATE, ASSUMED)
- GEOLOGICAL BOUNDARY (APPROXIMATE, ASSUMED)
- COAL SEAM (DEFINED, APPROXIMATE, ASSUMED)
- BEDDING (HORIZONTAL, INCLINED, VERTICAL, UPRIGHT, OVERTURNED)
- BEDDING, STRIKE AND DIP
- CLEAVAGE (HORIZONTAL, INCLINED, VERTICAL, SECOND GENERATION)
- JOINT (HORIZONTAL, INCLINED, VERTICAL)
- LINEATION (HORIZONTAL, INCLINED, VERTICAL)
- L₁ LINEATION, DIRECTION AND PLUNGE
- MINOR FOLDS WITH AXIAL ATTITUDE
- ANTICLINE (DEFINED, APPROXIMATE, OVERTURNED)
- SYNCLINE (DEFINED, APPROXIMATE, OVERTURNED)
- ANTICLINE, SYNCLINE (ARROW INDICATES PLUNGE DIRECTION)
- THRUST FAULT (DEFINED, ASSUMED, TEETH ON UPTHURST SIDE)
- FAULT (DEFINED, ASSUMED, WITH UPTHROWN/DOWNTROWN SIDE)
- FAULT (SHOWING RELATIVE MOVEMENT AND ATTITUDE)
- TRENCH (SHOWING COAL-CENTRED BAR WHERE KNOWN)
- COAL SPOIL (WITH SEAM DESIGNATION WHERE KNOWN)
- OUTCROP AREA, OUTCROP, PROBABLE OUTCROP, FLOAT
- GLACIAL STRIAE (DIRECTION OF GLACIAL MOVEMENT KNOWN, UNKNOWN)
- DIAMOND, ROTARY DRILL HOLE (WITH SURFACE PROJECTION)
- MEASURED SECTION
- CROSS SECTION LINE (MINING GRID)
- FOSSIL LOCATION (WITH CATALOGUE NUMBER)
- SURVEY STATION, SURVEY CAIRN
- MARKER HORIZON
- SEVERELY DEFORMED, SHEARED



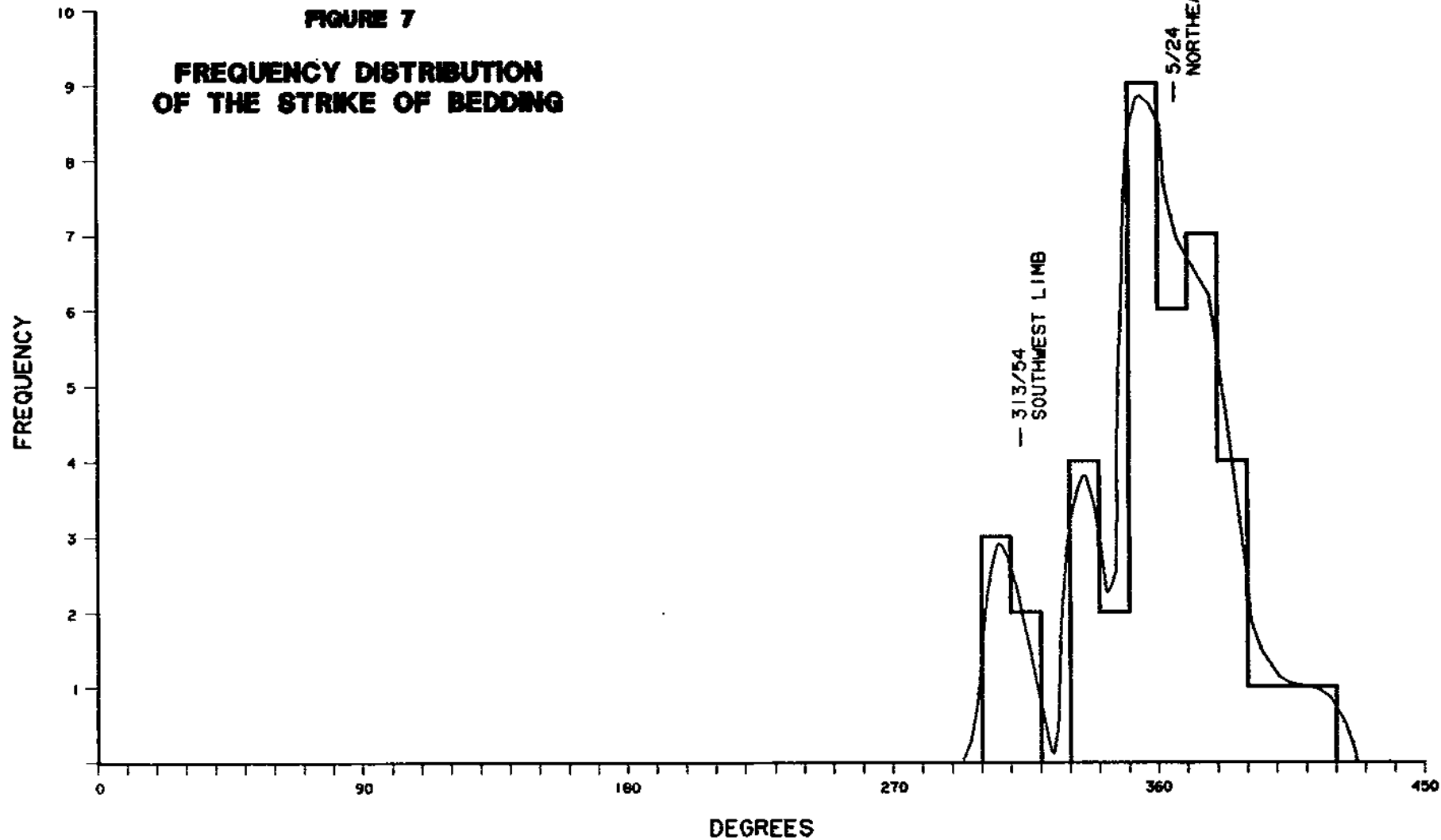
SCALE 1:5000

FIGURE 6
MOUNT KLAPPAN ANTHRACITE PROJECT
 LOST RIDGE GEOLOGICAL MAP

GULF CANADA CORPORATION
 15/04/87
 KLAP:[205057]860631006.LOC



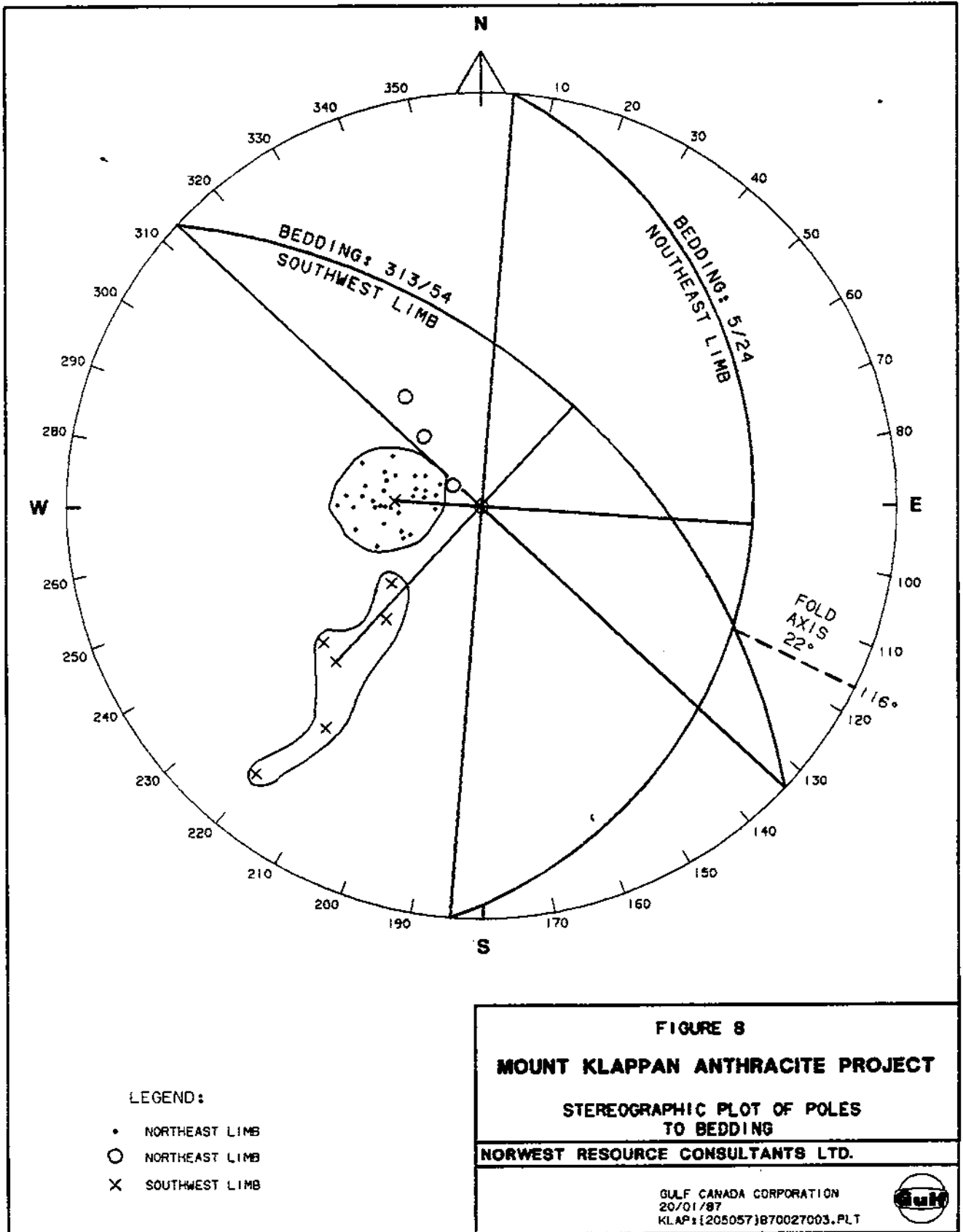
FIGURE 7
FREQUENCY DISTRIBUTION
OF THE STRIKE OF BEDDING

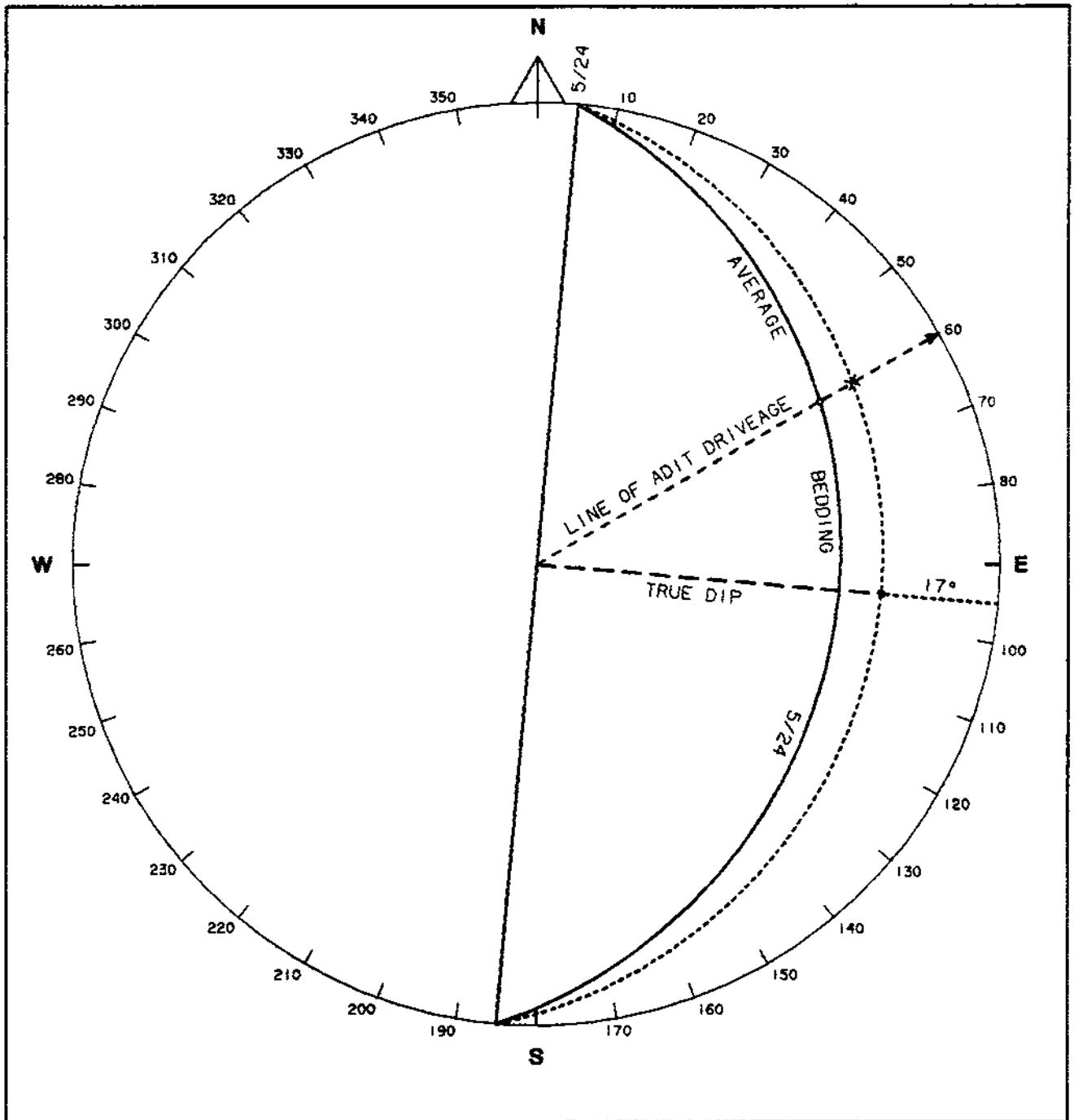


degrees. There is some divergence of strikes towards 60 degrees from the average north-south strike of the northeast limb. Figure 8 shows the two limbs of the syncline and the fold axis which plunges 22 degrees towards 116 degrees. The importance in the study of bedding attitudes was the determination of an average attitude so that the plane of the coal was known and could be related to the slope of the hill at the adit site permitting determination of the best line of driveage. Measurements taken September 14th showed an average bedding attitude of three degrees strike and 26 degrees dip. This compared to an average of five degrees strike and 24 degrees dip from thirty-two measurements (Figure 8). To compromise between the true dip of the coal and the slope of the hill a line of driveage of 60 degrees was chosen. Final survey information showed a line of 57 degrees. Along the line of driveage an apparent dip of 20 degrees was expected. The final survey showed a dip of 14 degrees which indicated that the bedding flattened out down dip to an average of 17 degrees. Figure 9 shows the average bedding in the adit area and the final attitude of the coal with a dip of 17 degrees.

2.4.2 JOINTING

A total of twenty joint planes were measured in and around the adit. Figure 10 shows the frequency distribution of the strike of the joint planes while Figure 11 is a stereographic projection showing poles to jointing and the average joint planes. Figure 10 shows basically four joint sets, A to D, which account for 95 percent of the measurements. Figure 11 shows the orientation of the joint planes. Sets A and D can be considered the same set with dips to either side of 90 degrees. Set C is perpendicular to the A-D set while Set B can be considered an axial plane cleavage (jointing and cleavage are considered synonymous here). Joint Set B is an F1 cleavage and parallels the fold observed west of the adit which is oriented





- LEGEND:
- EXPECTED DIP ALONG ADIT DRIVEAGE (20°)
 - X FINAL DIP IN ADIT (14°)
 - TRUE ATTITUDE OF COAL (05/17)

FIGURE 9
MOUNT KLAPPAN ANTHRACITE PROJECT
TRUE DIP OF SEAM H
IN ADIT 86001
NORWEST RESOURCE CONSULTANTS LTD.

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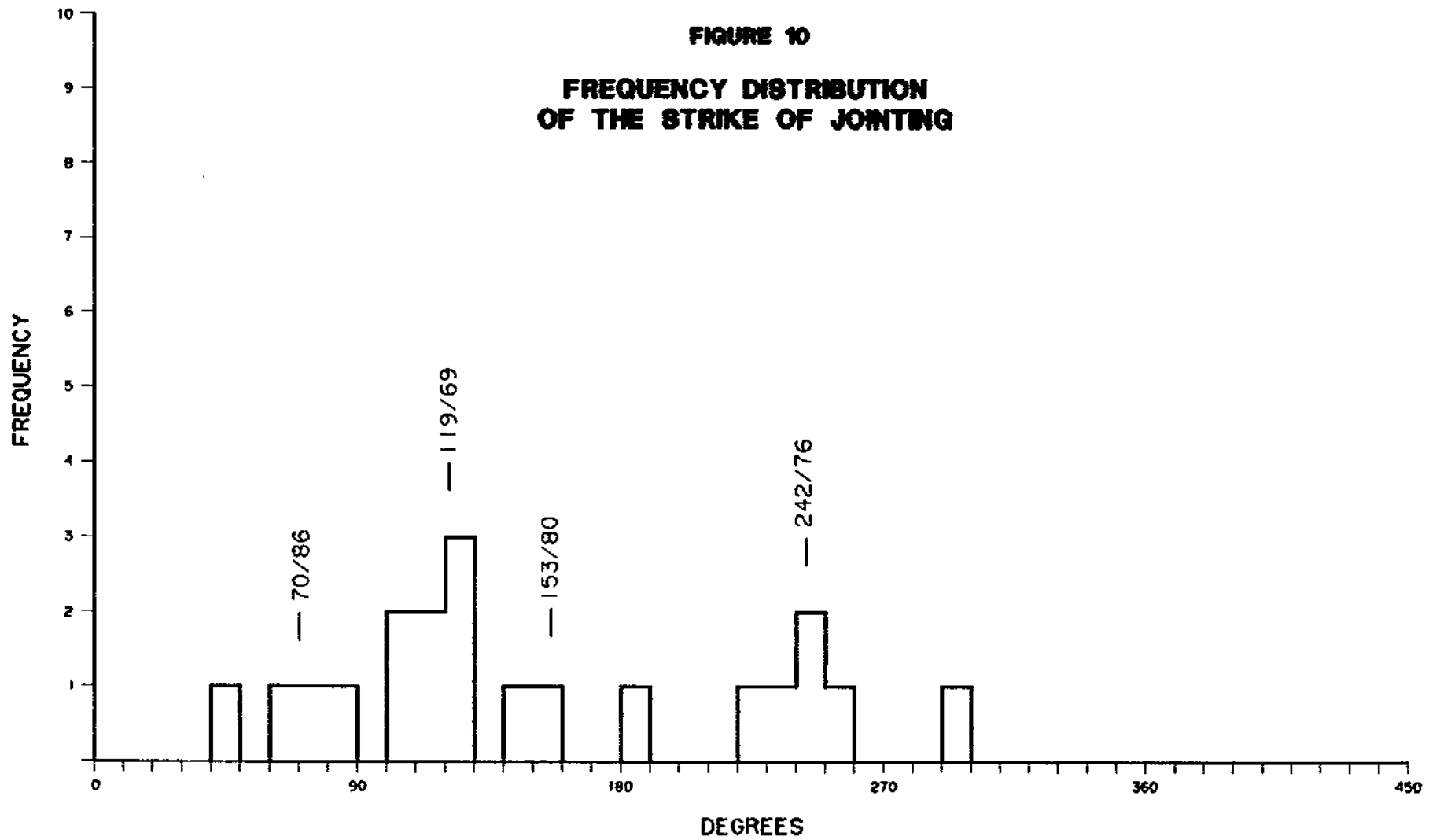
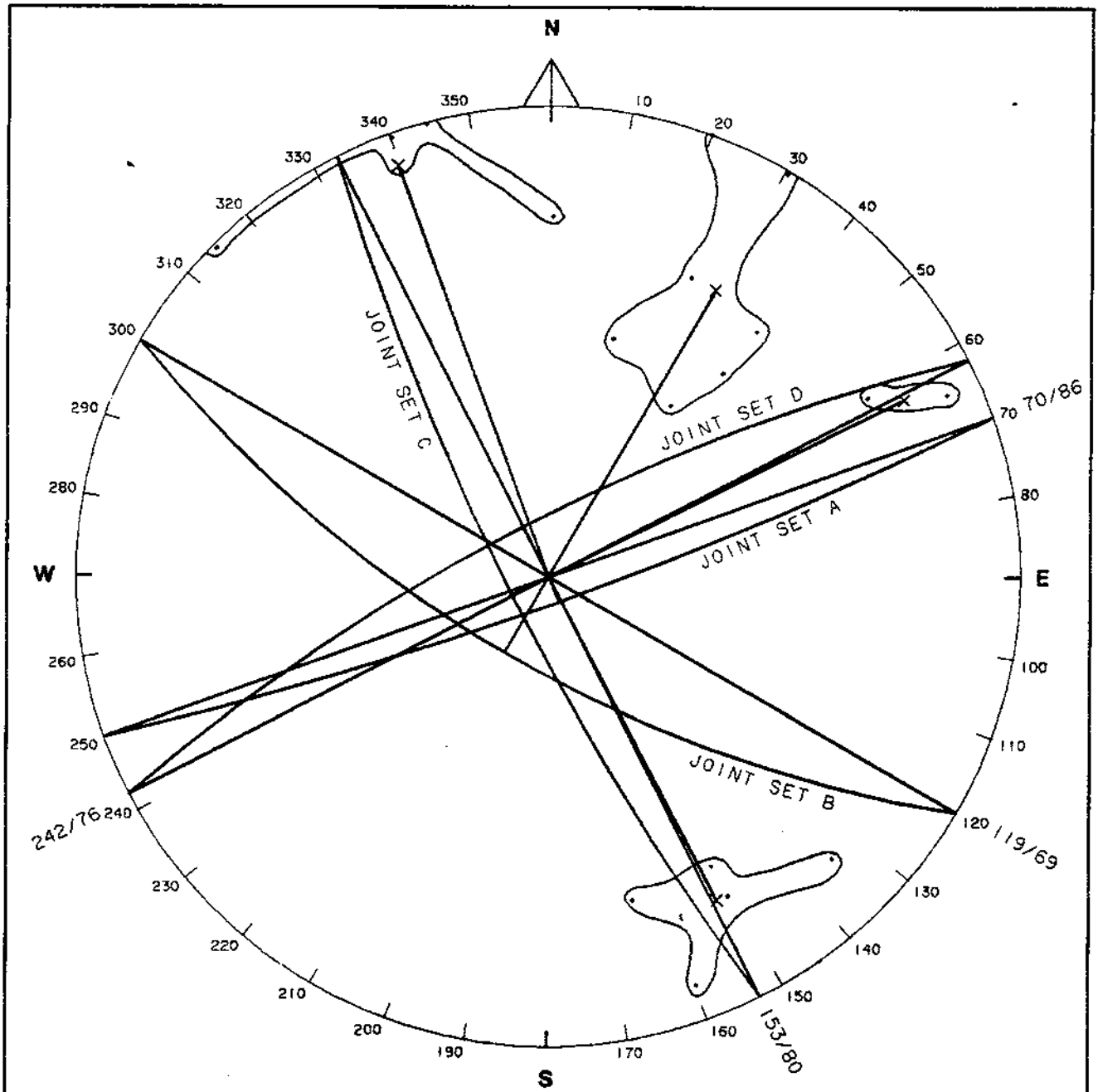


FIGURE 10
FREQUENCY DISTRIBUTION
OF THE STRIKE OF JOINTING






LEGEND:
 • POLE TO JOINT PLANE
 X POLE TO AVERAGE JOINT PLANE

FIGURE 11
MOUNT KLAPPAN ANTHRACITE PROJECT
STEREOGRAPHIC PLOT OF
POLES TO JOINTING
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GULF CANADA CORPORATION
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at 22° to 116° as shown in Figure 8. The table below lists summary data for the four joint sets.

TABLE 10

JOINT SETS

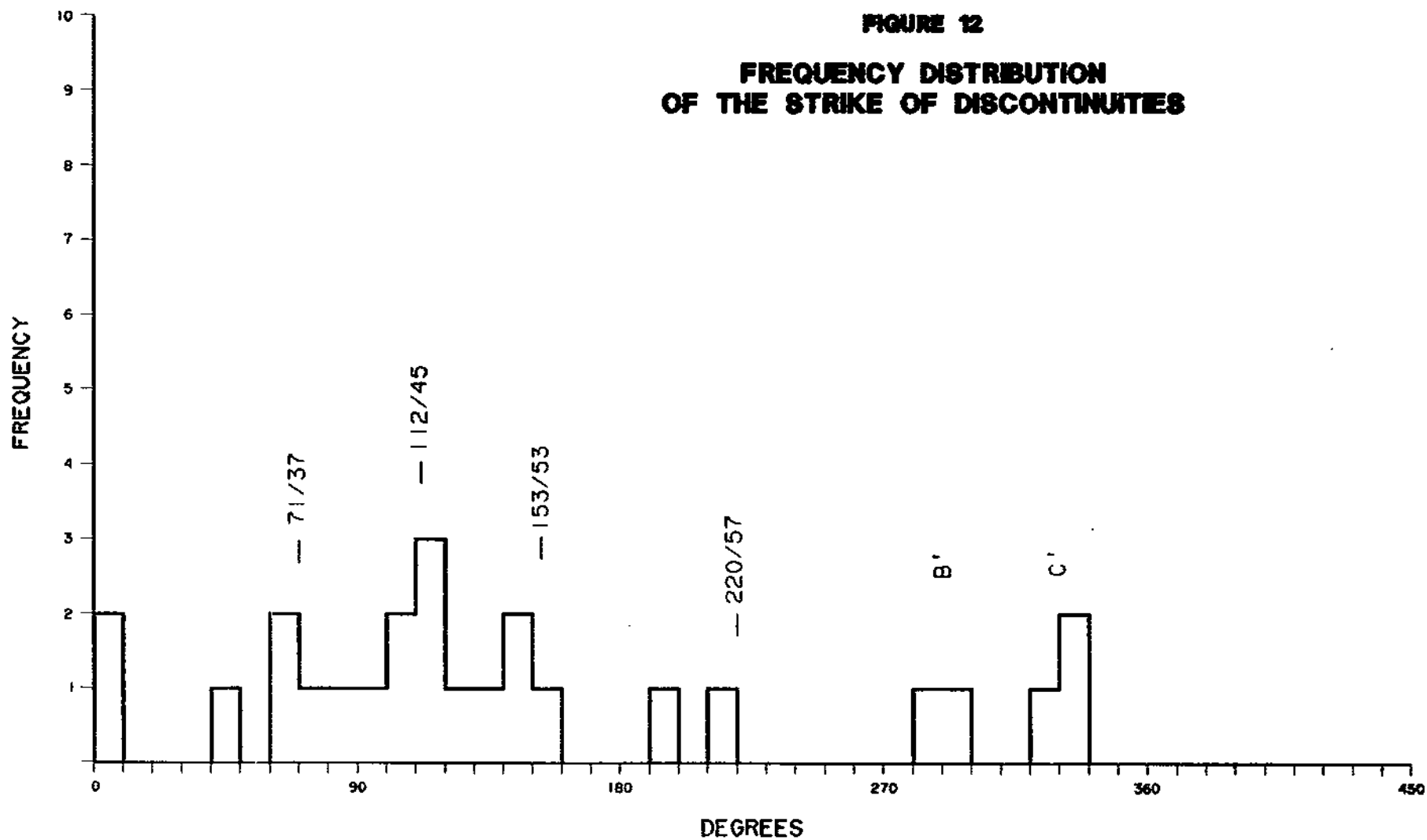
Attitude	A	B (F1)	C	D
Arithmetical Mean	70/86	119/71	153/80	242/76
Standard Deviation	19/8	10/16	4/7	12/7
Number of Samples	4	8	2	5

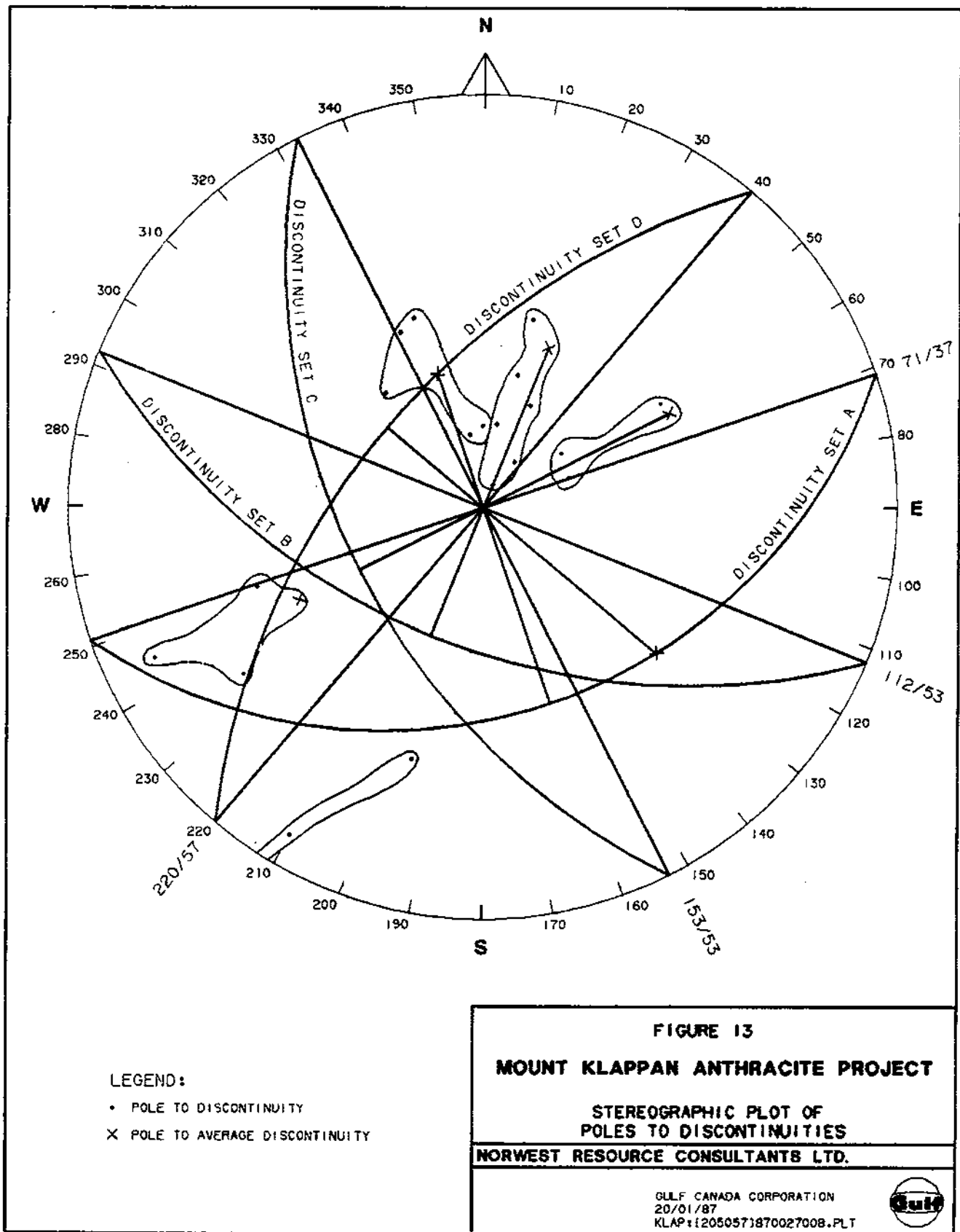
2.4.3 DISCONTINUITIES

This subsection describes surfaces, such as faults, which separate unrelated groups of rocks. Where possible, the discontinuities have been classified as normal, thrust or reverse faults though surfaces were observed where the movement was not identifiable and these have been called shear planes.

A total of twenty-five discontinuities were measured in and around the adit. Figure 12 shows the frequency distribution of the strike of the discontinuities while Figure 13 is a stereographic projection of poles to discontinuity surfaces and shows average discontinuity planes. Figure 12 shows the same four sets used with the jointing study, they include 84 percent of the measurements. Set D has only one plane which doesn't correspond to Set A as with the jointing. Set C remains perpendicular to Set A while Set B parallels the fold axis observed in Figure 8. It is noteworthy that the discontinuity

FIGURE 12
FREQUENCY DISTRIBUTION
OF THE STRIKE OF DISCONTINUITIES





surfaces have shallower dips than the jointing, which is related to rock type (Section 2.4.5).

Of the 25 discontinuities, six are thrust faults, ten are normal faults, eight are shear planes and one reverse fault was noted. The discontinuity sets all display small scale movement, generally less than one metre to a maximum of about two metres, and their orientations are briefly summarized below in Table 11.

TABLE 11

DISCONTINUITY SETS

Attitude	A	B	C	D
Arithmetical Mean	71/37	112/45	153/53	220/57
Standard Deviation	15/15	9/30	7/23	-
Number of Samples	5	9	6	1

2.4.4 FOLD AND SLICKENSIDES

Three small scale folds and seven slickensided surfaces were observed. Figure 14 is a stereographic projection showing the orientation of the three fold axes and Figure 15 is a stereographic projection of the seven slickensides and average joint plane.

The three minor folds were in Seam H, two of them closely parallel the major fold west of the adit while the third fold is almost perpendicular to the others. The two folds trending towards 110 degrees are similar to F2 folds with an east-west orientation and both were the results of thrust faults which were oriented east-west and showed thrusting from the south. There is an oblique component to the thrusting as shown by the

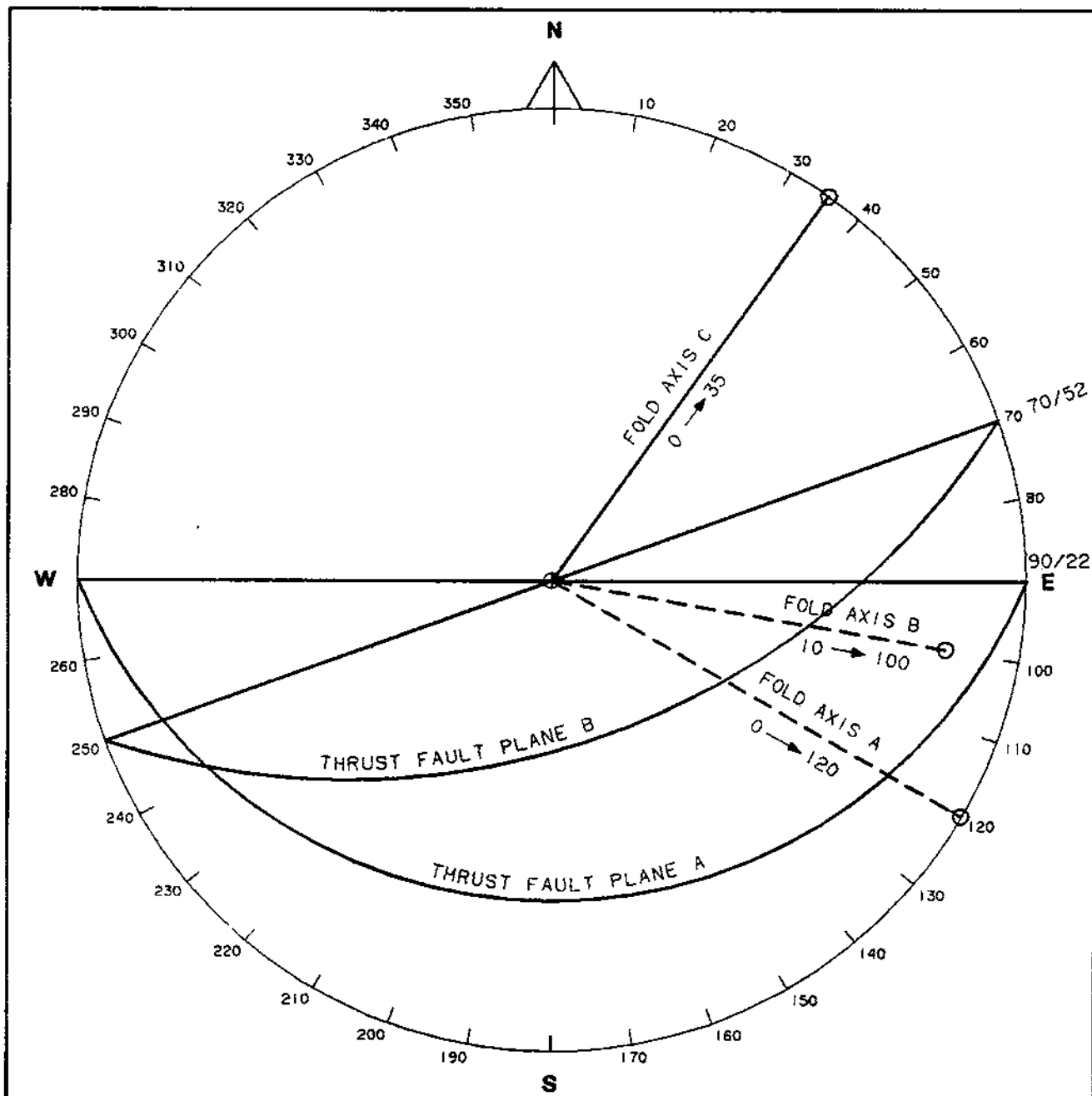

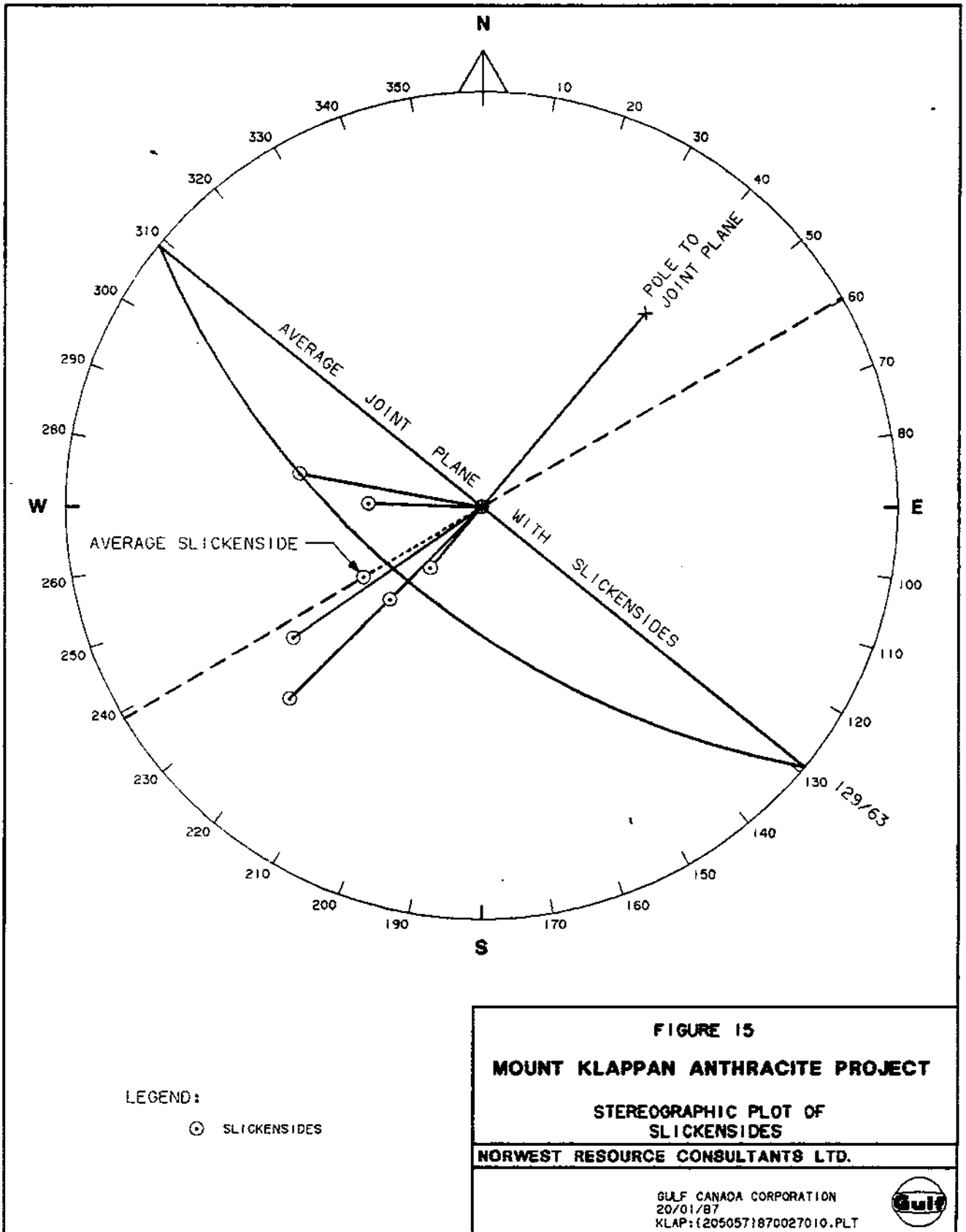


FIGURE 14
MOUNT KLAPPAN ANTHRACITE PROJECT
STEREOGRAPHIC PLOT OF
FOLD AXES

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thirty degree difference between the fault planes and the fold axes.

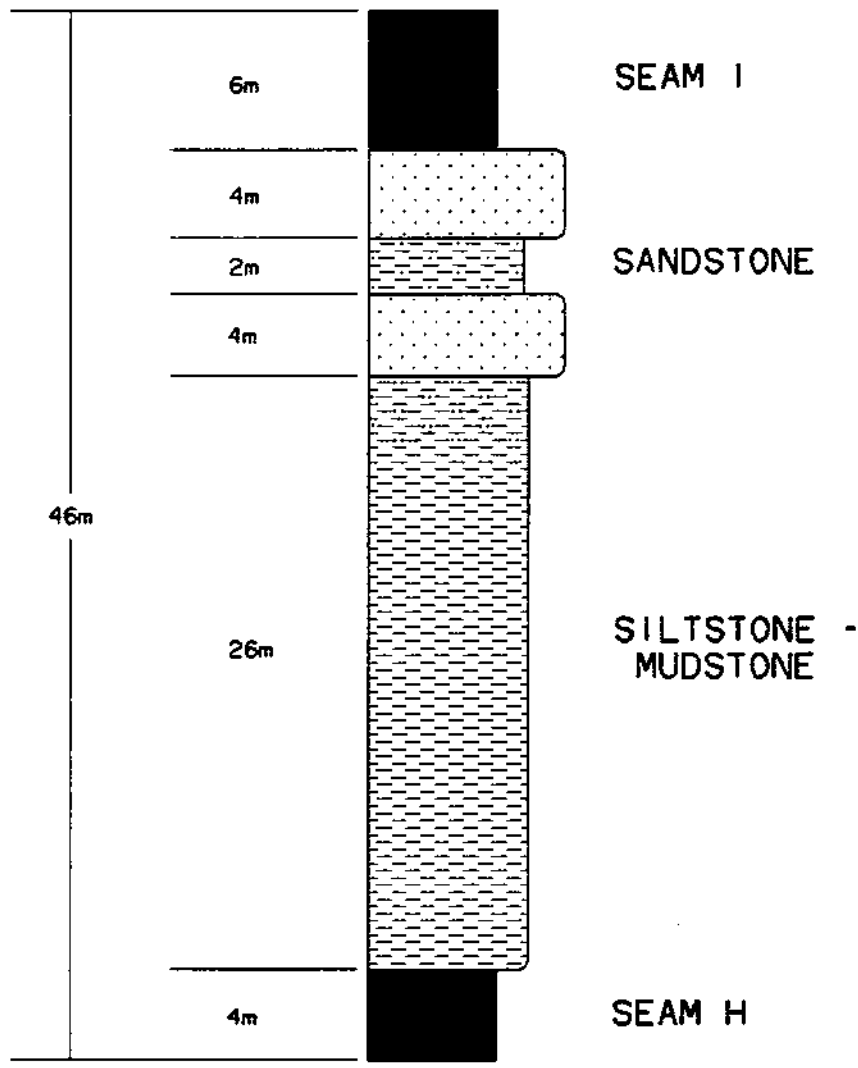
The slickensides were all measured on similarly oriented joint or shear planes which had an average strike of 129 degrees and dip of 63 degrees. The average slickenside orientation is 53 degrees toward 239 degrees. The joint plane represents an axial plane cleavage and the slickensides indicate movement on the plane.

2.4.5 STRUCTURAL MODELLING

The stratigraphic sequence influenced by the structure in the adit area includes coal seams H and I, a massive sandstone horizon below Seam I and siltstones and mudstones above Seam H, as shown in Figure 16.

The first phase of deformation, F1, was NE-SW compression creating a general NW-SE structural trend. A major syncline just southwest of the adit was formed at this time. Both limbs of the syncline are relatively undeformed. The northeast limb is tilted with a strike of 5 degrees and dips 24 degrees to the east. The Lost-Fox Trial Cargo Pit and Adit 86001 are within this structural block. The southwest limb strikes towards 313 degrees and dips an average of 54 degrees to the northeast. The fold axis trends towards 116 degrees and plunges 22 degrees, (Figure 8), and is shown in Photos 1 and 2 and as sketch number two in Figure 17.

The folding created axial plane cleavage (jointing) and small scale thrusting near the core of the syncline. The axial plane cleavage (F1) is oriented with a strike towards 119 degrees and dips 71 degrees to the southwest, (Figure 11), while the thrust faults have a strike of 112 degrees and dip 53 degrees to the southwest (Figure 13). Small scale folds on



(APPROXIMATE THICKNESSES)

FIGURE 16
MOUNT KLAPPAN ANTHRACITE PROJECT
 GENERALIZED SECTION
 BETWEEN SEAMS H & I
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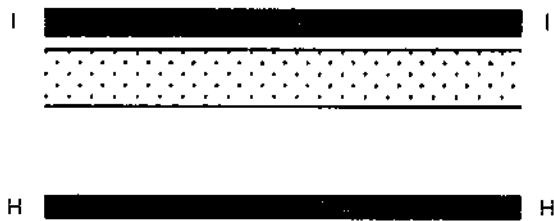




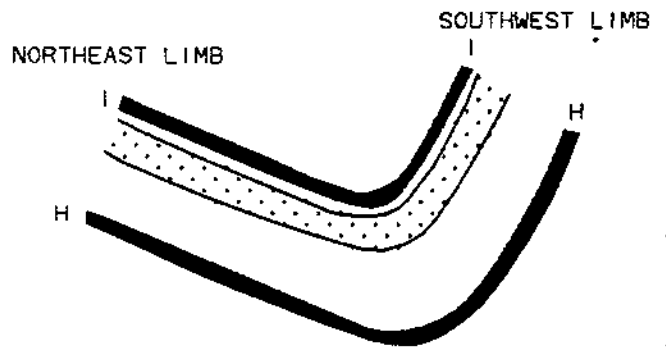
PHOTO 1: View to the southeast from the north spur of Lost Ridge. The Lost Ridge Trial Cargo Pit is the cut at the top left.



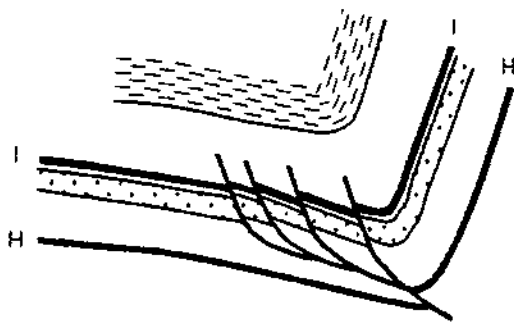
PHOTO 2: Close up of the adit 86001 area, showing the main syncline as well as the array of minor normal faults. The fault surfaces are listric and are shown to pass above the adit.



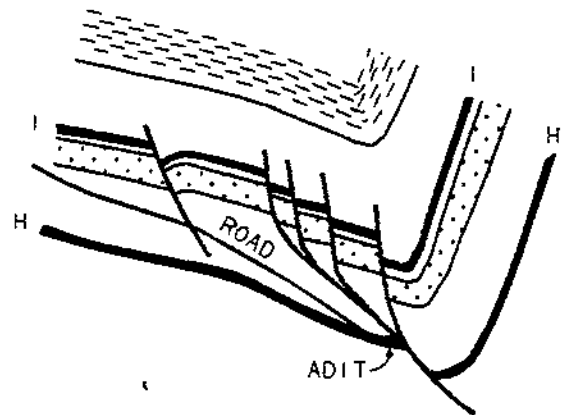
1. UNDEFORMED SECTION



2. COMPRESSION
(looking to the southeast)



3. THRUST FAULTS



4. EXTENSION
(NORMAL FAULTS)

NOT TO SCALE

FIGURE 17

**MOUNT KLAPPAN ANTHRACITE PROJECT
SEQUENCE OF STRUCTURAL
DEFORMATION IN AREA
OF ADIT 86001**

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thrust faults are oriented toward 110 degrees and plunge 5 degrees (Figure 14), while slickensides are confined to joint surfaces which have an average strike of 129 degrees and dip 63 degrees to the southwest (Figure 15).

TABLE 12
SUMMARY OF STRUCTURAL FEATURES
FROM F1 FOLDING

Bedding:	Northeast Limb	5/24	(strike/dip)
	Southwest Limb	313/54	
Folding:	Main Fold	22 to 116	(plunge to azimuth)
	Small Folds	5 to 110	
Jointing:	Axial Plane	119/71	(strike/dip)
	With Slickensides	129/63	
Faults:	Thrusts	112/53	(strike/dip)

Table 12 above lists the structural features which were developed by the first phase of deformation (Sketch No. 2 and 3, Figure 17). The folding, jointing and faults emphasize the orientation of the plane of greatest movement (primary fold direction) which would be approximately perpendicular to the direction of maximum stress, F1 compression.

The dip of these planes of maximum movement is highly variable, from vertical to as low as seven degrees, and can be called listric (curvilinear) surfaces, as shown in Photos 4, 5 and 6.

The surfaces were probably thrust fault planes originally, (Sketch No. 3, Figure 17) created due to compression and were later reactivated during a period of extension, (Sketch No. 4, Figure 17).



PHOTO 3: Looking to the northeast at the faulted Seam I and underlying sandstone horizon. From this angle the changes of elevation of the lower sandstone are very obvious though the fault angles are poorly shown.

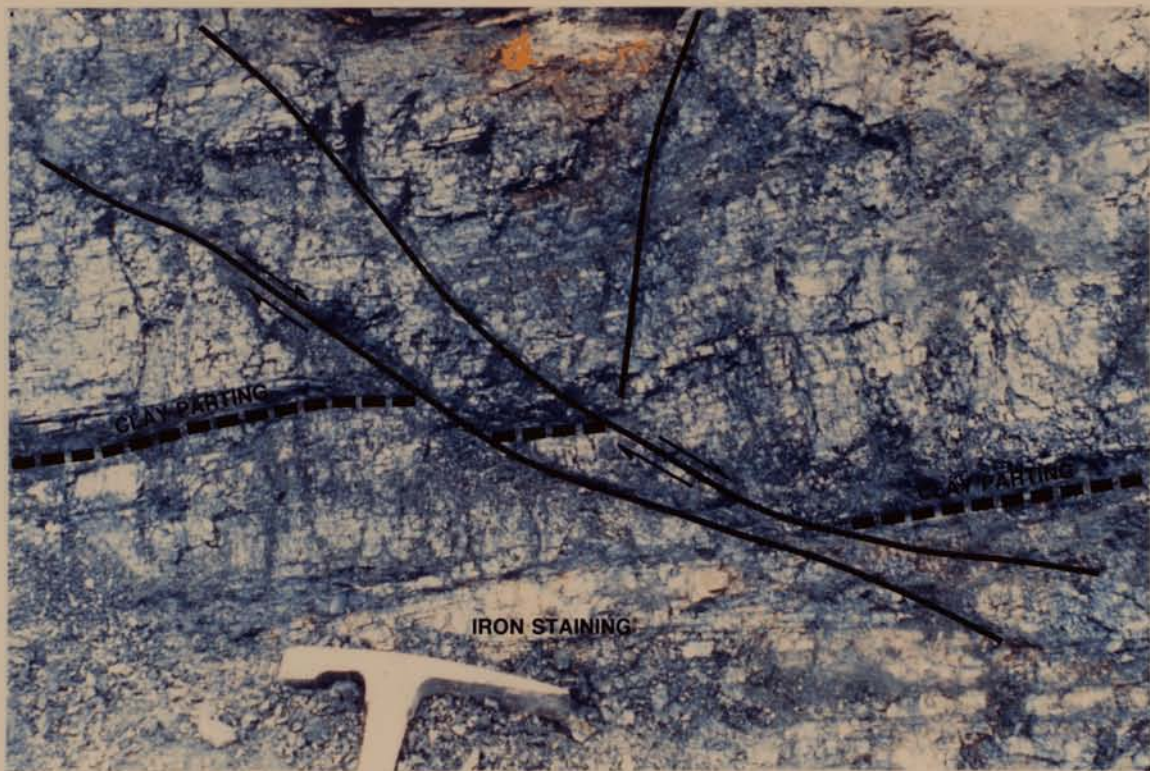


PHOTO 4: Seam H exposure at the adit site. Listric normal fault surfaces and displacement of a small mudstone layer are shown. The high angle discontinuity surface to the right belongs to Set C, Table 11.

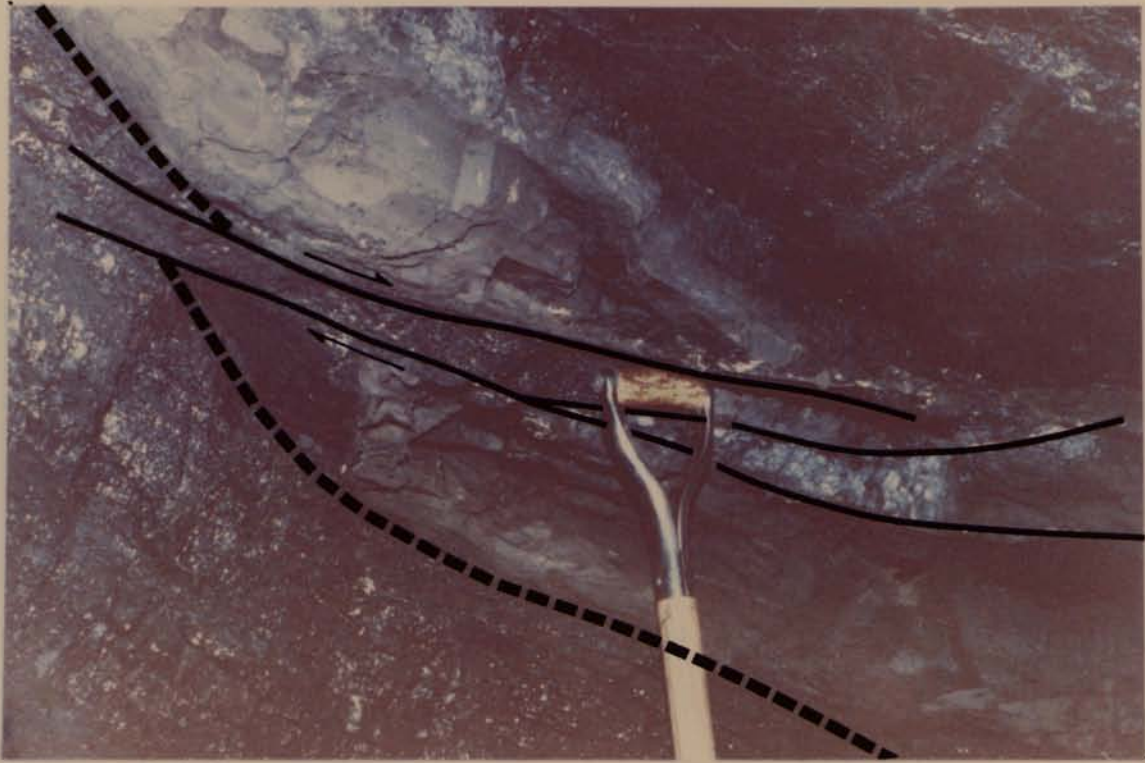


PHOTO 5: Approximately 19.0 m into the adit, a low angle normal fault cutting a sandstone parting about 70 cm. below the roof. The vertical displacement is approximately 12 cm.

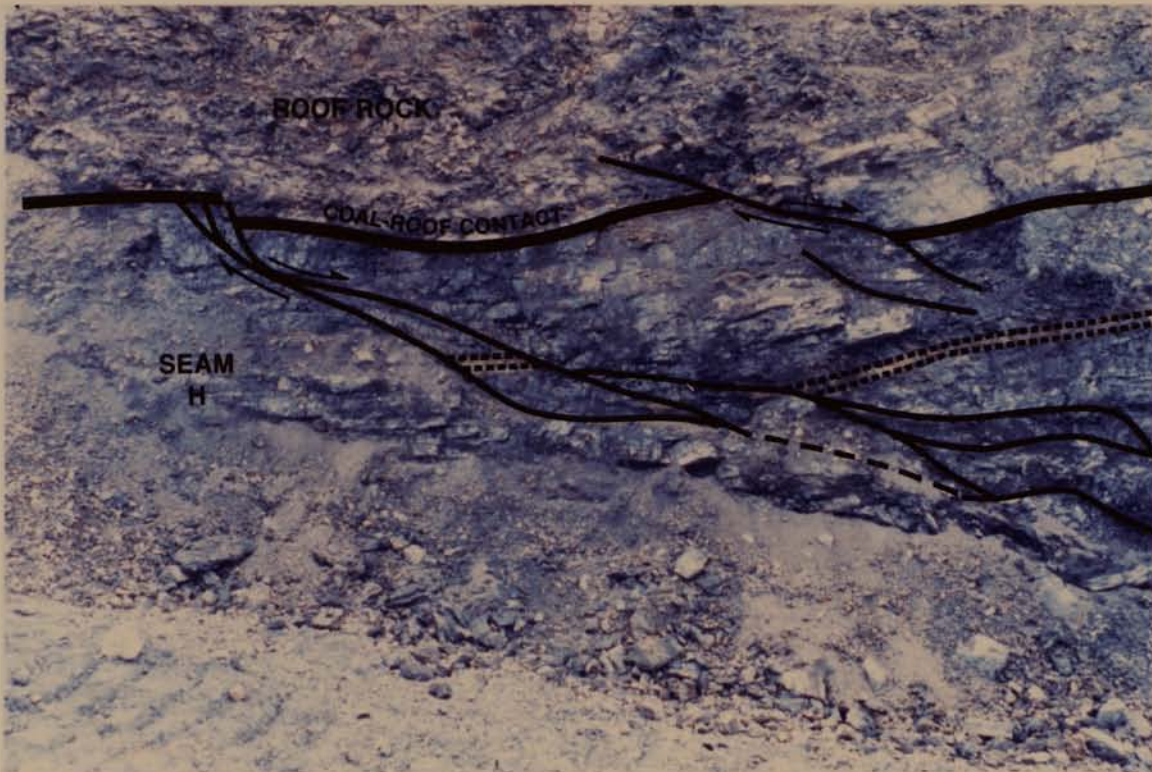
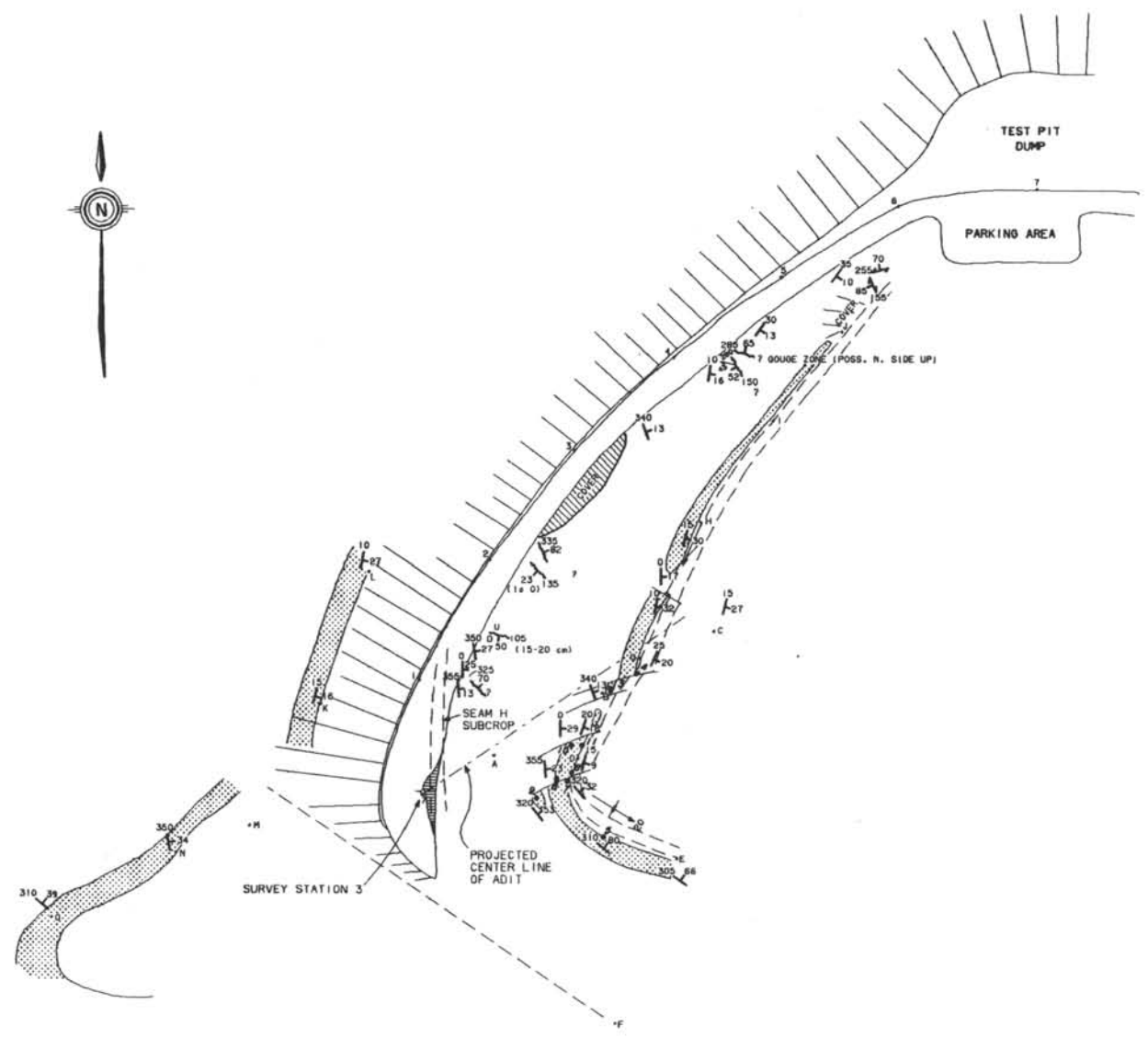


PHOTO 6: Seam H exposure at the adit site showing coal-roof contact and shear zone cutting the coal. The shear system has an overall normal displacement though small thrust faults occur along the fault zone.

The faults in Seam I and the underlying sandstone were not noted until September 17 by which time the adit was in some four metres. The area was mapped in detail, Figure 18, on September 18 and backhoe trenching was conducted on September 19, by which time the adit was in at least ten metres. The intent of the mapping and trenching was to locate the down dip extension of the normal faults. If the faults were located along the access road then the angle of decline of the adit could have been altered so that a uniform decline could have been driven to a bulk sample site. Figure 19 shows the detailed geology of adit 86001 and the projection of elevations to the trenches. From the work it was concluded that the faults were listric and culminated above and west of the adit. The only effect faulting had on adit driveage was unstable roof-coal contact conditions causing roof falls up to two metres high.

Figure 20 summarizes the stress component and resultant structural features noted in mapping of the adit and area. A step by step summary is given below:

1. primary stress direction (F1 stress) along 30 - 210 degrees (NE-SW).
2. primary fold direction oriented perpendicular to F1, producing folding, thrusting and axial plane cleavage (joint and discontinuity set B), sketch A, Figure 20.



LEGEND






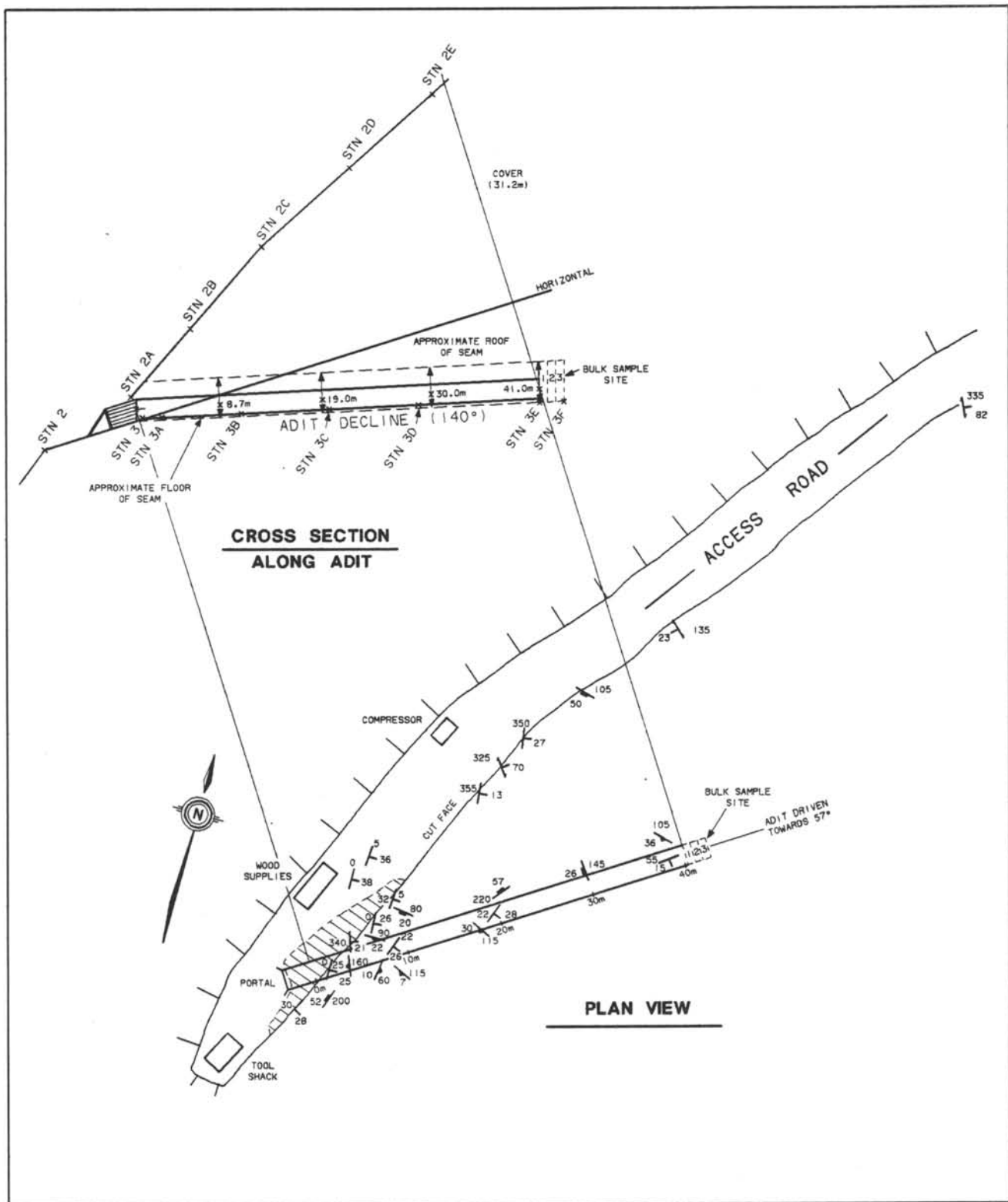
-  GOUGE ZONE OR PLANE, POSSIBLE FAULT, MOVEMENT UNKNOWN
-  BEDDING ATTITUDE, POSSIBLY NOT IN PLACE
-  GEOLGY CONTROL STATIONS
-  GEOLGY CONTROL STATIONS
-  GEOLGY CONTROL STATIONS

FIGURE 18
MOUNT KLAPPAN ANTHRACITE PROJECT
 DETAILED GEOLOGY
 ADIT 86001 AREA
 NORWEST RESOURCE CONSULTANTS LTD.

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LEGEND

- 5
 BEDDING ATTITUDE
- 20
 NORMAL FAULT
- 22
 THRUST FAULT
- 325
 SHEAR PLANE

SCALE



FIGURE 19
MOUNT KLAPPAN ANTHRACITE PROJECT
 DETAILED GEOLOGY
 ADIT 86001

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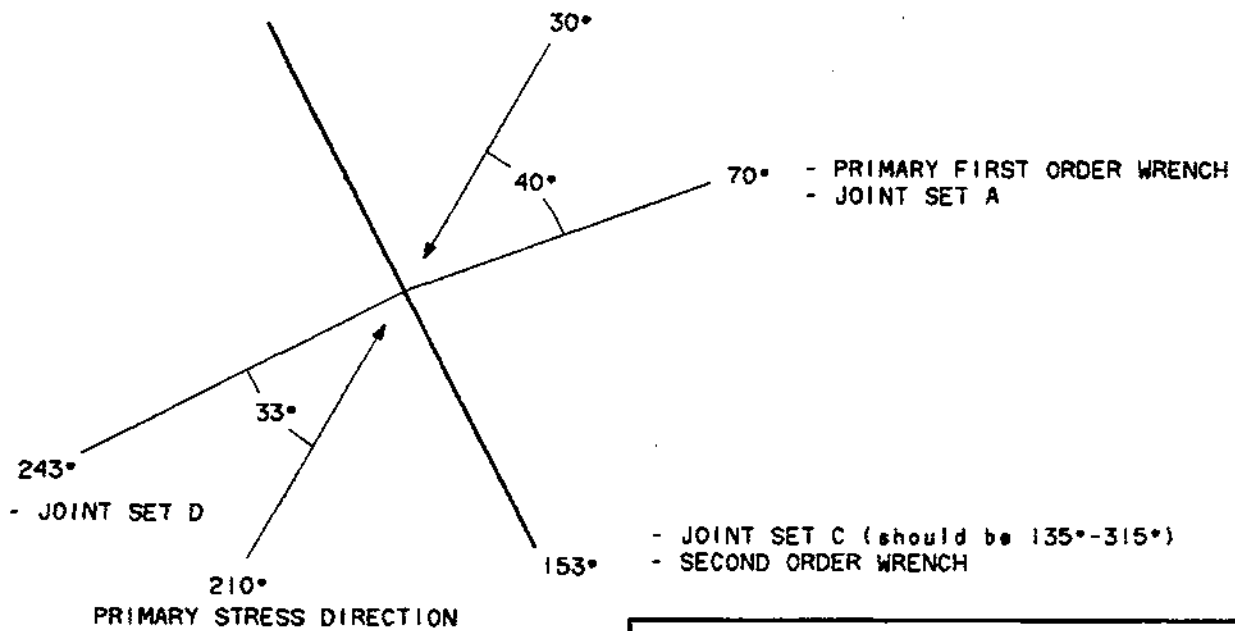
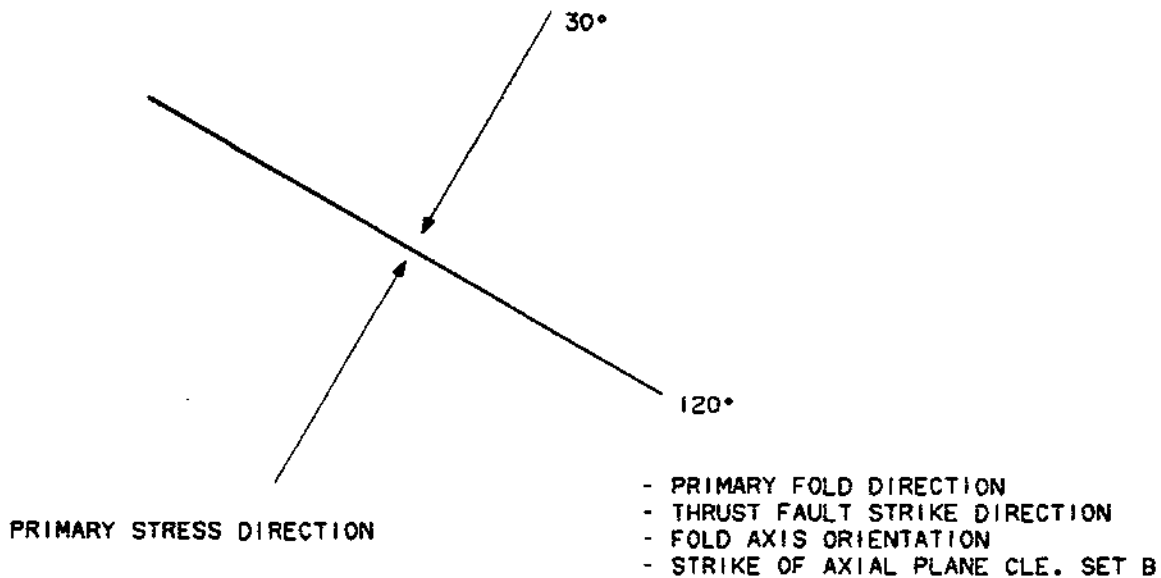


FIGURE 20

MOUNT KLAPPAN ANTHRACITE PROJECT


STRESS COMPONENTS AND

RESULTANT STRUCTURAL

FEATURES

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3. Primary first order wrench, approximately 30 degrees to the primary stress direction (joint sets A and D).
4. Second order wrench, approximately 75 degrees to the primary stress direction (joint set C).

Several features must be noted which deviate from the model in Figure 20.

1. The bedding indicates an asymmetrical fold which may be from a primary stress direction which is not horizontal nor perpendicular to the fold axis.
2. A third fold axis oriented parallel to the primary stress direction (Fold axis C, Figure 14) may be a third order drag fold from the same F1 system.
3. The slickensides indicated movement in the 60 - 240 degrees directions, up to 30 degrees from the primary stress direction. This could indicate oblique movement along the primary fold direction or it may be from later stage movement due to extension.

From the above summary a structural style can be extrapolated to aid interpretation in the Lost-Fox Area:

1. Fold limbs are large and continuous in a general sense; the northeast limb (Lost-Fox Trial Cargo Pit, Adit 86001 structural block) is at least 200 metres wide and is broken only by small faults.
2. Joint set mapping can aid in determining the orientation of structural blocks, fold directions and fault attitudes.

3. Fault planes are listric, varying from seven degrees to vertical. Faults observed include normal, reverse and thrusts. Re-use of existing fault planes is suggested.

There is a positive correlation between joint sets and faults.

4. Folding occurs at all scales from the main fold southwest of the adit to minor folds accompanying thrust faults. Folds in the Lost-Fox Area are dominantly oriented toward 120 degrees though minor folds toward 30 degrees may occur. The folds vary from horizontal to plunging up to 20 degrees.

3.0 ADIT CONSTRUCTION AND MONITORING

3.1 SITE SELECTION AND CONSTRUCTION

The Gulf geological staff investigated numerous possible adit sites and the final site selection was made with Bryan Olson, from Target Tunnelling, present.

On September 11, construction of a road commenced from the most northwesterly corner of the Lost-Fox Trial Cargo Pit. The road began in dump fill from the pit and was driven down hill to the chosen location in Seam H. At least half of the road was built on original ground with the outside edge made up of fill. Heavy rain September 22, 23 and 24 caused slumping of bank material above the road though no serious problems occurred and freezing conditions by September 25 consolidated the road and bank.

The adit site was constructed on September 13 and consisted of a staging area approximately 37 metres long and 8 metres wide. Seam H was exposed from roof to floor along the cut for the site. Because the seam was exposed at the start of excavating there was no cut bank above the coal and therefore no need for a safety berm.

Target Tunnelling spent September 14th scaling loose rock from above the adit site and access road and constructing a small deflector - berm directly above the adit.

3.2 ADIT DRIVEAGE AND PROGRESS

Portal construction was completed on September 15th and consisted of two metres of entrance protruding from the coal face and one metre into coal. The bottom left corner of the adit (facing the adit) was set in a rock parting which was approximately

0.45 m from the floor of the seam, this allowed the miners and geologists to have stratigraphic control as the tunnel progressed.

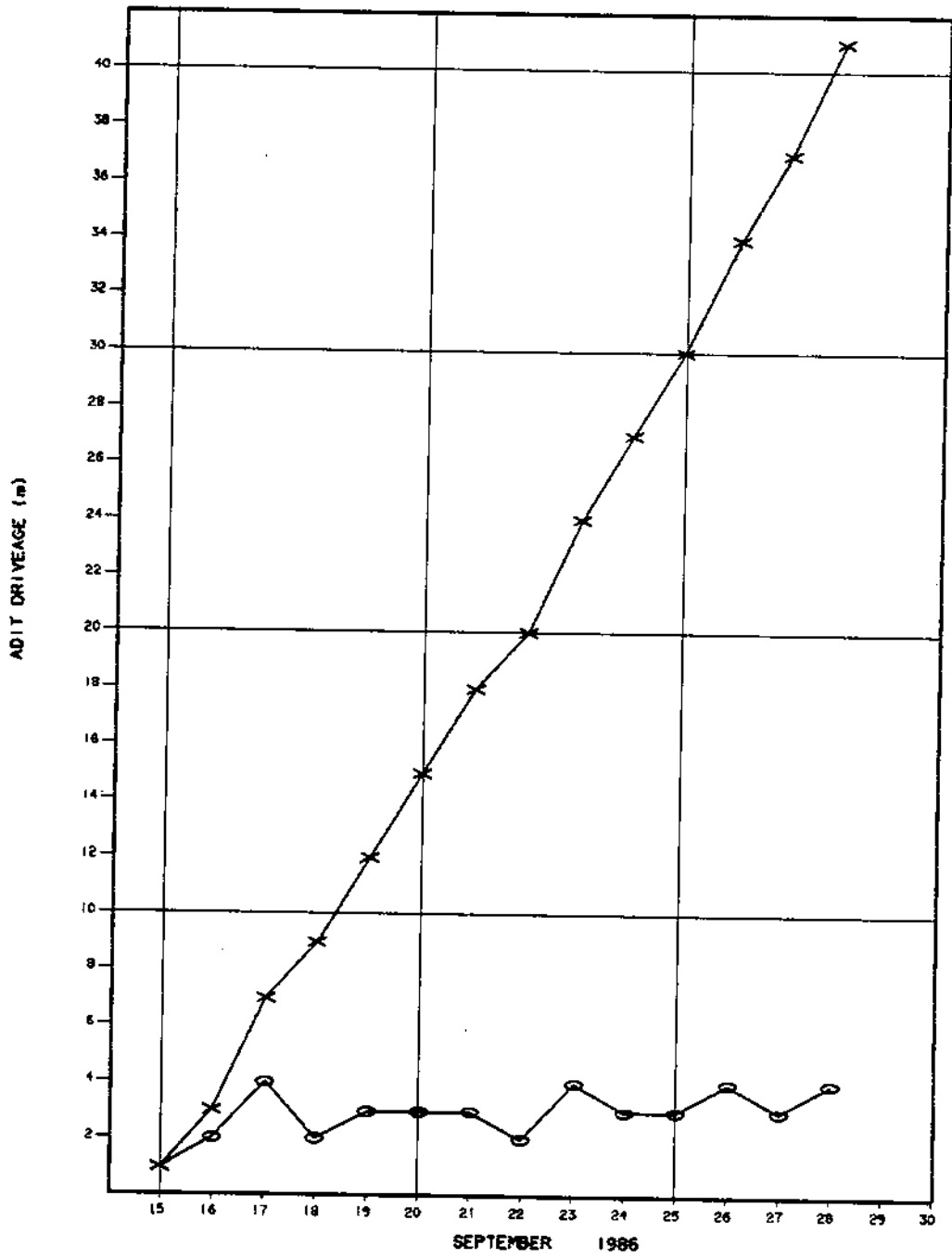
Figure 21 shows daily and cumulative driveage progress. From September 16th to the 28th a total of 40 metres was driven, giving a 3.1 metre per day average. The final survey of the adit is presented in Appendix 2.

To advance the coal face, 1.5 metre holes were drilled with a compressed air auger along both sides, across the top as well as in the centre. The holes were loaded with dynamite using rock dust as plugs, and detonated by electric cap in sequence so that the central area blew out first; the sides and top blew into the resultant void. The blasted coal was shoveled into a slusher-bucket, which was then winched to surface and then dumped. When all of the loose coal was removed an air pick was used to square-up the new coal face and dig holes for the legs of the new timber set. Heavy wood planking was placed above the set collar to stop debris falling into the adit and solid blocking was placed between the roof and collar and the ribs (sides) and legs. The timber sets were on 1.5 metre centres and braced on the ribs and collars.

From September 29th to October 1st the adit was cleaned up, planks were put on the floor, and a new sample carrier was built. At 41.0 metres the total seam was exposed from roof to floor which required a hole in the existing floor about 0.5 metre deep and an excavation above the last collar some 2 metres high.

3.3 ADIT SAMPLING


Regular sampling was conducted to monitor changes in coal quality (Appendix 1). Three types of samples were taken. The following describes procurement procedures.



○—○ DAILY PROGRESS
 ×—× CUMULATIVE PROGRESS
 (41m, 13 days)

FIGURE 21
MOUNT KLAPPAN ANTHRACITE PROJECT
ADIT 86001
DRIVEAGE PROGRESS
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3.3.1 PETROGRAPHIC SAMPLES

Full seam channel samples were taken at surface (0m), 30.0 m and 41.0. At 19.0 metres a channel sample was taken from the top 3.33 metres of the seam. The bottom 0.57 m was not sampled.

These samples were sent to D.E. Pearson & Associates in Victoria for determination of the degree of oxidation.

The surface sample was a continuous chip sample across the exposure at the adit site. It was taken September 14th, prior to portal construction. The sample at 19.0 metres was taken September 22nd and required a shut down in mining operations. The sample was taken from the mining face where a roof-fall had exposed the roof of the seam. The bottom 0.57 metres of the seam was not sampled. The 19.0 metre petrographic sample therefore represented the top 3.33 metres of the 3.90 metre seam. The sample at 30.0 metres was taken September 30th from a slot cut into the left rib of the adit. The slot measured 0.5m wide, 0.5m deep, from the roof to the floor of the seam and was constructed September 29th during the preparation for bulk sampling period. The sample at 41.0 metres was taken September 29th after the mining face was prepared for bulk sampling.

3.3.2 INCREMENT SAMPLES

Ply samples, representing the compositional layers of the seam were taken at surface (0m) 8.7, 19.0, 30.0 and 41.0m. These samples were sent to Loring Laboratory in Calgary for a proximate analysis, and sulphur and calorific value determinations (Section 4.0).

The surface sample was taken September 14th and comprised seven ply samples taken as chip samples across the full seam exposure

at the adit site. The sample at 8.7 metres comprised three ply samples taken September 18th at the mining face. The floor of the seam was not exposed at this site and due to excessive shearing and faulting the samples should not be considered representative of the seam. The sample at 19.0 metres was taken September 22nd at the mining face and was comprised of seven ply samples representing the full seam. The top 3.33 metres of the seam were exposed during mining and the bottom 0.57 metres was exposed October 3rd by means of a hole dug into the left rib of the adit. The sample at 30.0 metres was taken September 30th and was comprised of seven ply samples representing the full seam. The sample was taken from a slot cut into the left rib of the adit approximately 0.5 m wide, 0.5m deep from the roof to the floor of the seam. The sample at 41.0 metres was taken September 29th and was comprised of six ply samples representing the full seam. The sample was taken from the mining face after the full seam was exposed for bulk sampling (Figure 22).

3.3.3 BULK SAMPLES

Three ten tonne bulk samples were taken representing the total thickness of Seam H. The sampling was started at 41.0 m and each sample represents approximately 0.75 m of driveage. Two samples were sent to Birtley Coal & Minerals Testing in Calgary for testing and one sample was stored at the drill core storage area on the property. Results of analyses are discussed in Section 4.0.

The first sample was started October 2nd and by the afternoon of the 3rd the sample was in bags at the east end of the Lost-Fox Trial Cargo Pit Area ready for transporting.

The twelve bag (12) sample represented the full seam and was taken from the face of the adit at 41.0 m. The coal face measured an average of 2.1 m wide and 4.0 m high which required

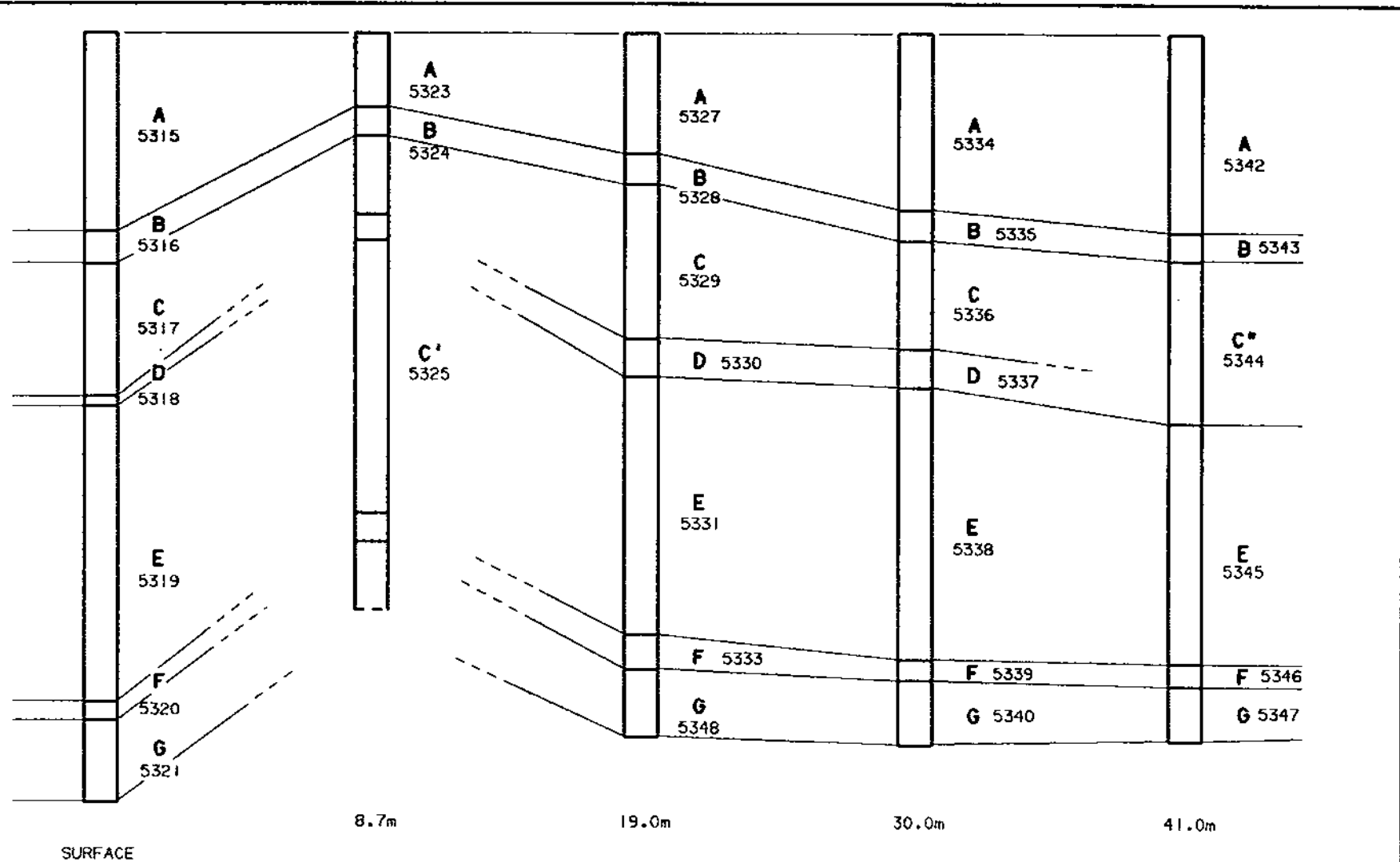


FIGURE 22
MOUNT KLAPPAN ANTHRACITE PROJECT
INCREMENT SAMPLE SUMMARY DIAGRAM
(NOT TO SCALE)

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0.75 m of coal removed using a bulk density of 1.60 ($2.1_m \times 4.0_m \times 0.75_m \times 1.60 \text{ t/m}^3 = 10.08\text{t}$). The second sample was started October 3rd and was completed in the afternoon of the 4th. The eleven bag (11) sample represents the full seam and was taken from the face of the adit at 41.8m representing a block of coal averaging 2.1 m wide, 4.0 m high and 0.75 m deep. The third sample was started October 4th and was completed October 5th. The ten bag (10) sample represents the full seam and was taken from the face of the adit at 42.6 m, and represents a block of coal averaging 2.1 m wide, 4.0 m high and 0.75 m deep.

Samples one and two were loaded on a truck bound for Calgary by 5 p.m. October 4th. The third sample was moved to the core storage area, approximately 2 km southeast of the main camp, placed on planking and covered with plastic by 6 p.m. October 5th.

3.4 PERMAFROST

No permafrost was noted within the adit. No ice lenses or partings were observed. The temperature of the coal was not monitored during mining.

3.5 GROUNDWATER

The tunnel remained dry until September 25th, approximately 27 metres into the adit. From September 15th to the 21st there was no rain. On September 22nd, 23rd and the afternoon of the 24th there was heavy rain. By the morning of September 25th water had begun to seep into the tunnel and continued dripping for the duration of the adit construction.

As water seeped into the adit it would indicate that the ground above was not frozen. Seam H appeared to act as an aquitard as

groundwater was more prominent along the roof than within the coal. Because of the water along the roof and shearing due to compositional contrasts at the contact the tunnel roof (coal) continually caved-in up to the rock.

A tour of the adit on October 15 revealed wet conditions but there was no accumulation of water at the face of the adit (B. Olsen, pers. comm. Nov. 21/86).

3.6 ADIT CLOSURE

The adit crew demobilized October 6 which included the removal of all equipment and garbage. The first four metres of the portal was reinforced with centre posts, a dirt berm was built across the entrance to prevent surface water entering the adit and a locking door with warning signs was installed to prevent unauthorized access.

4.0 COAL QUALITY

4.1 SUMMARY

The 1986 Lost-Fox Area H seam adit provided the bulk sample necessary for a detailed analytical look at one of the most important mining seams in the area.

Sampling of the adit consisted of a 30 metric tonne bulk sample and 5 incremental channel samples comprising 30 ply samples. In addition 4 samples were taken for oxidation testing.

4.2 PROCEDURES AND PARAMETERS

4.2.1 INCREMENT SAMPLES

Channel samples across the entire seam were taken when possible. These channel samples were subdivided into ply samples representing the compositional layers of the H seam. The 5 samples were taken at surface (OM) 8.7, 19.0, 30.0 and 41.0 m. Each of the 30 ply samples underwent a proximate analysis, testing for total sulphur content and calorific value determination. Results of the testing are contained in Appendix 1.

4.2.2 PETROGRAPHIC OXIDATION TESTS

Coal from the channel samples at (OM), 19.0, 30.0 and 41.0 metres were analyzed petrographically to determine the extent of oxidation. Each sample was treated with an organic dye which stains only the oxidized coal. Coal at the surface had an oxidation level of 13.3% which diminished to 0% when tested at 19.0 metres (surface coverage at this point was about 20.0 metres). No oxidized coal was found over the remainder of the adit drivage.

4.2.3 BULK SAMPLE

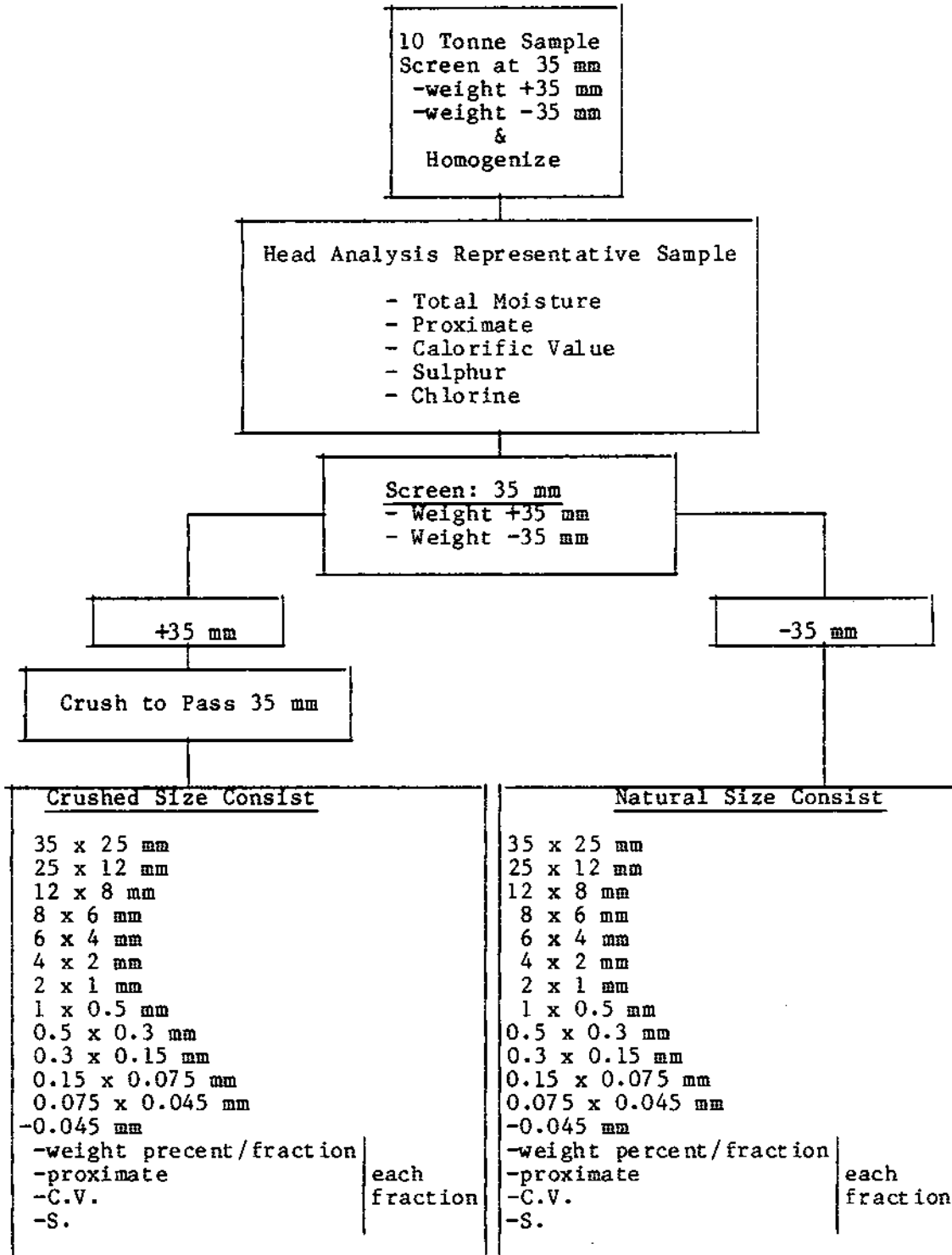
Of the 30 metric tonnes of coal taken from the adit 20 tonnes were shipped to "Birtley Coal and Mineral Testing" laboratory in Calgary. Samples were taken in three 10 tonne increments representing a slice of the total seam. The second such slice bulk sample #2 was selected for detailed analysis as outlined in Figure 23. Samples 1 and 3 were stored at Calgary and Mount Klappan respectively for back-up and further testing.

The analysis of the bulk sample consisted of screening and size analysis, raw coal quality and washability analysis and finally product preparation and analysis. The coal quality data for the bulk sample is contained in Appendix 4.

Screening of the coal to determine size consist was carried out at 35 x 25 mm, 25 x 12 mm, 12 x 8 mm, 8 x 6 mm, 6 x 4 mm, 4 x 2 mm, 2 x 1 mm, 1 x 0.5 mm, 0.5 x 0.3 mm, 0.3 x 0.15 mm, 0.15 x 0.075 mm, 0.075 x 0.045 mm and 0.045 mm x 0. Table 13 summarizes the size distribution after the coal was crushed to pass 35.0 mm. The bulk sample contained 13.10% by weight of +35.0 mm material before crushing. The raw coal quality in Table 14 represents the entire sample after it was crushed to pass 35.0 mm.

Detailed washability was carried out on all size fractions, combining the finer size fractions into 6 x 0.5 mm, 0.5 x 0.15 mm and 0.075 mm x 0. Each fraction was tested at the following specific gravity of separation; 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.70, 1.80, 2.00 and 2.20. Table 15 outlines the washability for each size fraction.

**FIGURE 23
BULK SAMPLE TEST PROGRAM
ANALYSIS FLOW SHEET**



Recombine Crushed & Natural
Screen Sizes

- Proximate
- Weight/Size Fraction
- Sulphur
- Calorific Value
- Specific Gravity
- Chlorine
- H.G.I.
- Ultimate
- Equilibrium Moisture
- Mineral Analysis of Ash
- Ash Fusion Temperatures

Float - Sink Analysis

- 8 size fractions - Split sample in 2 equal quantities and save 50%
- 10 specific gravities

<u>Size Fractions</u>	<u>Specific Gravities</u>
35 x 25 mm	1.35
25 x 12 mm	1.40
12 x 8 mm	1.45
8 x 6 mm	1.50
6 x 0.5 mm	1.55
0.5 x 0.15 mm	1.60
0.15 x 0.075 mm	1.70
0.075 x -0.045 mm	1.80
	2.00
	2.20

Weight Percent/Fraction
Ash
Residual Moisture

Liberation Test
Hold for Further Instructions

HOLD
PRODUCT CUTS TO BE DETERMINED

35.0 mm x 6.0 mm

Cut Point Chosen to Produce
a 12% Ash Product

- Product Analysis:
 - Proximate
 - Calorific Value
 - Sulphur
 - Specific Gravity
 - Chlorine
 - H.G.I.
 - Ultimate
 - Equilibrium Moisture
 - Mineral Analysis of Ash
 - Ash Fusion Temperatures
 - Drop Shatter

Reject

- Proximate
- Calorific Value
- Sulphur
- Ash Mineral Analysis
- Ash Fusion Temperatures

35.0 x 6.0 mm

Cut Point Chosen to Produce
a 6.3% Ash Product

- Product Analysis:
 - Proximate
 - Calorific Value
 - Sulphur
 - Specific Gravity
 - Chlorine
 - H.G.I.
 - Ultimate
 - Equilibrium Moisture
 - Mineral Analysis of Ash
 - Ash Fusion Temperatures
 - Drop Shatter

Middlings Product

Cut Point Chosen to Produce a
12% Ash Product

- Product Analysis:
 - Proximate
 - Calorific Value
 - Sulphur
 - Specific Gravity
 - Chlorine
 - H.G.I.
 - Ultimate
 - Equilibrium Moisture
 - Mineral Analysis of Ash
 - Ash Fusion Temperatures

Middling Reject

- Proximate
- Calorific Value
- Sulphur
- Ash Mineral Analysis
- Ash Fusion Temperatures

6.0 mm x 0.5 mm

Cut Point Chosen to Produce
a 7.5% Ash Product

- Product Analysis:
 - Proximate
 - Calorific Value
 - Sulphur
 - Specific Gravity
 - Chlorine
 - H.G.I.
 - Ultimate
 - Equilibrium Moisture
 - Mineral Analysis of Ash
 - Ash Fusion Temperatures

Reject

- Proximate
- Calorific Value
- Sulphur
- Ash Mineral Analysis
- Ash Fusion Temperatures

TABLE 13

SIZE DISTRIBUTION OF TOTAL SAMPLE CRUSHED TO 35.0 MM

Size Fraction (mm)	Wt. %	Cumulative Wt. %
35 x 25	8.60	8.60
25 x 12	10.70	19.30
12 x 8	8.30	27.60
8 x 6	5.90	33.50
6 x 4	5.20	38.70
4 x 2	24.20	62.90
2 x 1	6.70	69.60
1 x 0.5	10.10	79.70
0.5 x 0.3	6.20	85.90
0.3 x 0.15	5.50	91.40
0.15 x 0.075	4.10	95.50
0.075 x 0.045	1.80	97.30
0.045 x 0	2.70	100.00

TABLE 14

AVERAGE COAL QUALITY
(CRUSHED TO 35.0 MM)

Residual Moisture %	1.38
Ash %	32.18
Volatile Matter %	6.12
Fixed Carbon %	60.32
Sulphur %	0.48
Calorific Value (Cal/gm)	5269
Specific Gravity	1.69
H.G.I.	45
Equilibrium Moisture %	7.07

Simulated products were produced from the H seam based upon markets, plant utilization and seam characteristics and are summarized in Table 16.

TABLE 16
PRODUCT COAL QUALITY
(AIR DRIED BASIS)

Size Consist	35mm x 6mm			6mm x 0.5 mm
	Target Ash%	6.3%	12.0%	*12.0% (middlings)
S.G. of Separation	1.480	1.625	1.550	1.600
Ash %	6.30	12.10	12.00	7.4
Residual Moisture %	0.50	0.60	1.00	0.70
Volative %	4.40	4.50	4.50	4.70
Fixed Carbon %	88.80	82.80	82.50	87.20
Sulphur %	0.48	0.44	0.42	0.47
H.G.I.	29	32	31	33
Equalibrium Moisture %	6.50	6.30	5.70	5.60
Calorific Value (Cal/gm)	7850	7230	7221	7656

* 12% ash middlings produced from 6.3% ash product reject.

The ultimate analysis, ash fusion and ash mineral tests along with a proximate analysis of the reject coal from each of the 4 products can be found in Appendix 4.

A drop shatter test to determine size degradation during handling, was performed on the coarse 35 x 6 mm, 6.3% and 12.1% ash products. On a cumulative weight basis the 6.3% ash

product lost 4.2% to finer size fractions, and the 12.1% ash product declined in coarseness by an even smaller margin of 3%.

Further evaluation and interpretation of the 1986 H seam adit coal quality will be undertaken as mine feasibility studies are carried out.

5.0 RECOMMENDATIONS

Recommendations for improvement include only two portions of the project including:

1. Geological site selection: the adit was located very close to a major fold and fortunately the only problems encountered were unstable roof conditions. An alternative site may have been further to the northeast, along strike, and could have been accessed by the same road using the adit 86001 site as a switch-back.
2. The testing of oxidation level: a faster turnaround transportation system needs to be in-place, the adit could have been stopped at 30 metres saving driveage costs.

e6.0 REFERENCES

Carpenter, W., 1982, Goodrich Coal Property, Bulk Sampling Program: Norwest Resource Consultants, Report No. 82.284/1.

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Gulf Canada Ltd., 1986, Mount Klappan Coal Project Geological Report, Lost-Fox Area, 1985.

Perry, J.H., 1984, Mount Klappan Bulk Sample Program, 1983: Gulf Canada Res. Inc. Geological Report 1983, Appendix IV, Adit Program, Volume IV.

Van Den Bussche, B.E.R., 1985, Mount Klappan H-Seam Stratigraphy and Characteristics: Internal Gulf Report.

KPN LR ADT 86101
0.0 M DEPTH (SURFACE)

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRADT86101

DATE - 04/21/87

- HISTORY -

START DATE - 15/09/86
END DATE - 05/10/86

CONTRACTOR - TARGET
GEOLOGIST - MORRIS

OPERATOR -
SURVEYOR - TRONNES

REMARKS - SURFACE EXPOSURE OF SEAM H AT ADIT 86001.

- LOCATION -

PROVINCE - BC
ELEVATION - 1792.87

ZONE - 9
NORTHING - 6344214.00
EASTING - 505571.81

LICENCE/LEASE NUMBER -

LATITUDE - 571434
LONGITUDE - 1285428

- ORIENTATION -

LENGTH - 0.00
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86101

BOX	DEPTH	DEPTH	INTRVAL	SAMP.		LITHOLOGY	DESCRIPTION
	FROM	TO	THICK.	BCA	SEAM		
				ID	ID		
	0.00	1.00	1.00	*90		SILTSTONE	CLYY.WEL.M.BN.THNB SHALEY WEATHERING. COLOR MED TO DK BN.
	1.00	1.20	0.20	*90		SILTSTONE	CLYY.WEL.M.GY.THNB ATTITUDE= 005/32. COLOR MED TO DK GY.
	1.20	1.23	0.03	90	05315 H	SHALE	CARB.WEL.DK.BLK.VTHNB MINOR COAL BANDS.
	1.23	1.26	0.03	*90	05315 H	COAL	C-3 THIN BAND. SOME MUDSTONE.
	1.26	1.33	0.07	*90	05315 H	COAL	C-1
	1.33	1.34	0.01	*90	05315 H	MUDSTONE	BN.VTHNB
	1.34	1.39	0.05	*90	05315 H	COAL	C-3 THIN BAND. SOME MUDSTONE.
	1.39	1.47	0.08	*90	05315 H	COAL	C-1
	1.47	1.50	0.03	*90	05315 H	COAL	C-3 THIN BAND. SOME MUDSTONE.
	1.50	1.78	0.28	*90	05315 H	COAL	C-1

• DENOTES MEASURED BCA

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GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86101

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.78	1.80	0.02	+90 05315	H	MUDSTONE	BN.VTHNB
	1.80	1.91	0.11	+90 05315	H	COAL	C-2 MINOR MUDSTONE.
	1.91	1.94	0.03	+90 05315	H	MUDSTONE	BN IRREGULAR THICKNESS.
	1.94	2.30	0.36	+90 05315	H	COAL	C-2 MINOR MUDSTONE.
	2.30	2.48	0.18	+90 05316	H	SANDSTONE	SLTY.FG.WEL.M.BN.THNB WEATHERED MUDDY TEXTURE. COLOR MED TO L T BN.
	2.48	2.54	0.06	+90 05317	H	COAL	C-6 ATTITUDE* 000/26.
	2.54	2.81	0.27	+90 05317	H	COAL	C-2 MINOR MUDSTONE.
	2.81	2.88	0.07	+90 05317	H	COAL	C-5 BRIGHT COAL BANDS.
	2.88	3.00	0.12	+90 05317	H	COAL	C-1

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86101

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	3.00	3.07	0.07	*90 05317	H	MUDSTONE	CARB. BLK. VTHNB MINOR COAL. ATTITUDE* 340/21.
	3.07	3.22	0.15	*90 05317	H	COAL	C-1
	3.22	3.27	0.05	*90 05318	H	MUDSTONE	SLTY
	3.27	3.32	0.05	*90 05319	H	MUDSTONE	CLYY SHEAR ZONE; MUD-COAL MIX; VARIABLE THICK NESS FROM 0.05 TO 0.40 M.
	3.32	4.27	0.95	*90 05319	H	COAL	C-2 MINOR IRREGULAR IRON BANDS. ATTITUDE* 0 00/25.
	4.27	4.32	0.05	*90 05319	H	COAL	C-5 GDUGE ZONE.
	4.32	4.96	0.64	*90 05319	H	COAL	C-2 MINOR IRREGULAR IRON BANDS.
	4.96	5.00	0.04	*90 05320	H	MUDSTONE	CARB. BLK. VTHNB
	5.00	5.06	0.06	*90 05320	H	SANDSTONE	SLTY. FG. WEL. M. BN. THNB RUSTY. COLOR MED TO LT. BN.

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 4

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86101

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	5.06	5.51	0.45	*90	05321 H	COAL	C-2 IRREGULAR IRON BANDS. ATTITUDE= 030/28.

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA CORPORATION - COAL DIVISION
 15/APR/87 HEAD ANALYSIS SUMMARY

DATA SOURCE		SSID	SEAM	SAMPLE ID	RESIDUAL MOISTURE%	ASH%	FIXED CARBON%	VOLATILE MATTER%	TOTAL SULPHUR%	GROSS CALORIF VALUE (MJ-KG)
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ADT86101

HD1	H			5315	4.71	19.72	64.79	10.78	0.43	23.52
HD1	H			5316	2.21	90.84	1.43	5.52	0.03	0.12
HD1	H			5317	4.60	30.08	53.71	11.61	0.34	19.84
HD1	H			5318	1.69	85.73	5.24	7.34	0.06	2.13
HD1	H			5319	8.57	16.08	57.01	18.34	0.35	21.43
HD1	H			5320	2.47	85.40	3.92	8.21	0.05	1.63
HD1	H			5321	7.44	14.37	61.20	16.99	0.40	23.13

KPN LR ADT 86102

8.7 M DEPTH

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRADT86102

DATE - 04/21/87

- HISTORY -

START DATE - 15/09/86

END DATE - 05/10/86

CONTRACTOR - TARGET

GEOLOGIST - MORRIS

OPERATOR -

SURVEYOR - TRONNES

REMARKS - LOGGED 8.7 M INTO ADIT 86001. H SEAM.

- LOCATION -

PROVINCE - BC

ELEVATION - 1791.20

ZONE - 9

NORTHING - 6344218.00

EASTING - 505578.75

LICENCE/LEASE NUMBER -

LATITUDE - 571434

LONGITUDE - 1285427

- ORIENTATION -

LENGTH - 0.00

INCLINATION - 0.0

AZIMUTH - 0.0

SIZE WIDTH - 0.0

SIZE HEIGHT - 0.0

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 0

FLOOR DIP - 0

FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86102

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.12	0.12	*90 05323	H	COAL	C-1 ATTITUDE= 000/34.
	0.12	0.14	0.02	*90 05323	H	MUDSTONE	BLK
	0.14	0.41	0.27	*90 05323	H	COAL	C-3
	0.41	0.57	0.16	*90 05324	H	SANDSTONE	BN SOFT.
	0.57	0.73	0.16	*90 05325	H	COAL	C-1
	0.73	0.74	0.01	*90 05325	H	MUDSTONE	BLK
	0.74	0.83	0.09	*90 05325	H	COAL	C-1 SOFT.
	0.83	0.85	0.02	*90 05325	H	MUDSTONE	SHEARED.
	0.85	1.01	0.16	*90 05325	H	COAL	C-1 HARD. ATTITUDE= 020/34.
	1.01	1.14	0.13	*90 05325	H	MUDSTONE	MUD AND COAL GOUGE.
	1.14	1.26	0.12	*90 05325	H	COAL	C-3

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86102

BDX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.26	1.27	0.01	*90 05325	H	MUDSTONE	
	1.27	1.46	0.19	*90 05325	H	COAL	C-1
	1.46	1.50	0.04	*90 05325	H	SILTSTONE	FERFUGINOUS.
	1.50	1.76	0.26	*90 05325	H	COAL	C-2
	1.76	1.82	0.06	*90 05325	H	SILTSTONE	FERRUGINOUS.
	1.82	2.10	0.28	*90 05325	H	COAL	C-1
	2.10	2.12	0.02	*90 05325	H	MUDSTONE	
	2.12	2.15	0.03	*90 05325	H	COAL	C-1
	2.15	2.18	0.03	*90 05325	H	MUDSTONE	
	2.18	2.25	0.07	*90 05325	H	COAL	C-1
	2.25	2.26	0.01	*90 05325	H	MUDSTONE	SHEARED.
	2.26	2.36	0.10	*90 05325	H	COAL	C-1

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86102

BOX	DEPTH	DEPTH	INTRVAL	SAMP. SEAM		LITHOLOGY	DESCRIPTION
	FROM	TO	THICK.	BCA ID	ID		
	2.36	2.39	0.03	*90 05325	H	SILTSTONE	FERRUGINOUS.
	2.39	2.58	0.19	*90 05325	H	COAL	C-2 WITH IRREGULAR IRON BANDS.
	2.58	2.66	0.08	*90 05325	H	COAL	C-4
	2.66	2.74	0.08	*90 05325	H	MUDSTONE	CARB
	2.74	2.82	0.08	*90 05325	H	SILTSTONE.	GY
	2.82	3.19	0.37	*90 05325	H	COAL	C-2 MINOR MUDSTONE BANDS.

* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA CORPORATION - COAL DIVISION
 16/APR/87 HEAD ANALYSIS SUMMARY

DATA SOURCE		SSID	SEAM	SAMPLE ID	RESIDUAL MOISTURE%	ASH%	FIXED CARBON%	VOLATILE MATTER%	TOTAL SULPHUR%	GROSS CALORIF VALUE (MJ-KG)
ADT86102										
	HD1	H		5323	2.08	28.81	59.75	9.36	0.36	22.10
	HD1	H		5324	1.71	89.43	1.09	7.77	0.07	0.39
	HD1	H		5325	2.00	20.89	70.81	6.30	0.40	26.25

KPN LR ADT 86103

19.0 M DEPTH

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRADT86103

DATE - 04/21/87

- HISTORY -

START DATE - 15/09/86
END DATE - 05/10/86

CONTRACTOR - TARGET
GEOLOGIST - MORRIS

OPERATOR -
SURVEYOR - TRONNES

REMARKS - LOGGED 19 M INTO ADIT 86001. H SEAM.

- LOCATION -

PROVINCE - BC
ELEVATION - 1788.75

ZONE - 9
NORTHING - 6344223.00
EASTING - 505586.94

LICENCE/LEASE NUMBER -

LATITUDE - 571435
LONGITUDE - 1285427

- ORIENTATION -

LENGTH - 0.00
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86103

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.13	0.13	*90 05327	H	COAL	C-1
	0.13	0.14	0.01	*90 05327	H	MUDSTONE	BLK
	0.14	0.39	0.25	*90 05327	H	COAL	C-2
	0.39	0.40	0.01	*90 05327	H	MUDSTONE	BLK
	0.40	0.52	0.12	*90 05327	H	COAL	C-2
	0.52	0.53	0.01	*90 05327	H	MUDSTONE	BLK
	0.53	0.67	0.14	*90 05327	H	COAL	C-2
	0.67	0.83	0.16	*90 05328	H	SANDSTONE	BN
	0.83	1.00	0.17	*90 05329	H	COAL	C-1
	1.00	1.02	0.02	*90 05329	H	COAL	C-4

• DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86103

BOX	DEPTH	DEPTH	THICK.	SAMP. SEAM		LITHOLOGY	DESCRIPTION
	FROM	TO		BCA	ID		
	1.02	1.06	0.04	*90	05329 H	COAL	C-1
	1.06	1.08	0.02	*90	05329 H	MUDSTONE	BLK
	1.08	1.20	0.12	*90	05329 H	COAL	C-1
	1.20	1.24	0.04	*90	05329 H	SANDSTONE	IRREGULAR LENSE.
	1.24	1.52	0.28	*90	05329 H	COAL	C-2 WITH C-1 BANDS.
	1.52	1.56	0.04	*90	05329 H	MUDSTONE	BLK
	1.56	1.62	0.06	*90	05329 H	COAL	C-1
	1.62	1.69	0.07	*90	05329 H	COAL	C-3
	1.69	1.73	0.04	*90	05330 H	MUDSTONE	BLK ATTITUDE= 022/28.
	1.73	1.77	0.04	*90	05330 H	COAL	C-6

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86103

<u>BOX</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. BCA</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	1.77	1.82	0.05	*90 05330	H	COAL	C-1
	1.82	1.90	0.08	*90 05330	H	MUDSTONE	BLK
	1.90	2.49	0.59	*90 05331	H	COAL	C-2 WITH C-1 BANDS.
	2.49	2.51	0.02	*90 05331	H	COAL	C-6 IRREGULAR LENSE.
	2.51	3.33	0.82	*90 05331	H	COAL	C-2
	3.33	3.52	0.19	*90 05332	H	MUDSTONE	
	3.52	3.90	0.38	*90 05333	H	COAL	C-1

• DENOTES MEASURED BCA

NEWPAGE

GULF CANADA CORPORATION - COAL DIVISION
16/APR/87 HEAD ANALYSIS SUMMARY

DATA SOURCE		PROJ - KPN	SEAM	SAMPLE ID	RESIDUAL MOISTURE%	ASH%	FIXED CARBON%	VOLATILE MATTER%	TOTAL SULPHUR%	GROSS CALORIF VALUE (MJ-KG)
ADT86103										
HD1	H			5327	0.81	22.26	71.98	4.95	0.68	26.73
HD1	H			5328	1.55	88.49	1.96	8.00	0.12	0.90
HD1	H			5329	0.86	31.09	63.06	4.99	0.41	23.19
HD1	H			5330	1.02	68.83	23.54	6.61	0.16	8.42
HD1	H			5331	1.00	16.70	75.23	7.07	0.46	28.45
HD1	H			5333	1.01	78.67	7.26	13.06	0.21	2.34
HD1	H			5348	0.97	26.62	65.68	6.73	0.42	24.67

KPN LR ADT 86104

30.0 M DEPTH

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRADT86104

DATE - 04/21/87

- HISTORY -

START DATE - 15/09/86

END DATE - 15/10/86

CONTRACTOR - TARGET

GEOLOGIST - MORRIS

OPERATOR -

SURVEYOR - TRONNES

REMARKS - LOGGED 30 M INTO ADIT 86001. H SEAM. CHANNEL SAMPL
E 05341 TAKEN FOR PETROGRAPHY ONLY.

- LOCATION -

PROVINCE - BC

ELEVATION - 1785.75

LICENCE/LEASE NUMBER -

ZONE - 9

NORTHING - 6344229.00

EASTING - 505595.69

LATITUDE - 571435

LONGITUDE - 1285426

- ORIENTATION -

LENGTH - 0.00

INCLINATION - 0.0

AZIMUTH - 0.0

SIZE WIDTH - 0.0

SIZE HEIGHT - 0.0

ROOF STRIKE - 0

ROOF DIP - 0

ROOF DIR -

FLOOR STRIKE - 0

FLOOR DIP - 0

FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86104

BOX	DEPTH	DEPTH	INTRVAL	SAMP. SEAM		LITHOLOGY	DESCRIPTION
	FROM	TO	THICK.	BCA ID	ID		
	0.00	0.07	0.07	*90 05334	H	COAL	C-3 SHEARED.
	0.07	0.46	0.39	*90 05334	H	COAL	C-1
	0.46	0.48	0.02	*90 05334	H	MUDSTONE	
	0.48	0.60	0.12	*90 05334	H	COAL	C-1
	0.60	0.64	0.04	*90 05334	H	MUDSTONE	SHEARED.
	0.64	0.94	0.30	*90 05334	H	COAL	C-1 CALCITE ALONG CLEATS.
	0.94	0.98	0.04	*90 05334	H	COAL	C-5
	0.98	1.15	0.17	*90 05335	H	MUDSTONE	
	1.15	1.50	0.35	*90 05336	H	COAL	C-2 SHEARED.
	1.50	1.51	0.01	*90 05336	H	MUDSTONE	
	1.51	1.57	0.06	*90 05336	H	COAL	C-1

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86104

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	1.57	1.59	0.02	*90 05336	H	MUDSTONE	
	1.59	1.69	0.10	*90 05336	H	COAL	C-1
	1.69	1.71	0.02	*90 05336	H	COAL	C-5
	1.71	1.74	0.03	*90 05336	H	COAL	C-1
	1.74	1.82	0.08	*90 05337	H	MUDSTONE	CARB
	1.82	1.90	0.08	*90 05337	H	COAL	C-2
	1.90	1.96	0.06	*90 05337	H	MUDSTONE	SHEARED. SOME THRUSTS.
	1.96	2.25	0.29	*90 05338	H	COAL	C-2
	2.25	2.27	0.02	*90 05338	H	MUDSTONE	CARB
	2.27	3.47	1.20	*90 05338	H	COAL	C-1 MINOR C-5 BANDS UP TO 1 CM.
	3.47	3.59	0.12	*90 05339	H	MUDSTONE	

* DENOTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 3

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86104

<u>BOX</u>	<u>DEPTH FROM</u>	<u>DEPTH TO</u>	<u>INTRVAL THICK.</u>	<u>SAMP. BCA ID</u>	<u>SEAM ID</u>	<u>LITHOLOGY</u>	<u>DESCRIPTION</u>
	3.59	3.95	0.36	*90 05340	H	COAL	C-1

• DENOTES MEASURED BCA
NEWPAGE

GULF CANADA CORPORATION - COAL DIVISION
16/APR/87 HEAD ANALYSIS SUMMARY

PROJ - KPN			ANALYSIS BASIS TYPE - AD				NAME OF STANDARD - ASTM		
DATA SOURCE	SSID	SEAM	SAMPLE ID	RESIDUAL MOISTURE%	ASH%	FIXED CARBON%	VOLATILE MATTER%	TOTAL SULPHUR%	GROSS CALORIF VALUE (MJ-KG)
ADT86104									
	HD1	H	5334	0.97	23.53	69.51	5.99	0.50	26.05
	HD1	H	5335	1.53	61.00	26.16	11.31	0.18	9.00
	HD1	H	5336	0.77	29.07	64.23	5.93	0.39	23.73
	HD1	H	5337	1.54	42.94	49.07	6.45	0.32	18.58
	HD1	H	5338	1.09	22.10	71.32	5.49	0.43	26.51
	HD1	H	5339	1.52	81.97	7.48	9.03	0.30	2.27
	HD1	H	5340	0.95	21.16	72.76	5.13	0.47	26.95

KPN LR ADT 86105

41.0 M DEPTH

===== GULF CANADA CORPORATION =====

- DATA SOURCE SUMMARY -

DATA SOURCE - KPNLRADT86105

DATE - 04/21/87

- HISTORY -

START DATE - 15/09/86
END DATE - 05/10/86

CONTRACTOR - TARGET
GEOLOGIST - MORRIS

OPERATOR -
SURVEYOR - TRONNES

REMARKS - LOGGED 41 M INTO ADIT 86001. H SEAM. CHANNEL SAMPL
E 05332 TAKEN FOR COAL PETROGRAPHY ONLY.

- LOCATION -

PROVINCE - BC
ELEVATION - 1783.80

ZONE - 9
NORTHING - 6344232.00
EASTING - 505601.75

LICENCE/LEASE NUMBER -

LATITUDE - 571435
LONGITUDE - 1285426

- ORIENTATION -

LENGTH - 0.00
SIZE WIDTH - 0.0
SIZE HEIGHT - 0.0

INCLINATION - 0.0
AZIMUTH - 0.0

ROOF STRIKE - 0
ROOF DIP - 0
ROOF DIR -

FLOOR STRIKE - 0
FLOOR DIP - 0
FLOOR DIR -

*** NOTE *** 0 INDICATES NO VALUE

=====

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 1

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86105

BOX	DEPTH FROM	DEPTH TO	INTRVAL THICK.	SAMP. BCA ID	SEAM ID	LITHOLOGY	DESCRIPTION
	0.00	0.15	0.15	+90 05342	H	COAL	C-3 SHEARED, BANDED.
	0.15	0.34	0.19	+90 05342	H	COAL	C-1
	0.34	0.37	0.03	+90 05342	H	COAL	C-6
	0.37	0.61	0.24	+90 05342	H	COAL	C-2
	0.61	0.65	0.04	+90 05342	H	MUDSTONE	CARB
	0.65	0.75	0.10	+90 05342	H	COAL	C-2
	0.75	0.77	0.02	+90 05342	H	MUDSTONE	
	0.77	1.10	0.33	+90 05342	H	COAL	C-2 IRREGULAR MUD BANDS.
	1.10	1.26	0.16	+90 05343	H	MUDSTONE	
	1.26	1.56	0.30	+90 05343	H	COAL	C-2
	1.56	1.60	0.04	+90 05343	H	MUDSTONE	CARB

• DENDTES MEASURED BCA

86/11/25

GULF CANADA RESOURCES INC. - COAL DIVISION - DESCRIPTIVE LOG

PAGE 2

PROJECT: KPN BLOCK: LR DATA SOURCE: ADT86105

BOX	DEPTH		INTRVAL THICK.	SAMP. SEAM		LITHOLOGY	DESCRIPTION
	FROM	TO		BCA ID	ID		
	1.60	1.76	0.16	*90 05343	H	COAL	C-2
	1.76	1.80	0.04	*90 05343	H	MUDSTONE	UP TO 0.09 M.
	1.80	1.94	0.14	*90 05343	H	COAL	C-1
	1.94	2.03	0.09	*90 05343	H	MUDSTONE	
	2.03	2.12	0.09	*90 05344	H	COAL	C-2
	2.12	2.16	0.04	*90 05344	H	MUDSTONE	
	2.16	3.38	1.22	*90 05345	H	COAL	C-2
	3.38	3.39	0.01	*90 05345	H	MUDSTONE	
	3.39	3.49	0.10	*90 05345	H	COAL	C-2
	3.49	3.61	0.12	*90 05346	H	MUDSTONE	
	3.61	3.92	0.31	*90 05347	H	COAL	C-2

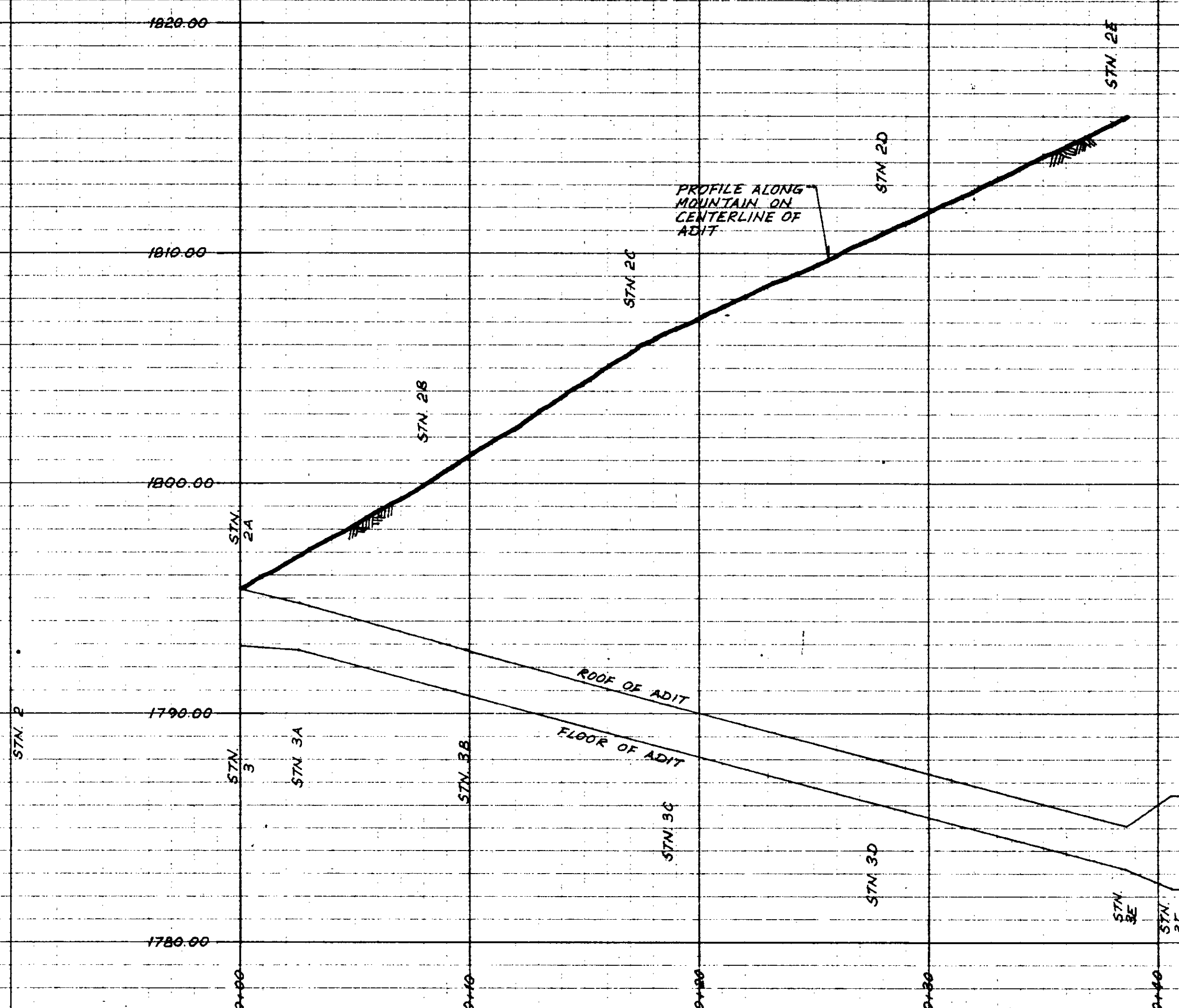
* DENOTES MEASURED BCA
NEWPAGE

GULF CANADA CORPORATION - COAL DIVISION
 16/APR/87 HEAD ANALYSIS SUMMARY

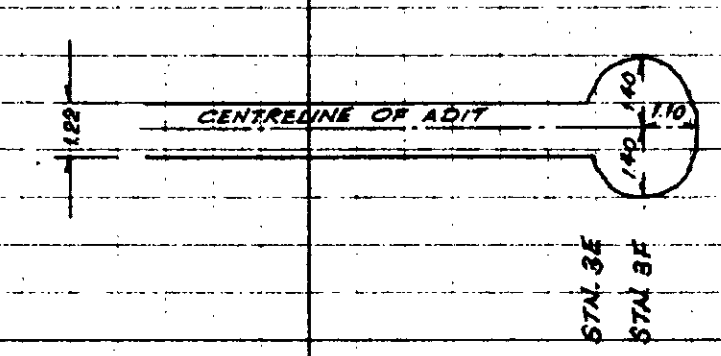
PROJ - KPN			ANALYSIS BASIS TYPE - AD				NAME OF STANDARD - ASTM		
DATA SOURCE	SSID	SEAM	SAMPLE ID	RESIDUAL MOISTURE%	ASH%	FIXED CARBON%	VOLATILE MATTER%	TOTAL SULPHUR%	GROSS CALORIF VALUE (MJ-KG)
ADT86105									
	HD1	H	5342	1.19	24.44	68.20	6.17	0.47	25.61
	HD1	H	5343	2.13	85.77	1.41	10.69	0.08	0.23
	HD1	H	5344	1.40	40.30	52.46	5.84	0.34	19.61
	HD1	H	5345	1.14	18.29	73.96	6.61	0.46	28.02
	HD1	H	5346	1.98	86.77	4.43	6.82	0.19	1.81
	HD1	H	5347	1.02	25.81	66.92	6.25	0.44	25.16
	HD1	H	10232	0.80	31.90	61.10	6.20	0.50	22.79

APPENDIX 2
SURVEY OF ADIT 86001

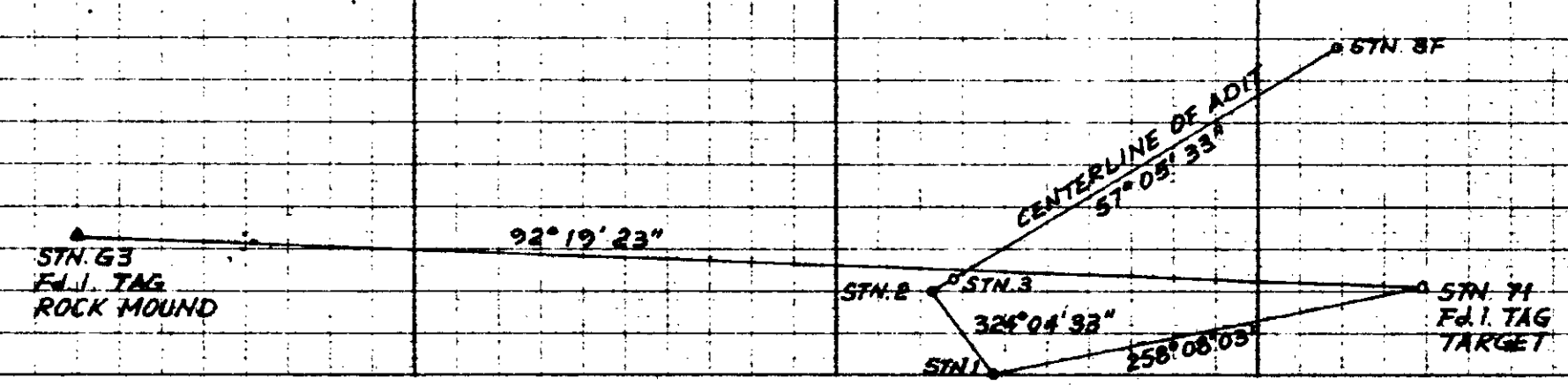
PROFILE OF ADIT 86001



STN.	ELEV.	NORTH	EAST
2	1792.61	6344209.185	505563.635
3	1792.87	6344214.483	505571.823
3F	1782.25	6344235.706	505604.619
2A	1795.65	6344214.470	505571.802
2E	1816.10	6344235.398	505604.143



723



GULF CANADA CORP.
MOUNT KLAPPAN COAL PROJECT

APPENDIX 3
ADIT PERMITTING CORRESPONDENCE



**TARGET
TUNNELLING
LTD.**

TUNNELLING CONTRACTORS
MINE DEVELOPMENT - COAL EXPLORATION
HORIZONTAL BORING

(LOCATED IN SPRUCE PARK INDUSTRIAL)

BRYAN OLSON (403) 934-3764

BOX 988

STRATHMORE, ALBERTA T0J 3H0

September 6, 1986

Mr. Bryan Good
Inspector of Mines & Resident Engineer
Bag 5000
3703 - Alferd Ave
Smithers, B.C. V0J 2N0

Dear Sirs:

Target Tunnelling Ltd. has received a verbal go ahead to supply equipment and manpower to complete an exploration program for Gulf Canada Corp. at their Mt. Klappan Coal Project.

Please find enclosed applications for local Mines Branch approval. A brief description of the program planned in one coal adit at 20% grade approximately 50 metres deep including crosscut to expose seam thickness and bulk sampling.

If you require further information on applications please contact Bryan Olson at (403) 934-3764. I would like to apologize for the short notice on these applications but we just received award of this contract. Thank you, we remain,

Yours very truly,
TARGET TUNNELLING LTD.

B.G. Olson
President

B.G.O.



**TARGET
TUNNELLING
LTD.**

TUNNELLING CONTRACTORS
MINE DEVELOPMENT - COAL EXPLORATION
HORIZONTAL BORING

(LOCATED IN SPRUCE PARK INDUSTRIAL)

BRYAN OLSON (403) 934-3764

BOX 988

STRATHMORE, ALBERTA T0J 3H0

September 6, 1986

Mr. Bryan Good
Inspector of Mines & Resident Engineer
Bag 5000
3793 - Alferd Ave
Smithers, B.C. VOJ 2N0

Dear Sirs:

To comply with the Province of British Columbia Coal Mines Act I hereby submit the following information for your approval.

Gulf Canada Corp. has verbally awarded Target Tunnelling Ltd. a contract to construct one new coal adit on their Mt. Klappan property. Subject to Mines Branch approval construction is expected to begin the third week of September, 1986.

1. Section 8:

Support system - adit portal should be of suitable and adequate support provided at the entrance to prevent danger of collapse or sealing of the entrance by any displacement of material external to the adit.

Roof Support - three piece sets constructed of heavy timber no less than 16 cm diameter to be set at no more than 2 metre centres or alternately where the coal ribs are strong. Collars no less than 16 cm diameter shall be hitched 20 cm minimum at each end into the coal and set no more than 2m centres. All collars are to be lagged solid overtop. Temporary props to be set whenever the face has advanced 1 metre in front of the last permanent support.

2. Section 30:

Regulation 59(f): Permission to fire more than one shot in an adit in a coal seam. Blasting procedures as follows:

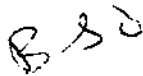
- a. No more than twenty shots will be fired at any one time.
- b. The face shall be positively ventilated and tests for inflammable gas shall be made with an approved methanometer. No shot holes shall be charged or fired if more than 0.4% methane is detected at any place.
- c. The shot firing cable shall at least be 500 feet long and shall be free of joints.
- d. All joints shall be inverse initiated.
- e. All joints on the detonator lead wires shall be insulated with connectors. The circuit shall be tested for continuity by means of an approved ohmmeter.
- f. The shots shall be fired with an approved twenty shot exploder.

- g. All shots shall be fired from a firing station outside the adit.
 - h. Hard coal would be blasted in a six to eight hole pattern suitable for mili-second blasting system. Hole diameter 1.5", hole depth - 5 to 6 feet, tamping to be nonflammable. Detonator periods - 1 to 6 mili-second, powder - polar monnabel #4 both coal mine approved. All blasting procedures to be done by qualified personnel only. A daily explosives record will be kept.
3. Location of Adits - Maps and details will be forwarded to you by Gulf Canada Corp.
 4. Size of adit - the adit shall be driven at least 2m high and of sufficient width to give clearance of .5m and .5m on either side of the maximum width of haulage equipment used.
 5. Equipment to be used - coal shall be mined either by drilling and blasting or by the use of pneumatic picks. The coal will be hand loaded into a bucket that is slid back and forth by an air tugger. Conditions pending a scraper type bucket may be used.
 6. Method of ventilation - a 16" fan with 12" PVC vent tubing attached and hung along the upper timbers approximately 5 metres from the working face. All fans shall be suitably earthed.
 7. First Aid - adit sites will have approved number 3 first aid kits, stretchers and necessary splints. Gulf Canada Corp. camp has one assigned tent with all necessary supplies and a first aid attendant on duty. (Close communication will be kept with the camp).
 8. The adit will be sealed and boarded closed on completion.
 9. Regulation fire extinguishers on site with necessary back up from camp.

We would like to thank you for your cooperation in processing our application.
We remain,

Yours very truly,
TARGET TUNNELLING LTD.

B.G. Olson
President





TUNNELLING CONTRACTORS
MINE DEVELOPMENT - COAL EXPLORATION
HORIZONTAL BORING

(LOCATED IN SPRUCE PARK INDUSTRIAL)

BRYAN OLSON (403) 934-3764

BOX 988

STRATHMORE, ALBERTA T0J 3H0

September 6, 1986

Mr. Bryan Good
Inspector of Mines & Resident Engineer
Bag 5000
3793 - Alferd Ave
Smithers, B.C. VOJ 2N0

Dear Sirs:

Re: Application for storage and use of explosives on Klappan Coal Exploration Project.

1. Magazine:
 - a. Type - #6 Magazine:
 - $\frac{1}{2}$ " plate steel.
 - Approved Hoods.
 - Approved padlocks.
 - $\frac{3}{4}$ " plywood lined.
 - Displaying "Proper Signs".
 - b. Capacity:
 - Powder Magazine - 500 lbs. capacity per magazine.
 - Detonator - 2500 capacity per magazine.
2. Location of Magazines:
 - a. A minimum of 300' from active portal.
 - b. A minimum of 75' between the two powder magazines and the detonator magazine.
 - c. A minimum of 150' from running equipment and fuel storage.

Maps describing locations chosen to store explosives will be forwarded to you (subject to approval). Thank you.

Yours very truly,
TARGET TUNNELLING LTD.

B.G.

B.G. Olson
President



TUNNELLING CONTRACTORS
MINE DEVELOPMENT - COAL EXPLORATION
HORIZONTAL BORING

(LOCATED IN SPRUCE PARK INDUSTRIAL)

BRYAN OLSON (403) 934-3764

BOX 988

STRATHMORE, ALBERTA T0J 3H0

September 6, 1986

Mr. Bryan Good
Inspector of Mines & Resident Engineer
Bag 5000
3793 - Alferd Ave
Smithers, B.C. VOJ 2N0

Dear Sirs:

Re: Gulf Canada Corp, Mt. Klappan

Target Tunnelling Ltd. would like to request application for a permit to work more than eight hours per day. Work schedules would be set up as follows:

1. Underground personnel to work no more than eight hours underground.
2. $\frac{1}{2}$ hour each way for travelling.
3. One hour allowed for equipment warmups, servicing, lunch and coffee breaks.
4. Total eleven hours per man.

We would like the extended work hours as the exploration work is carried on at remote roads with seasonal access.

If any further information is required for this application please contact me at your earliest convenience. Thank you, we remain

Yours very truly,
Target Tunnelling Ltd.

B.G. Olson
President

BGC



Province of
British Columbia

Ministry of
Energy, Mines and
Petroleum Resources

Parliament Buildings
Victoria
British Columbia
V8V 1X4

Rm.105, 525 Superior St., Victoria, B.C. V8V 1T7

387-3781

16 September 1986

Target Tunnelling Ltd.,
P. O. Box 988,
Strathmore, Alberta.
TOJ 3H0

Attention: Bryan Olson

Dear Sir:

Re: Approval for Adit Excavation at Mount Klappan

In reference to your letters of September 6, 1986, your Notice of Work as required by Section 28 of the Mines Act is acknowledged.

Approval under the Mines Act, Section 6(2) (3) is granted subject to the following amendments:

- Item 1. - Section 8 should read Section 29.
 - "2 metres" is reduced to 1.5 metre centres.
 - hitch depth is to be 25 cm not 20 cm.

- Item 2. - Delete reference to Section 30.
 - Regulation 59(f) should read 93(f)
 - Paragraph 2.d. All holes shall be inverse initiated.
 - Paragraph 2.h. The hole diameter used will provide at least 1/8" clearance for the explosive cartridge.

- Item 4. Size of adit - the adit shall be driven at least 2m high and of sufficient width to give clearance of at least 0.6m on either side of the maximum width of haulage equipment used.

...../2

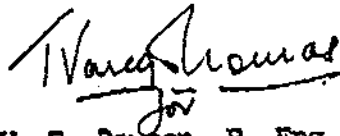
Mr. Bryan Olson
Page 2

- Item 5. No men are to be in the haulage area of the adit when the bucket is travelling back and forth.
- Item 6. The end of the ventilation duct will be not more than 4 metres from the working face. The fan will be located at least 5 metres from the mouth of the adit.
- Item 7. Foot access to the adit is to be maintained at all times to ensure the safe evacuation of injured workers.
- Item 9. Adequate fire fighting equipment is to be located on site.

You are reminded that the Mines Act Section 6(4) requires any departure from the approved work system must have the written approval of the Chief Inspector.

The support system approval, permission to fire more than one shot, hours of work exemption and explosives magazine locations are matters for the District Inspector's approval. He will be writing to you about these items.

Yours very truly,



V. E. Dawson, P. Eng.,
Chief Inspector of Mines.

VED:BHG:ek

c.c. Gulf Canada Limited



Province of
British Columbia

Ministry of
Energy, Mines and
Petroleum Resources

Bag 5000,
Smithers, B.C.
VOJ 2N0

September 17, 1986

Target Tunnelling Ltd.,
P. O. Box 988,
Strathmore, Alta.
TOJ 3H0

Dear Sir:

Re: Your letter of September 6, 1986

Your permit authorizing a variation in the hours of work is enclosed. Please have a copy of the notice posted in an appropriate place, for your employees' information.

The Explosives Storage and Use Permit is enclosed. Approval is based on the Abstract from the British Table of Distances. Your location will be not less than the distances indicated and can be reviewed when a site visit takes place.

Permission to fire more than 1 shot in an adit in a coal seam is granted subject to the amendments contained in Item 2 of the Chief Inspector's approval.

It would appear that you may be working from obsolete copies of the Mines Act and Regulations. I have enclosed a copy for your use.

Yours truly,

B. H. Good, P. Eng.,
Inspector of Mines and
Resident Engineer.

BHG/ek

c.c. Gulf Canada



Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

MINES ACT

Pursuant to the regulations made under Section 22, Subsection 4 of the said Act, permission is hereby granted to

TARGET TUNNELLING LTD. of STRATHMORE, ALBERTA

to allow any person in their employ engaged in work done in or from the surface to work for a period in excess of 8 hours but not more than 11 hours in any 24 hours, provided that the work shall not include driving adit tunnels that extend a distance greater than 12 metres from the surface, and sinking shafts that extend a distance greater than 3 metres below the surface.

This permit is valid for work at the MOUNT KLAPPAN mine only. *

This permit is good for one year from date of issue, but subject to cancellation at the discretion of the Inspector of Mines.

* Work underground is not to exceed 8 hours per shift.

Issued at Smithers, B.C.

Date September 16, , 1986.

Section (30) of the Employment Standards Act applies to this approval - copy attached.

Not more than 30 consecutive days may be worked without a break.

B. H. Good

Inspector of Mines B. H. Good



B.C. Permit

N^o

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MINISTRY OF MINES AND PETROLEUM RESOURCES

EXPLOSIVES STORAGE AND USE PERMIT

This permit authorizes the magazine storage, transportation, handling, and use of explosives at the designated property under such terms and conditions as are contained in the Canada *Explosives Act* and regulations and, as applicable, the British Columbia *Mines Regulation Act* and *Coal Mines Regulation Act*.

Property name Mount Klappan Coal Company or operator's name Target Tunnelling Ltd.
Business address P.O. Box 988, Strathmore, Alta. Specific location of magazine 57° 12' N, 128° 50' W
TOJ 3HO
Maximum allowable capacity 250 kg Explosives or 10,000 detonators per Type 6 Magazine
Date of issue September 16, 1986

ORIGINAL—Post inside magazine.

2M (25)-1176-3505

B. H. Good

Inspector of Mines

Overtime pay

30. (1) An employer shall, in addition to all other amounts due to an employee, pay an employee who works more than the number of hours specified in section 28,

(a) except as provided in paragraph (b), 1 1/2 times his regular wage for all hours worked in excess of

(i) 8 in a day, and

(ii) 40 in a week, but excluding from the calculation hours worked in excess of 8 in a day, and

(b) double his regular wage for all hours worked in excess of

(i) 11 in a day, and

(ii) 48 in a week, but excluding from the calculation hours worked in excess of 8 in a day.

(2) Where a week contains a general holiday which is granted to an employee in accordance with the regulations

(a) the references to hours in a week in subsection (1) (a) (ii) and (b) (ii) shall be reduced by 8 hours for each general holiday in the week, and

(b) in calculating the overtime hours worked by an employee in that week, no account shall be taken of hours worked by him on the general holidays.

(3) Where overtime wage provisions established by a collective agreement vary from those provided in subsection (1) or (2), the overtime wage provisions of the collective agreement apply.

1980-10-30; 1983-16-19, effective December 1, 1983 (B.C. Reg. 409/83).



Mount Klappan Project

1986

Lost-Fox Area

Reserve / Resource Data

AMR 86001 low quality data

~~CONFIDENTIAL~~

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TABLE 7.2

MOUNT KLAPPAN ANTHRACITE PROJECT
 LOST-FOX AREA
 ANTHRACITE RESOURCE SUMMARY
 (in million tonnes)

SEAM:	----- Category -----			
	MEASURED	INDICATED	INFERRED	TOTAL
P				0
O	0.48	0.47	1.15	2.1
N	0.87	0.83	1.98	3.68
M/N	0.08			0.08
M	2.95	4.65	11.25	18.85
L/M				0
L	4.71	4.68	4.8	14.19
K/L	2.8	1.34	0.25	4.39
K	9.19	8.59	6.05	23.83
J	0.69	1.08	1.4	3.17
I	21.11	17.07	13.69	51.87
H/I				0
H	15.69	14.88	11	41.57
PH	2.4	2.35	3.05	7.8
GU	3.62	4.77	6.24	14.63
GL	0.34	0.15	0.28	0.77
F/G	0.03	0.01		0.04
F	6.01	7.22	13.98	27.21
E	1.91	2.36	2.61	6.88
D	1.11	2.64	6.27	10.02
C	0.13	0.29	0.81	1.23
B				0
A				0
TOTALS :	74.12	73.38	84.81	232.31 Million Tonnes
SPECULATIVE RESOURCE :				765.68 Million Tonnes
LOST-FOX AREA TOTAL RESOURCE:				998.00 Million Tonnes

TABLE 7.3

DIAMOND DRILL HOLE SEAM INTERSECTIONS USED IN 1986 RESOURCE CALCULATIONS
(thickness in meters)

Drillhole	B	C	D	E	F	F/G	GL	G	PH	H	I	J	K	K/L	L	M	M/W	N	O	P
DDH82005											4.98		5.16		5.75	2.24				
DDH83001				1.32	4.79		2.25	3.93		4.54	5.51									
DDH84005								(2.96)	1.55											
DDH84006										5.80	5.04	3.56	2.88							
DDH84007				1.00	1.07		0.89		2.98	3.98	5.43	2.45								
DDH84008								3.28		6.41	3.86		3.93		4.49					
DDH85001								0.94		2.15	4.38									
DDH85002																				
DDH85003																5.30	0.56	(1.58)		
DDH85004				2.23	2.35			4.92		3.96	3.70									
DDH85005													3.10		0.61	2.93			(1.00)	
DDH85006				0.91	3.10			3.49	2.06	2.76										
DDH85007																				
DDH85008								1.69												
DDH85009											4.90		3.27		4.46					
DDH85010													3.96		1.81	4.60				
DDH85011													3.47							
DDH85012									11.63	0.65	3.21		1.74	1.49	1.37					
DDH85013					4.21		0.65			4.37	6.16		0.98							
DDH85014					2.71					2.09	5.46									
DDH85015				0.95	2.73		1.30													
DDH85016			2.41	2.22	2.13				2.07	6.75	5.55									
DDH85017				2.34	1.93		0.97	3.80	4.41	4.67	5.37									
DDH85018			1.89		6.02					3.63	2.61									
DDH85019	0.51				4.21	0.51	0.52													
DDH85020	1.19		4.74	1.91	2.49															
DDH85021				1.81	3.43					5.55	1.61									
DDH85022										3.66	4.69									
DDH85023													4.47		4.57	(15.48)				
DDH85024										4.62	6.45									
DDH85025										3.72	4.42									
DDH85026										3.43	5.68									
DDH85027										2.25	5.03		1.08	3.22	1.62	1.20	1.15	2.17		
DDH85028										4.88	4.74									
DDH85029																				
DDH85030											3.98									
DDH85031											4.54									
DDH85032											5.47									
DDH85033											5.48									
DDH85034											5.14									

TABLE 7.3 (cont.)
DIAMOND DRILL HOLE SEAM INTERSECTIONS USED IN 1986 RESOURCE CALCULATIONS
(thickness in meters)

Drillhole	B	C	D	E	F	F/G	GI	G	PH	H	I	J	K	K/L	L	M	N/M	N	O	P
DDH86001										2.84	3.55									
DDH86002									0.84	4.84										
DDH86003										3.34	7.25									
DDH86004										7.11	5.27	0.67	4.46	2.29						
DDH86005										2.94	4.79	0.95								
DDH86006										5.89										
DDH86007										3.66	5.57	0.56								
DDH86008									4.67	5.43	(4.17)									
DDH86009											5.80	0.45	5.81							
DDH86010										3.91	5.15	1.07								
DDH86011														1.70	4.91					
DDH86012																		1.42	1.37	
DDH86013											6.98	0.61	4.77							
DDH86014													2.58	0.97	3.05					
DDH86015													3.98	0.50	1.24					
DDH86016												(0.38)	2.61	2.74	2.29					
DDH86017										4.45	5.15									
DDH86018									3.80	0.82	1.62									
DDH86019											6.95	1.03	3.34	4.43	1.86	0.68	1.16			
DDH86020	0.37																			
DDH86021											(4.56)	0.81	1.16							
DDH86022											4.53	0.38	1.92	4.31	2.38	1.52				
DDH86023																				
DDH86024																				
DDH86025											(3.82)	(0.37)						1.05	1.85	0.92
DDH86026												0.95	0.22	2.77	5.80			1.81	2.98	
DDH86027																				
DDH86028	2.68	0.88	2.84																	
DDH86029									0.11	1.22	4.42		2.96							
DDH86030									0.44	2.97	5.59	0.82								
DDH86031									2.32	6.58	4.49			9.54						
DDH86032										4.92	3.08									
DDH86033													5.03	2.11	2.45	5.83				
DDH86034											5.10	0.75	6.49	3.84						
DDH86035										1.16	1.23	0.38	8.36	1.42	3.35					
DDH86036										2.17	5.15	0.99	1.85							
DDH86037														0.66	2.34	6.78		0.64	2.49	
DDH86038																				
NO. INTERSECTIONS	2	3	4	9	13	1	6	7	12	38	49	18	26	15	17	10	3	6	5	1
TOTAL METRES	3.05	2.58	11.88	14.69	41.17	0.51	6.58	25.01	36.88	146.53	227.10	16.45	92.09	45.02	48.55	46.56	2.87	7.09	9.69	0.92
AVG. TRUE THICKNESS	1.53	0.86	2.97	1.63	3.17	0.51	1.10	3.57	3.07	3.86	4.63	0.91	3.54	3.00	5.74	4.66	0.96	2.32	1.94	0.92

() average thickness in metres; seam intersected more than once.

Table 8.2
STRAIGHT AVERAGE SIZE CONSIST
LOST-FOX AREA 1986

Seam	35 x 25mm	25 x 12mm	12 x 6mm	6 x 0.5mm	0.5 x 0.15mm	0.15 x 0mm
	wt%	wt%	wt%	wt%	wt%	wt%
H	24.02	22.14	14.31	28.83	6.73	3.97
Hpart	35.73	26.37	13.48	19.76	3.12	1.54
I	25.01	19.82	15.10	30.02	6.06	3.99
K	32.15	22.60	13.42	24.33	4.64	2.86
K/L	32.91	22.41	13.95	23.06	4.68	2.99
L	28.15	19.84	14.07	27.64	6.49	3.81
M/N	28.65	21.54	14.14	26.99	5.59	3.09
N	20.26	19.46	16.39	31.26	7.50	5.13
PH	19.82	21.16	15.36	32.59	7.30	3.77

APPENDIX D
RESOURCE DATA AND CALCULATIONS

LOST-FOX AREA RESOURCE SUMMARY

File: Summary

----- Category -----				
SEAM:	MEASURED	INDICATED	INFERRED	TOTAL TONNES
P				0
O	476105	466827	1148297	2091229
N	870858	831481	1975378	3677717
M/N	83096			83096
M	2950991	4652698	11249687	18853376
L/M				0
L	4707666	4683727	4797997	14189390
K/L	2797549	1343218	250850	4391617
K	9191595	8587832	6050594	23830021
J	687982	1081081	1402403	3171466
I	21114182	17073303	13692386	51879871
H/I				0
H	15694153	14882093	11004117	41580363
PH	2404903	2354790	3052395	7812088
GU	3619925	4767840	6239991	14627756
GL	337984	151232	279803	769019
F/G	27272	10672		37944
F	6011333	7220250	13976980	27208563
E	1909350	2355985	2612682	6878017
D	1106830	2635858	6270593	10013281
C	132983	294778	805654	1233415
B				0
A				0

	MEASURED	INDICATED	INFERRED	TOTAL TONNES
	74124757	73393665	84809807	232328229

SPECULATIVE RESOURCES : 765675000

LOST-FOX AREA TOTAL RESOURCE: 998003229 Tonnes

OR 998.0 Million Tonnes

1986 SPECULATIVE RESOURCE CALCULATIONS

AREA NAME	PLANIMETERED AREA (M2)	SEAM THICKNESS (M)	SPECIFIC GRAVITY (T/M3)	TOTAL TONNES SEAMS >=0.5m
SUMMIT	99550000	11.25	1.66	1859096250
LOST-FOX	41000000	11.25	1.66	765675000
HOBBIT	39175000	11.25	1.66	731593125
SKEENA	14850000	11.25	1.66	277323750
NASS	106650000	11.25	1.66	1991688750
TOTAL SPECULATIVE RESOURCES:				5625376875
				OR 5.63 Billion Tonnes

SEAM : 0

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250				0
3125				0
3000				0
2875			27431	27431
2750			52119	52119
2625		65835		65835
2500	49662	37125		86787
2375	49376			49376
2250	65196	41086		106282
2125	121708	3011		124719
2000	45169	21079		66248
1875		60225	4517	64742
1750	30525	38156		68681
1625	72497	11447		83944
1500	41972	49603	33124	124699
1375		72497	98979	171476
1250			234919	234919
1125		66763	399342	466105
1000			297866	297866
	-----			-----
TOTAL TONNES	476105	466827	1148297	2091229
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : M

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250				0
3125				0
3000				0
2875	97344			97344
2750	112639	30420		143059
2625	96795	33378		130173
2500				0
2375				0
2250	20998	40497	19118	80613
2125	139488	43496		182984
2000	119821	142171		261992
1875		83993	17999	101992
1750	26618	22181	80993	129792
1625	37708	6654	32997	77359
1500	17745	47173	128989	193907
1375		60629	254810	315439
1250	137524	68762	477510	683796
1125	64178	132940	490797	687915
1000		119187	472165	591352
	-----	-----	-----	-----
TOTAL TONNES	870858	831481	1975378	3677717
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : M/N RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250				0
3125				0
3000				0
2875				0
2750				0
2625				0
2500				0
2375				0
2250				0
2125				0
2000				0
1875				0
1750				0
1625				0
1500	24273			24273
1375				0
1250	58823			58823
1125				0
1000				0

TOTAL TONNES	83096	0	0	83096
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : M

RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375			9576	9576
3250			57456	57456
3125			81396	81396
3000		67032	19152	86184
2875	43092	138852	95760	277704
2750	81396	138852	124509	344757
2625		335246	130345	465591
2500	100206	836596		936802
2375	840038	19665		859703
2250	1089185	202165		1291350
2125		1063001	25992	1088993
2000			974252	974252
1875			1005224	1005224
1750			1125458	1125458
1625		86398	1124389	1210787
1500	17442	274156	828367	1119965
1375	331163	132717	991673	1455553
1250	415124	415936	1476521	2307581
1125	33345	875392	1700894	2609631
1000		66690	1478723	1545413
TOTAL TONNES	2950991	4652698	11249687	18853376
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : L

RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625			17262	17262
3500			54663	54663
3375			54663	54663
3250			106449	106449
3125		94941		94941
3000	92864	91739		183803
2875	461202	149447		610649
2750	693084	258531		951615
2625	188580	605588	32907	827075
2500	140490	327684		468174
2375	436527	49413		485940
2250	471303	61814	7602	540719
2125	172935	268737	149856	591528
2000	156923	83265	327506	567694
1875	96075	408146	235956	740177
1750	262248	276780	216090	755118
1625	349881	187320	299775	836976
1500	105462	438837	386001	930300
1375	393834	210126	588662	1192622
1250	481027	305865	673617	1460509
1125	206031	594132	814548	1614711
1000		271362	832440	1103802
TOTAL TONNES	4707666	4683727	4797997	14189390
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : K/L RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250				0
3125				0
3000	109552	151440		260992
2875				0
2750				0
2625				0
2500				0
2375		12197		12197
2250	658316	97572		755888
2125				0
2000	326105	379909		706014
1875				0
1750	5925	301020		306945
1625	250375	143201	250850	644426
1500	467533	133881		601414
1375	720286	114786		835072
1250	259457	9212		268669
1125				0
1000				0
TOTAL TONNES	2797549	1343218	250850	4391617
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : K

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250		5318	7091	12409
3125		120539	102812	223351
3000	112755	433112		545867
2875	633663	42971		676634
2750	794931	215191		1010122
2625	160148	464428	26009	650585
2500	346681	352314	78403	777398
2375	1005589	41198		1046787
2250	1017996	135566		1153562
2125	230971	876451	33863	1141285
2000	720440	514662	128403	1363505
1875		389876	153852	543728
1750	327834	699127	281644	1308605
1625	466017	881749	402345	1750111
1500	1001961	577733	600493	2180187
1375	1138942	496366	846521	2481829
1250	813289	999455	784947	2597691
1125	420378	841692	1231160	2493230
1000		500084	1373051	1873135

TOTAL TONNES	9191595	8587832	6050594	23830021
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : J

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250				0
3125				0
3000				0
2875				0
2750				0
2625				0
2500				0
2375		71645	78810	150455
2250	272251	103885	121797	497933
2125	46569	95076	136126	277771
2000	51681	350246	171948	573875
1875	94447	7537	358225	460209
1750	37956	80923	93139	212018
1625	24452	128781	23325	176558
1500	91154	59490	52788	203432
1375	69472	124291	58926	252689
1250		59207	81436	140643
1125			116624	116624
1000			109259	109259
	-----	-----	-----	-----
TOTAL TONNES	687982	1081081	1402403	3171466
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : I

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750	181817	90437		272254
3625	175146	275324	63063	513533
3500	521214	339782		860996
3375	517595	515534		1033129
3250	331196	652124	52553	1035873
3125	354595	713011	36720	1104326
3000	1057731	473550		1531281
2875	1214830	344787		1559617
2750	1222261	597598	106068	1925927
2625	859648	535363	278605	1673616
2500	933067	452134	410488	1795689
2375	868399	730296	509164	2107859
2250	1639234	826095	360995	2826324
2125	1803225	859397	402229	3064851
2000	1348848	895539	467313	2711700
1875	1752251	600340	835931	3188522
1750	1085603	1555852	949333	3590788
1625	1372573	2028921	958111	4359605
1500	1982644	1315420	924039	4222103
1375	1238585	1519951	1178004	3936540
1250	483069	960450	1669995	3113514
1125	170651	478084	2359598	3008333
1000		313314	2130177	2443491

TOTAL TONNES	21114182	17073303	13692386	51879871
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : H

RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750	437185	255384	60621	753190
3625	439878	169996	52355	662229
3500	295611	85504	117798	498913
3375	249623	266448	109072	625143
3250	436809	386658	433678	1257145
3125	318886	996499	218833	1534218
3000	1090281	629893		1720174
2875	1407414	620165	379090	2406669
2750	861449	741793	458457	2061699
2625	975677	791580	311079	2078336
2500	621450	1077641	785298	2484389
2375	560849	1786368	497828	2845045
2250	2459159	874454	455409	3789022
2125	1840194	1163760	541728	3545682
2000	940941	909618	290580	2141139
1875	1174949	570002	687894	2432845
1750	545902	915671	371701	1833274
1625	335941	1100551	608663	2045155
1500	327321	323625	1223880	1874826
1375	51666	554211	941316	1547193
1250	208562	229918	880623	1319103
1125	114406	244854	867002	1226262
1000		187500	711212	898712
TOTAL TONNES	15694153	14882093	11004117	41580363
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : PH

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375	65567	100693	42150	208410
3250	142843	121768		264611
3125	46834	175627	42150	264611
3000				0
2875		24944	62988	87932
2750		79821		79821
2625	526201	254147	80545	860893
2500	505963	631181	179597	1316741
2375	302768	420305	361570	1084643
2250	418971	332362	619224	1370557
2125	107740	179552	649948	937240
2000	257925	34390	652731	945046
1875	30091		345643	375734
1750			15849	15849
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
	-----	-----	-----	-----
TOTAL TONNES	2404903	2354790	3052395	7812088
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : GU

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375	25300	68671	41564	135535
3250	56021	56021	76037	188079
3125	81000	903735	244289	1229024
3000	571258	559936	298771	1429965
2875	802821	359663	580523	1743007
2750	864173	875347	614171	2353691
2625	559362	802089	606073	1967524
2500	620919	689292	608864	1919075
2375	31934	453086	897524	1382544
2250	7137		1038709	1045846
2125			711916	711916
2000			278160	278160
1875			191235	191235
1750			52155	52155
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
	-----	-----	-----	-----
TOTAL TONNES	3619925	4767840	6239991	14627756
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : GL

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375			173081	173081
3250				0
3125				0
3000	193444	101853		295297
2875				0
2750	13168	39503	106722	159393
2625	66936	9876		76812
2500				0
2375	64436			64436
2250				0
2125				0
2000				0
1875				0
1750				0
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
	-----	-----	-----	-----
TOTAL TONNES	337984	151232	279803	769019
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : F/G

RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500				0
3375				0
3250				0
3125				0
3000				0
2875				0
2750	27272	10672		37944
2625				0
2500				0
2375				0
2250				0
2125				0
2000				0
1875				0
1750				0
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
	-----	-----	-----	-----
TOTAL TONNES	27272	10672	0	37944
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : F

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000		29498	127323	156821
3875		670177	181202	851379
3750	450597	291820	356083	1098500
3625	502520	316997	276533	1096050
3500	403663	359524	210173	973360
3375	450856	240306	159531	850693
3250	453049	235985	697073	1386107
3125	323855	1050375	806427	2180657
3000	921147	668522	719262	2308931
2875	883996	644635	669145	2197776
2750	487599	847219	364039	1698857
2625	439815	574480	559861	1574156
2500	522880	362523	498951	1384354
2375	109242	646033	713198	1468473
2250	62114	178633	1146445	1387192
2125		103523	1514525	1618048
2000			1439125	1439125
1875			1401220	1401220
1750			1164376	1164376
1625			733236	733236
1500			188641	188641
1375			50611	50611
1250				0
1125				0
1000				0
TOTAL TONNES	6011333	7220250	13976980	27208563
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : E

RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000		42083	85918	128001
3875		136768	51286	188054
3750	91179	52603	107299	251081
3625	66631	109837	113092	289560
3500	18406	174792	143782	336980
3375	157771	192898	146543	497212
3250	237034	153586	123497	514117
3125	145313	285704	124736	555753
3000	279601	180459	316065	776125
2875	269235	157878	366691	793804
2750	238914	336525	275241	850680
2625	224672	122411	324919	672002
2500	180594	230524	389593	800711
2375		179917	44020	223937
2250				0
2125				0
2000				0
1875				0
1750				0
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
TOTAL TONNES	1909350	2355985	2612682	6878017
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : D

RESOURCE SUMMARY

Section	----- Category -----			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000			371669	371669
3875		161595	371669	533264
3750	90897	125236	371669	587802
3625	109419	257356	286831	653606
3500		241388	556925	798313
3375	72119	195752	797010	1064881
3250	164844	162268	959759	1286871
3125	51514	406285	660787	1118586
3000	405270	427414		832684
2875	212767	324216	828559	1365542
2750		334348	1065715	1400063
2625				0
2500				0
2375				0
2250				0
2125				0
2000				0
1875				0
1750				0
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
TOTAL TONNES	1106830	2635858	6270593	10013281
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SEAM : C

RESOURCE SUMMARY

Section	Category			TOTAL TONNES
	MEASURED	INDICATED	INFERRED	
4000				0
3875				0
3750				0
3625				0
3500			62059	62059
3375			152930	152930
3250		4433	150714	155147
3125		42111	104170	146281
3000	86439	106386		192825
2875	46544	68708	130766	246018
2750		73140	205015	278155
2625				0
2500				0
2375				0
2250				0
2125				0
2000				0
1875				0
1750				0
1625				0
1500				0
1375				0
1250				0
1125				0
1000				0
TOTAL TONNES	132983	294778	805654	1233415
	MEASURED	INDICATED	INFERRED	TOTAL TONNES

SECTION : 1125 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85027	2.17	1.69	140	125	64178
M/N						0
M	85027	1.2	1.71	130	125	33345
L/M						0
L	85027	1.62	1.68	130	125	44226
L	86035	3.35	1.68	230	125	161805
K/L						0
K	85027	1.08	1.63	130	125	28607
K	86035	8.36	1.63	230	125	391771
J						0
I	85027	5.03	1.54	120	125	116193
I	86035	1.23	1.54	230	125	54458
H/I						0
H	85027	2.25	1.67	125	125	58711
H	86035	1.16	1.67	230	125	55695
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1008987

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA1250

SECTION : 1250 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85027	2.17	1.69	300	125	137524
M/H	85027	1.15	1.86	220	125	58823
M	86022	1.52	1.71	135	125	43862
M	85027	1.2	1.71	330	125	84645
M	86033	5.83	1.71	230	125	286617
L/M						0
L	86022	2.38	1.68	140	125	69972
L	85027	1.62	1.68	320	125	108864
L	86033	2.45	1.68	225	125	115763
L	86035	3.35	1.68	265	125	186428
K/L	85027	3.22	1.73	280	125	194971
K/L	86035	1.42	1.73	210	125	64486
K	86022	1.92	1.63	180	125	70416
K	85027	1.08	1.63	300	125	66015
K	86033	5.03	1.63	220	125	225470
K	86035	8.36	1.63	265	125	451388
J						0
I	86022	4.53	1.54	160	125	139524
I	85027	5.03	1.54	290	125	280800
I	86035	1.23	1.54	265	125	62745
H/I						0
H	85027	2.25	1.67	310	125	145603
H	86035	1.16	1.67	260	125	62959
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2856873

SECTION : 1375 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	86022	1.52	1.71	210	125	68229
M	86019	0.68	1.71	180	125	26163
M	86033	5.83	1.71	190	125	236771
L/M						0
L	86022	2.38	1.68	320	125	159936
L	86019	1.86	1.68	230	125	89838
L	86033	2.45	1.68	280	125	144060
K/L	86022	4.31	1.73	320	125	298252
K/L	86019	4.43	1.73	110	125	105379
K/L	86033	2.11	1.73	330	125	150575
K/L	86034	3.84	1.73	200	125	166080
K	86022	1.92	1.63	400	125	156480
K	86019	3.34	1.63	220	125	149716
K	86013	4.77	1.63	300	125	291566
K	86033	5.03	1.63	270	125	276713
K	86034	6.49	1.63	200	125	264468
J	86013	0.61	1.61	320	125	39284
J	86034	0.75	1.61	200	125	30188
I	86022	4.53	1.54	380	125	331370
I	86019	6.95	1.54	220	125	294333
I	86013	6.98	1.54	310	125	416532
I	86034	5.1	1.54	200	125	196350
H/I						0
H	85027	2.25	1.67	110	125	51666
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3943945

SECTION : 1500 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	110	125	41972
N	86025	1.05	1.69	80	125	17745
M/N	86019	1.16	1.86	90	125	24273
M	86019	0.68	1.71	120	125	17442
L/M						0
L	86019	1.86	1.68	270	125	105462
K/L	86019	4.43	1.73	280	125	268237
K/L	86034	3.84	1.73	240	125	199296
K	86021	1.16	1.63	95	125	22453
K	86022	1.92	1.63	100	125	39120
K	86016	2.61	1.63	10	125	5318
K	86019	3.34	1.63	320	125	217768
K	86013	4.77	1.63	330	125	320723
K	86034	6.49	1.63	260	125	343808
K	86036	1.85	1.63	140	125	52771
J	86013	0.61	1.61	380	125	46650
J	86034	0.75	1.61	260	125	39244
J	86036	0.99	1.61	275	12	5260
I	86025	2.9	1.54	20	125	11165
I	86025	4.74	1.54	80	125	72996
I	86021	4.54	1.54	10	125	8740
I	86021	4.59	1.54	95	125	83940
I	86022	4.53	1.54	180	125	156965
I	86019	6.95	1.54	250	125	334469
I	85026	5.68	1.54	220	125	240548
I	86013	6.98	1.54	410	125	550897
I	86034	5.1	1.54	260	125	255255
I	86036	5.15	1.54	270	125	267671
H/I						0
H	85026	3.43	1.67	280	125	200484
H	86036	2.17	1.67	280	125	126837
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4077505

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA1625

SECTION : 1625 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	190	125	72497
N	86025	1.05	1.69	170	125	37708
M/N						0
M						0
L/M						0
L	86016	2.29	1.68	190	125	91371
L	86015	1.24	1.68	280	125	72912
L	86011	4.91	1.68	180	125	185598
K/L	86016	2.74	1.73	220	125	130356
K/L	86015	0.5	1.73	260	125	28113
K/L	86011	1.7	1.73	250	125	91906
K	86021	1.16	1.63	180	125	42543
K	86016	2.61	1.63	310	125	164854
K	86015	3.98	1.63	270	125	218950
K	86034	6.49	1.63	30	125	39670
J	86034	0.75	1.61	30	125	4528
J	86036	0.99	1.61	100	125	19924
I	86025	2.9	1.54	205	125	114441
I	86025	4.74	1.54	230	125	209864
I	86021	4.54	1.54	220	125	192269
I	86021	4.59	1.54	305	125	269490
I	85026	5.68	1.54	310	125	338954
I	86034	5.1	1.54	30	125	29453
I	86036	5.15	1.54	220	125	218103
H/I						0
H	85026	3.43	1.67	330	125	236284
H	86036	2.17	1.67	220	125	99657
PH						0
GJ						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2909444

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA1750

SECTION : 1750 M
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	80	125	30525
N	86025	1.05	1.69	120	125	26618
N/N						0
M						0
L/M						0
L	86016	2.29	1.68	170	125	81753
L	86015	1.24	1.68	20	125	5208
L	86011	4.91	1.68	170	125	175287
K/L	86016	2.74	1.73	10	125	5925
K	86016	2.61	1.63	220	125	116993
K	86015	3.98	1.63	260	125	210841
J	86030	0.82	1.61	230	125	37956
I	86025	2.9	1.54	110	125	61408
I	86025	4.74	1.54	160	125	145992
I	85028	4.74	1.54	445	125	406040
I	85025	4.42	1.54	20	125	17017
I	85022	4.69	1.54	230	125	207650
I	86030	5.59	1.54	230	125	247497
M/I						0
H	85028	4.08	1.67	240	125	204408
H	85025	3.72	1.67	20	125	15531
H	85022	3.66	1.67	240	125	183366
H	86030	2.97	1.67	230	125	142597
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2322611

SECTION : 1875 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L	86014	3.05	1.68	150	125	96075
K/L						0
K						0
J	86010	1.07	1.61	270	125	58141
J	86030	0.82	1.61	220	125	36306
I	86027	0.95	1.54	280	125	51205
I	85028	4.74	1.54	420	125	383229
I	86018	1.62	1.54	30	125	9356
I	85025	4.42	1.54	300	125	255255
I	85022	4.69	1.54	240	125	216678
I	86009	5.8	1.54	230	125	256795
I	86010	5.15	1.54	270	125	267671
I	86030	5.59	1.54	290	125	312062
H/I						0
H	85028	4.08	1.67	480	125	408816
H	86018	0.82	1.67	25	125	4279
H	85025	3.72	1.67	300	125	232965
H	85022	3.66	1.67	230	125	175726
H	86010	3.91	1.67	220	125	179567
H	86030	2.97	1.67	280	125	173597
PH	86018	3.8	1.81	35	125	30091
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3147813

SECTION : 2000 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86012	1.46	1.65	150	125	45169
N	86027	1.81	1.69	180	125	68825
N	86012	1.42	1.69	170	125	50996
M/N						0
M						0
L/N						0
L	86014	3.05	1.68	245	125	156923
K/L	86027	5.8	1.73	260	125	326105
K	86027	2.77	1.63	270	125	152385
K	86014	2.58	1.63	360	125	189243
K	86009	5.81	1.63	320	125	378812
J	86010	1.07	1.61	240	125	51681
I	86027	0.95	1.54	280	125	51205
I	86018	1.62	1.54	340	125	106029
I	85025	4.42	1.54	120	125	102102
I	85024	6.45	1.54	90	125	111746
I	86017	5.15	1.54	230	125	228016
I	86009	5.8	1.54	305	125	340533
I	86007	5.57	1.54	40	125	42889
I	86010	5.15	1.54	220	125	218103
I	86032	3.08	1.54	250	125	148225
H/I						0
H	86018	0.82	1.67	320	125	54776
H	85025	3.72	1.67	110	125	85421
H	85024	4.62	1.67	90	125	86798
H	86017	4.45	1.67	240	125	222945
H	86007	5.57	1.67	40	125	46510
H	86010	3.91	1.67	230	125	187729
H	86032	4.92	1.67	250	125	256763
PH	86018	3.8	1.81	300	125	257925
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3967851

SECTION : 2125 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86012	1.46	1.65	360	125	108405
O	86012	1.29	1.65	50	125	13303
N	86012	1.42	1.69	465	125	139488
M/N						0
M						0
L/M						0
L	86014	3.05	1.68	270	125	172935
K/L						0
K	86029	2.96	1.63	160	125	96496
K	86014	2.58	1.63	80	125	42054
K	86004	3.44	1.63	100	125	70090
K	86004	5.48	1.63	20	125	22331
J	84006	3.56	1.61	65	125	46569
I	86029	4.42	1.54	480	125	408408
I	86018	1.62	1.54	130	125	40541
I	85024	6.45	1.54	260	125	322823
I	86017	5.15	1.54	30	125	29741
I	84006	5.04	1.54	450	125	436590
I	86004	5.27	1.54	105	125	106520
I	86007	5.57	1.54	295	125	316306
I	86032	3.08	1.54	240	125	142296
H/I						0
H	86029	1.22	1.67	440	125	112057
H	86018	0.82	1.67	80	125	13694
H	86002	4.84	1.67	230	125	232381
H	85024	4.62	1.67	260	125	250751
H	86017	4.45	1.67	30	125	27868
H	84006	5.8	1.67	470	125	569053
H	86004	7.11	1.67	100	125	148421
H	86007	3.66	1.67	300	125	229208
H	86032	4.92	1.67	250	125	256763
PH	86018	3.8	1.81	80	125	68780
PH	86002	0.84	1.81	205	125	38960
GJ						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4462830

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA2250

SECTION : 2250 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	60	125	16459
O	86012	1.29	1.65	70	125	18624
O	86012	1.46	1.65	100	125	30113
N	86012	1.42	1.69	70	125	20998
M/N						0
M	85023	14.24	1.71	280	125	852264
M	85005	2.93	1.71	80	125	50103
M	85010	4.6	1.71	190	125	186818
L/M						0
L	85023	4.57	1.68	400	125	383880
L	85010	1.81	1.68	230	125	87423
K/L	86004	3.76	1.73	230	125	187013
K/L	86004	1.09	1.73	10	125	2357
K/L	86004	2.03	1.73	40	125	17560
K	86029	2.96	1.63	60	125	36186
K	85023	4.47	1.63	530	125	482704
K	85005	3.1	1.63	80	125	50530
K	85010	3.96	1.63	230	125	185576
K	86004	3.44	1.63	200	125	140180
K	86004	5.48	1.63	110	125	122821
J	84006	3.56	1.61	380	125	272251
I	86031	4.49	1.54	400	125	345730
I	86029	4.42	1.54	240	125	204204
I	84006	5.04	1.54	495	125	480249
I	86004	5.27	1.54	310	125	314487
I	86007	5.57	1.54	70	125	75056
I	84007	5.43	1.54	210	125	219508
H/I						0
H	86031	6.58	1.67	400	125	549430
H	86029	1.22	1.67	240	125	61122
H	86002	4.84	1.67	280	125	282898
H	85024	4.62	1.67	70	125	67510
H	84006	5.8	1.67	650	125	786988
H	86004	7.11	1.67	320	125	474948
H	86007	3.66	1.67	70	125	53482
H	84007	3.98	1.67	220	125	182782
PH	86031	2.32	1.81	405	125	212585
PH	86002	0.84	1.81	270	125	51314
PH	84007	2.98	1.81	230	125	155072

GJ	84005	0.78	1.83	40	125	7137
GL						0
F/G						0
F	84007	1.07	1.72	270	125	62114
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

7730471

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA2375

SECTION : 2375 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	180	125	49376
N						0
M/N						0
M	85023	14.24	1.71	100	125	304380
M	85005	2.93	1.71	400	125	250515
M	85010	4.6	1.71	290	125	285143
L/M						0
L	85023	4.57	1.68	340	125	326298
L	85010	1.81	1.68	290	125	110229
K/L						0
K	85023	4.47	1.63	490	125	446274
K	85005	3.1	1.63	280	125	176855
K	85010	3.96	1.63	290	125	233987
K	85011	3.47	1.63	210	125	148473
J						0
I	86031	4.49	1.54	230	125	198795
I	85009	4.9	1.54	370	125	349003
I	85011	1.75	1.54	300	125	101063
I	84007	5.43	1.54	210	125	219508
H/I						0
H	86031	6.58	1.67	245	125	336526
H	84007	3.98	1.67	270	125	224323
PH	86031	2.32	1.81	230	125	120727
PH	84007	2.98	1.81	270	125	182041
GU	85006	3.49	1.83	40	125	31934
GL	84007	0.89	1.81	320	125	64436
F/G						0
F	85006	3.1	1.72	50	125	33325
F	84007	1.07	1.72	330	125	75917
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4269123

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA2500

SECTION : 2500 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	0.67	1.86	160	125	24924
O	85005	1.33	1.86	80	125	24738
N						0
M/N						0
M	85005	2.93	1.71	160	125	100206
L/M						0
L	85009	4.46	1.68	150	125	140490
K/L						0
K	85009	3.27	1.63	260	125	173228
K	85009	2.81	1.63	40	125	22902
K	85005	3.1	1.63	160	125	101060
K	85011	3.47	1.63	70	125	49491
J						0
I	85009	4.9	1.54	520	125	490490
I	85017	5.37	1.54	200	125	206745
I	86008	3.49	1.54	170	125	114210
I	86008	4.86	1.54	130	125	121622
H/I						0
H	85006	2.76	1.67	150	125	86423
H	85017	4.67	1.67	200	125	194973
H	86008	5.43	1.67	300	125	340054
PH	85017	4.41	1.81	200	125	199553
PH	86008	4.67	1.81	290	125	306410
GU	85006	3.49	1.83	560	125	447069
GU	85017	3.8	1.83	200	125	173850
GL						0
F/G						0
F	85006	3.1	1.72	660	125	439890
F	85017	1.93	1.72	200	125	82990
E	85006	0.91	1.55	510	125	89919
E	85017	2.34	1.55	200	125	90675
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4021910

SECTION : 2625 M
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85003	1.58	1.69	290	125	96795
M/N						0
M						0
L/M						0
L	84008	4.49	1.68	200	125	188580
K/L						0
K	84008	3.93	1.63	200	125	160148
J						0
I	86001	3.55	1.54	120	125	82005
I	82005	4.98	1.54	195	125	186937
I	84008	3.86	1.54	210	125	156041
I	85017	5.37	1.54	310	125	320455
I	86008	3.49	1.54	170	125	114210
H/I						0
H	86001	2.84	1.67	280	125	165998
H	84008	6.41	1.67	205	125	274308
H	85017	4.67	1.67	305	125	297333
H	86008	5.43	1.67	210	125	238038
PH	85017	4.41	1.81	305	125	304318
PH	86008	4.67	1.81	210	125	221883
GU	85006	3.49	1.83	190	125	151684
GU	84008	3.28	1.83	190	125	142557
GU	85017	3.8	1.83	305	125	265121
GL	85017	0.97	1.81	305	125	66936
F/G						0
F	85006	3.1	1.72	470	125	313255
F	85017	1.93	1.72	305	125	126560
E	85006	0.91	1.55	490	125	86393
E	85017	2.34	1.55	305	125	138279
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4097833

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA2750

SECTION : 2750 M
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85003	1.72	1.69	310	125	112639
M/N						0
M	82005	2.24	1.71	170	125	81396
L/M						0
L	82005	5.75	1.68	410	125	495075
L	84008	4.49	1.68	210	125	198009
K/L						0
K	82005	5.16	1.63	520	125	546702
K	84008	3.93	1.63	310	125	248229
J						0
I	85004	3.7	1.54	160	125	113960
I	85033	5.48	1.54	310	125	327019
I	82005	4.98	1.54	510	125	488912
I	84008	3.86	1.54	310	125	230346
I	85017	5.37	1.54	60	125	62024
H/I						0
H	85004	3.96	1.67	260	125	214929
H	84008	6.41	1.67	320	125	428188
H	86006	5.89	1.67	130	125	159840
H	85017	4.67	1.67	60	125	58492
PH						0
GU	85004	4.92	1.83	450	125	506453
GU	84008	3.28	1.83	305	125	228842
GU	85017	3.8	1.83	60	125	52155
GU	85019	1.29	1.83	260	125	76723
GL	85017	0.97	1.81	60	125	13168
F/G	85019	0.51	1.86	230	125	27272
F	85004	2.35	1.72	450	125	227363
F	85017	1.93	1.72	60	125	24897
F	85019	4.21	1.72	260	125	235339
E	85004	2.23	1.55	490	125	211711
E	85017	2.34	1.55	60	125	27203
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

5396881

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA2875

SECTION : 2875 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85003	1.44	1.69	320	125	97344
M/N						0
M	82005	2.24	1.71	90	125	43092
L/M						0
L	82005	5.75	1.68	320	125	386400
L	85012	1.37	1.68	260	125	74802
K/L						0
K	82005	5.16	1.63	480	125	504648
K	85012	1.74	1.63	240	125	85086
K	85013	0.98	1.63	220	125	43929
J						0
I	83001	5.51	1.54	70	125	74247
I	85004	3.7	1.54	100	125	71225
I	85032	5.47	1.54	70	125	73708
I	85034	5.14	1.54	320	125	316624
I	85033	5.48	1.54	65	125	68569
I	82005	4.98	1.54	150	125	143798
I	85013	6.16	1.54	230	125	272734
I	85001	4.38	1.54	230	125	193925
H/I						0
H	83001	4.54	1.67	140	125	132682
H	85004	3.96	1.67	510	125	421592
H	85012	3.21	1.67	230	125	154120
H	85013	4.37	1.67	240	125	218937
H	86006	5.89	1.67	270	125	331975
H	85001	2.15	1.67	330	125	148108
PH						0
GU	83001	3.93	1.83	90	125	80909
GU	85004	4.91	1.83	550	125	617739
GU	85019	1.29	1.83	200	125	59018
GU	85001	0.94	1.83	210	125	45155
GL						0
F/G						0
F	85020	2.49	1.72	210	125	112424
F	83001	4.79	1.72	90	125	92687
F	85004	2.35	1.72	430	125	217258
F	85013	4.21	1.72	260	125	235339
F	85019	4.21	1.72	250	125	226288

E	85020	1.91	1.55	210	125	77713
E	83001	1.32	1.55	90	125	23018
E	85004	2.23	1.55	390	125	168504
D	85020	4.74	1.71	210	125	212767
C	85020	1.19	1.49	210	125	46544
B						0
A						0

SEAMS $\geq 0.5m$

TOTAL TONNES FOR THIS SECTION :

6072904

SECTION : 3000 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L	85012	1.37	1.68	320	125	92064
K/L	85012	1.49	1.73	340	125	109552
K	85012	1.74	1.63	200	125	70905
K	85012	1.22	1.63	80	125	19886
K	85013	0.98	1.63	110	125	21964
J						0
I	83001	5.51	1.54	130	125	137888
I	85031	4.54	1.54	80	125	69916
I	85030	3.98	1.54	265	125	203030
I	85032	5.47	1.54	100	125	105298
I	86005	4.79	1.54	150	125	138311
I	85013	6.16	1.54	205	125	243089
I	85001	4.38	1.54	190	125	160199
H/I						0
H	83001	4.54	1.67	470	125	445431
H	85012	3.21	1.67	320	125	214428
H	86005	2.94	1.67	110	125	67510
H	85013	4.37	1.67	210	125	191570
H	86006	5.89	1.67	70	125	86068
H	85001	2.15	1.67	190	125	85274
PH						0
GU	83001	3.93	1.83	590	125	530403
GU	85001	0.94	1.83	190	125	40855
GL	83001	2.25	1.81	380	125	193444
F/G						0
F	85020	2.49	1.72	420	125	224847
F	83001	4.79	1.72	570	125	587015
F	85013	2.21	1.72	230	125	109285
E	85020	1.91	1.55	410	125	151726
E	83001	1.32	1.55	500	125	127875
D	85020	4.74	1.71	400	125	405270
C	85020	1.19	1.49	390	125	86439
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4919538

SECTION : 3125 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85031	4.54	1.54	25	125	21849
I	85016	5.55	1.54	100	125	106838
I	86005	4.79	1.54	245	125	225908
H/I						0
H	85016	6.75	1.67	100	125	140906
H	86005	2.94	1.67	290	125	177980
PH	85016	2.07	1.81	100	125	46834
GU	83001	3.93	1.83	70	125	62929
GU	85016	0.79	1.83	100	125	18071
GL						0
F/G						0
F	83001	4.79	1.72	270	125	278060
F	85016	2.13	1.72	100	125	45795
E	83001	1.32	1.55	400	125	102300
E	85016	2.22	1.55	100	125	43013
D	85016	2.41	1.71	100	125	51514
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1321996

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA3250

SECTION : 3250 M
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85016	5.55	1.54	310	125	331196
H/I						0
H	85016	6.75	1.67	310	125	436809
PH	85016	2.07	1.81	305	125	142843
GU	85016	0.79	1.83	310	125	56021
GL						0
F/G						0
F	85015	2.73	1.72	530	125	311084
F	85016	2.13	1.72	310	125	141965
E	85015	0.95	1.55	540	125	99394
E	85016	2.22	1.55	320	125	137640
D	85016	2.41	1.71	320	125	164844
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1821795

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA3375

SECTION : 3375 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85014	5.46	1.54	180	125	189189
I	85016	5.55	1.54	20	125	21368
I	86003	7.25	1.54	220	125	307038
H/I						0
H	85014	2.09	1.67	140	125	61080
H	85016	6.75	1.67	20	125	28181
H	86003	3.34	1.67	230	125	160362
PH	85016	2.07	1.81	140	125	65567
GU	85016	0.79	1.83	140	125	25300
GL						0
F/G						0
F	85015	2.73	1.72	510	125	299345
F	85014	2.71	1.72	150	125	87398
F	85016	2.13	1.72	140	125	64113
E	85015	0.95	1.55	530	125	97553
E	85016	2.22	1.55	140	125	60218
D	85016	2.41	1.71	140	125	72119
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1538829

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA3500

SECTION : 3500 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85014	5.46	1.54	310	125	325826
I	86003	7.25	1.54	140	125	195388
H/I						0
H	85014	2.09	1.67	310	125	135249
H	86003	3.34	1.67	230	125	160362
PH						0
GU						0
GL						0
F/G						0
F	85015	2.73	1.72	380	125	223041
F	85014	2.71	1.72	310	125	180622
E	85015	0.95	1.55	100	125	18406
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1238893

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA3625

SECTION : 3625 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85018	2.61	1.54	290	125	145703
I	85021	1.61	1.54	95	125	29443
H/I						0
H	85018	3.63	1.67	290	125	219751
H	85021	5.55	1.67	190	125	220127
PH						0
GU						0
GL						0
F/G						0
F	85018	6.02	1.72	280	125	362404
F	85021	3.43	1.72	190	125	140116
E	85021	1.81	1.55	190	125	66631
D	85018	1.89	1.57	295	125	109419
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1293593

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

MEA3750

SECTION : 3750 N
 RESOURCE TYPE : MEASURED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85018	2.61	1.54	220	125	110534
I	85021	1.61	1.54	230	125	71283
H/I						0
H	85018	3.63	1.67	210	125	159130
H	85021	5.55	1.67	240	125	278055
PH						0
GU						0
GL						0
F/G						0
F	85018	6.02	1.72	200	125	258860
F	85021	3.43	1.72	260	125	191737
E	85021	1.81	1.55	260	125	91179
D	85018	1.89	1.71	225	125	90897
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1251674

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1000

SECTION : 1000 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85027	2.17	1.69	260	125	119187
M/N						0
M	85027	1.2	1.71	260	125	66690
L/M						0
L	85027	1.62	1.68	260	125	88452
L	86035	3.35	1.68	260	125	182910
K/L						0
K	85027	1.08	1.63	260	125	57213
K	86035	8.36	1.63	260	125	442871
J						0
I	85027	5.03	1.54	260	125	251752
I	86035	1.23	1.54	260	125	61562
H/I						0
H	85027	2.25	1.67	260	125	122119
H	86035	1.16	1.67	270	125	65381
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1458136

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1125

SECTION : 1125 W
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86037	2.49	1.65	130	125	66763
N	85027	2.17	1.69	290	125	132940
M/N						0
M	86037	6.78	1.71	200	125	289845
M	86022	1.52	1.71	100	125	32490
M	85027	1.2	1.71	310	125	79515
M	86033	5.83	1.71	380	125	473542
L/M						0
L	86037	2.34	1.68	170	125	83538
L	86022	2.38	1.68	100	125	49980
L	85027	1.62	1.68	345	125	117369
L	86033	2.45	1.68	380	125	195510
L	86035	3.35	1.68	210	125	147735
K/L						0
K	86022	1.92	1.63	100	125	39120
K	85027	1.08	1.63	345	125	75917
K	86033	5.03	1.63	360	125	368951
K	86035	8.36	1.63	210	125	357704
J						0
I	86022	4.53	1.54	100	125	87203
I	85027	5.03	1.54	345	125	334055
I	86035	1.23	1.54	240	125	56826
H/I						0
H	85027	2.25	1.67	395	125	185527
H	86035	1.16	1.67	245	125	59327
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3233854

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1250

SECTION : 1250 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85027	2.17	1.69	150	125	68762
M/N						0
M	86022	1.52	1.71	160	125	51984
M	85027	1.2	1.71	10	125	2565
M	86033	5.83	1.71	290	125	361387
L/M						0
L	86022	2.38	1.68	160	125	79968
L	85027	1.62	1.68	60	125	20412
L	86033	2.45	1.68	290	125	149205
L	86035	3.35	1.68	80	125	56280
K/L	86035	1.42	1.73	30	125	9212
K	86022	1.92	1.63	280	125	109536
K	85027	1.08	1.63	170	125	37409
K	86013	4.77	1.63	300	125	291566
K	86033	5.03	1.63	190	125	194724
K	86035	8.36	1.63	215	125	366220
J	86013	0.61	1.61	470	125	57698
J	86034	0.75	1.61	10	125	1509
I	86022	4.53	1.54	160	125	139524
I	85027	5.03	1.54	170	125	164607
I	86013	6.98	1.54	440	125	591206
I	86035	1.23	1.54	275	125	65113
H/I						0
H	85027	2.25	1.67	340	125	159694
H	86035	1.16	1.67	290	125	70224
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3048805

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1375

SECTION : 1375 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	190	125	72497
N	86025	1.05	1.69	170	125	37708
N	85027	2.17	1.69	50	125	22921
M/N						0
M	86022	1.52	1.71	140	125	45486
M	86033	5.83	1.71	70	125	87231
L/M						0
L	86022	2.38	1.68	140	125	69972
L	86015	1.24	1.68	60	125	15624
L	86033	2.45	1.68	160	125	82320
L	86035	3.35	1.68	60	125	42210
K/L	86022	4.31	1.73	100	125	93204
K/L	86033	2.11	1.73	20	125	9126
K/L	86034	3.84	1.73	15	125	12456
K	86021	1.16	1.63	20	125	4727
K	86022	1.92	1.63	250	125	97800
K	86019	3.34	1.63	170	125	115689
K	86013	4.77	1.63	140	125	136064
K	86033	4.05	1.63	20	125	16504
K	86034	6.49	1.63	35	125	46282
K	86035	8.36	1.63	20	125	34067
K	86036	1.85	1.63	120	125	45233
J	86013	0.61	1.61	290	125	35601
J	86034	0.75	1.61	185	125	27923
J	86036	0.99	1.61	305	125	60767
I	86025	2.9	1.54	65	125	36286
I	86025	4.74	1.54	180	125	164241
I	86021	4.59	1.54	10	125	8836
I	86022	4.53	1.54	125	125	109003
I	86019	6.95	1.54	90	125	120409
I	85026	5.68	1.54	190	125	207746
I	86013	6.98	1.54	290	125	389659
I	86034	5.1	1.54	185	125	181624
I	86035	1.23	1.54	20	125	4736
I	86036	5.15	1.54	300	125	297413
H/I						0
H	85027	2.25	1.67	360	125	169088
H	85026	3.43	1.67	250	125	179003
H	86035	1.16	1.67	290	125	70224

H	86036	2.17	1.67	300	125	135896
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3285574

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1500

SECTION : 1500 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	130	125	49603
N	86025	1.05	1.69	130	125	28836
N	85027	2.17	1.69	40	125	18337
M/N						0
M	86033	5.83	1.71	220	125	274156
L/M						0
L	86022	2.38	1.68	170	125	84966
L	86015	1.24	1.68	370	125	96348
L	86011	4.91	1.68	130	125	134043
L	86033	2.45	1.68	240	125	123480
K/L	86019	4.43	1.73	20	125	19160
K/L	86011	1.7	1.73	110	125	40439
K/L	86033	2.11	1.73	90	125	41066
K/L	86034	3.84	1.73	40	125	33216
K	86021	1.16	1.63	420	125	99267
K	86022	1.92	1.63	55	125	21516
K	86016	3.34	1.63	15	125	10208
K	86019	3.34	1.63	5	125	3403
K	86015	3.98	1.63	220	125	178404
K	86013	4.77	1.63	60	125	58313
K	86033	5.03	1.63	150	125	153729
K	86034	6.49	1.63	40	125	52894
J	86013	0.61	1.61	280	125	34374
J	86034	0.75	1.61	140	125	21131
J	86036	0.99	1.61	20	125	3985
I	86025	2.9	1.54	200	125	111650
I	86025	4.74	1.54	150	125	136868
I	86021	4.54	1.54	110	125	96135
I	86021	4.59	1.54	150	125	132536
I	86022	4.53	1.54	80	125	69762
I	86019	6.95	1.54	15	125	20068
I	85026	5.69	1.54	160	125	175252
I	86013	6.98	1.54	280	125	376222
I	86034	5.1	1.54	140	125	137445
I	86036	5.15	1.54	60	125	59483
H/I						0
H	85027	2.25	1.67	50	125	23484
H	85026	3.43	1.67	280	125	200484
H	86036	2.17	1.67	220	125	99657

PH	0
GU	0
GL	0
F/G	0
F	0
E	0
D	0
C	0
B	0
A	0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3219916

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1625

SECTION : 1625 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	30	125	11447
N	86025	1.05	1.69	30	125	6654
M/N						0
M	86019	0.68	1.71	80	125	11628
M	86033	5.83	1.71	60	125	74770
L/M						0
L	86015	1.24	1.68	165	125	42966
L	86011	4.91	1.68	140	125	144354
K/L	86015	0.5	1.73	20	125	2163
K/L	86011	1.7	1.73	90	125	33086
K/L	86034	3.84	1.73	130	125	107952
K	86021	1.16	1.63	120	125	28362
K	86016	2.61	1.63	30	125	15954
K	86015	3.98	1.63	170	125	137857
K	86013	4.77	1.63	280	125	272129
K	86033	5.03	1.63	30	125	30746
K	86034	6.49	1.63	300	125	396701
J	86013	0.61	1.61	540	125	66292
J	86030	0.82	1.61	120	125	19803
J	86034	0.75	1.61	230	125	34716
J	86036	0.99	1.61	40	125	7970
I	86025	2.9	1.54	20	125	11165
I	86021	4.59	1.54	170	125	150208
I	86019	6.95	1.54	220	125	294333
I	85026	5.68	1.54	270	125	295218
I	86013	6.98	1.54	580	125	779317
I	86030	5.59	1.54	120	125	129129
I	86034	5.1	1.54	230	125	225803
I	86036	5.15	1.54	145	125	143749
H/I						0
H	85028	4.08	1.67	430	125	366231
H	85025	3.72	1.67	270	125	209669
H	85026	3.43	1.67	285	125	204064
H	86030	2.97	1.67	360	125	223196
H	86036	2.17	1.67	215	125	97392
PH						0
GU						0
GL						0
F/G						0

F	0
E	0
D	0
C	0
B	0
A	0

SEAMS $\geq 0.5m$

TOTAL TONNES FOR THIS SECTION :

4575020

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND1750

SECTION : 1750 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	100	125	38156
N	86025	1.05	1.69	100	125	22181
M/N						0
M						0
L/M						0
L	86014	3.05	1.68	190	125	121695
L	86015	1.24	1.68	160	125	41664
L	86011	4.91	1.68	110	125	113421
K/L	86027	5.8	1.73	240	125	301020
K	86027	2.77	1.63	210	125	118521
K	86021	1.16	1.63	70	125	16545
K	86016	2.61	1.63	160	125	85086
K	86014	2.58	1.63	390	125	205013
K	86015	3.98	1.63	240	125	194622
K	86034	6.49	1.63	60	125	79340
J	86010	1.07	1.61	280	125	60295
J	86030	0.82	1.61	125	125	20628
I	86025	2.9	1.54	120	125	66990
I	86025	4.74	1.54	60	125	54747
I	85028	4.74	1.54	40	125	36498
I	86021	4.54	1.54	70	125	61177
I	86021	4.59	1.54	50	125	44179
I	85025	4.42	1.54	210	125	178679
I	85022	4.69	1.54	120	125	108339
I	85026	5.68	1.54	120	125	131208
I	86009	5.8	1.54	310	125	346115
I	86010	5.15	1.54	290	125	287499
I	86030	5.59	1.54	205	125	220595
I	86036	5.15	1.54	20	125	19828
H/I						0
H	85028	4.08	1.67	265	125	225701
H	85025	3.72	1.67	200	125	155310
H	85022	3.66	1.67	110	125	84043
H	85026	3.43	1.67	120	125	85922
H	86010	3.91	1.67	280	125	228540
H	86030	2.97	1.67	205	125	127097
H	86036	2.17	1.67	20	125	9060
PH						0
GU						0

GL	0
F/G	0
F	0
E	0
D	0
C	0
B	0
A	0

SEAMS $\geq 0.5m$

TOTAL TONNES FOR THIS SECTION :

3889711

SECTION : 1875 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86012	1.46	1.65	200	125	60225
N	86012	1.42	1.69	280	125	83993
M/N						0
M						0
L/M						0
L	86014	3.05	1.68	165	125	105683
L	86015	1.24	1.68	330	125	85932
L	86011	4.91	1.68	210	125	216531
K/L						0
K	86027	2.77	1.63	120	125	67727
K	86014	2.58	1.63	230	125	120905
K	86009	5.81	1.63	170	125	201244
J	86010	1.07	1.61	35	125	7537
I	86027	0.95	1.54	170	125	31089
I	85028	4.74	1.54	50	125	45623
I	85022	4.69	1.54	95	125	85768
I	86017	5.15	1.54	95	125	94181
I	86009	5.8	1.54	190	125	212135
I	86010	5.15	1.54	35	125	34698
I	86030	5.59	1.54	90	125	96847
H/I						0
H	86029	1.22	1.67	10	125	2547
H	85028	4.08	1.67	310	125	264027
H	85022	3.66	1.67	80	125	61122
H	86017	4.45	1.67	95	125	88249
H	86010	3.91	1.67	90	125	73459
H	86030	2.97	1.67	130	125	80598
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2120118

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND2000

SECTION : 2000 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86012	1.46	1.65	70	125	21079
N	86027	1.81	1.69	160	125	61178
N	86012	1.42	1.69	270	125	80993
M/N						0
M						0
L/M						0
L	86014	3.05	1.68	130	125	83265
K/L	86031	9.54	1.73	20	125	41261
K/L	86027	5.8	1.73	270	125	338648
K	86029	2.96	1.63	80	125	48248
K	86027	2.77	1.63	370	125	208823
K	84006	2.88	1.63	30	125	17604
K	86014	2.58	1.63	130	125	68338
K	86009	5.81	1.63	145	125	171649
J	84006	3.56	1.61	450	125	322403
J	86010	1.07	1.61	45	125	9690
J	86030	0.82	1.61	110	125	18153
I	86029	4.42	1.54	80	125	68068
I	86027	0.95	1.54	160	125	29260
I	85028	4.74	1.54	40	125	36498
I	86018	1.62	1.54	50	125	15593
I	86017	5.15	1.54	90	125	89224
I	84006	5.04	1.54	430	125	417186
I	86009	5.8	1.54	145	125	161893
I	86007	5.57	1.54	20	125	21445
I	86010	5.15	1.54	15	125	14871
I	86032	3.08	1.54	70	125	41503
H/I						0
H	86029	1.22	1.67	460	125	117151
H	85028	4.08	1.67	130	125	110721
H	86018	0.82	1.67	40	125	6847
H	86017	4.45	1.67	80	125	74315
H	84006	5.8	1.67	380	125	460085
H	86007	3.66	1.67	20	125	15281
H	86010	3.91	1.67	15	125	12243
H	86032	4.92	1.67	110	125	112976
PH	86018	3.8	1.81	40	125	34390
GU						0
GL						0

F/G	0
F	0
E	0
D	0
C	0
B	0
A	0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION : 3330877

SECTION : 2125 W
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86012	1.46	1.65	10	125	3011
N	86012	1.42	1.69	145	125	43496
M/N						0
M	85023	14.24	1.71	220	125	669636
M	85005	2.93	1.71	110	125	68892
M	85010	4.6	1.71	330	125	324473
L/M						0
L	86014	3.05	1.68	200	125	128100
L	85010	1.81	1.68	370	125	140637
K/L						0
K	86029	2.96	1.63	200	125	120620
K	86027	2.77	1.63	100	125	56439
K	85023	4.47	1.63	240	125	218583
K	86014	2.58	1.63	290	125	152446
K	85010	3.96	1.63	230	125	185576
K	86004	3.44	1.63	140	125	98126
K	86004	5.48	1.63	40	125	44662
J	84006	3.56	1.61	330	125	236429
I	86031	4.49	1.54	110	125	95076
I	86029	4.42	1.54	160	125	136136
I	86027	0.95	1.54	40	125	7315
I	86018	1.62	1.54	195	125	60811
I	85024	6.45	1.54	20	125	24833
I	86017	5.15	1.54	60	125	59483
I	84006	5.04	1.54	160	125	155232
I	86004	5.27	1.54	245	125	248546
I	86007	5.57	1.54	45	125	48250
I	86032	3.08	1.54	40	125	23716
H/I						0
H	86031	6.54	1.67	195	125	266219
H	86029	1.22	1.67	200	125	50935
H	86018	0.82	1.67	160	125	27388
H	86017	4.45	1.67	60	125	55736
H	84006	5.8	1.67	160	125	193720
H	86004	7.11	1.67	250	125	371053
H	86007	3.66	1.67	45	125	34381
H	86032	4.92	1.67	160	125	164328
PH	86031	2.32	1.81	80	125	41992
PH	86018	3.8	1.81	160	125	137560

GU						0
GL						0
F/G						0
F	84007	1.07	1.72	450	125	103523
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION : 4797356

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND2250

SECTION : 2250 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	40	125	10973
O	86012	1.46	1.65	100	125	30113
N	86012	1.42	1.69	135	125	40497
M/N						0
M	85023	14.24	1.71	15	125	45657
M	85005	2.93	1.71	140	125	87680
M	85010	4.6	1.71	70	125	68828
L/M						0
L	85023	4.57	1.68	5	125	4799
L	85010	1.81	1.68	150	125	57015
K/L	86004	3.76	1.73	120	125	97572
K	86029	2.96	1.63	30	125	18093
K	85023	4.47	1.63	5	125	4554
K	85005	3.1	1.63	110	125	69479
K	85010	3.96	1.63	40	125	32274
K	86004	5.48	1.63	10	125	11166
J	84006	3.56	1.61	145	125	103885
I	86031	4.49	1.54	40	125	34573
I	86029	4.42	1.54	130	125	110611
I	86018	1.62	1.54	110	125	34304
I	85024	6.45	1.54	130	125	161411
I	84006	5.04	1.54	130	125	126126
I	86004	5.27	1.54	180	125	182606
I	86007	5.57	1.54	70	125	75056
I	84007	5.43	1.54	80	125	83622
I	86032	3.08	1.54	30	125	17787
H/I						0
H	86031	6.58	1.67	40	125	54943
H	86029	1.22	1.67	140	125	35655
H	86002	4.84	1.67	160	125	161656
H	85024	4.62	1.67	40	125	38577
H	84006	5.8	1.67	130	125	157398
H	86004	7.11	1.67	180	125	267158
H	86007	3.66	1.67	70	125	53482
H	84007	3.98	1.67	90	125	74774
H	86032	4.92	1.67	30	125	30812
PH	86031	2.32	1.81	40	125	20996
PH	86002	0.84	1.81	160	125	30408
PH	86008	4.67	1.81	100	125	105659

PH	84007	2.98	1.81	260	125	175299
GU						0
GL						0
F/G						0
F	85006	3.1	1.72	180	125	119970
F	84007	1.07	1.72	255	125	58663
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2894124

SECTION : 2375 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (M)	SPECIFIC GRAVITY (T/M ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	85010	4.6	1.71	20	125	19665
L/M						0
L	85010	1.81	1.68	130	125	49413
K/L	86004	3.76	1.73	15	125	12197
K	85010	3.96	1.63	25	125	20171
K	86004	3.44	1.63	30	125	21027
J	84006	3.56	1.61	100	125	71645
I	86031	4.49	1.54	110	125	95076
I	86029	4.42	1.54	150	125	127628
I	85009	4.9	1.54	140	125	132055
I	84006	5.04	1.54	100	125	97020
J	85017	5.37	1.54	105	125	108541
I	86004	5.27	1.54	130	125	131882
I	85011	1.75	1.54	20	125	6738
I	84007	5.43	1.54	30	125	31358
H/I						0
H	86031	6.58	1.67	160	125	219772
H	86029	1.22	1.67	240	125	61122
H	86002	4.84	1.67	270	125	272795
H	85006	2.76	1.67	130	125	74900
H	84006	5.8	1.67	630	125	762773
H	85017	4.67	1.67	105	125	102361
H	86004	7.11	1.67	130	125	192948
H	84007	3.98	1.67	120	125	99699
PH	86031	2.32	1.81	160	125	83984
PH	86002	0.84	1.81	70	125	13304
PH	86008	4.67	1.81	210	125	221883
PH	84007	2.98	1.81	150	125	101134
GU	85006	3.49	1.83	230	125	183618
GU	85017	3.8	1.83	310	125	269468
GL						0
F/G						0
F	85006	3.1	1.72	690	125	459885
F	85017	1.93	1.72	310	125	128635
F	84007	1.07	1.72	250	125	57513
E	85017	2.34	1.55	290	125	131479
E	84007	1	1.55	250	125	48438
D						0
C						0
B						0
A						0

SEAMS >=0.5m

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND2500

SECTION : 2500 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	90	125	24688
O	85005	0.67	1.65	90	125	12437
N						0
M/N						0
M	85023	14.24	1.71	140	125	426132
M	85005	2.93	1.71	310	125	194149
M	85010	4.6	1.71	220	125	216315
L/M						0
L	85009	4.46	1.68	220	125	206052
L	85010	1.81	1.68	320	125	121632
K/L						0
K	85009	3.27	1.63	90	125	59964
K	85009	2.81	1.63	90	125	51528
K	85005	3.1	1.63	200	125	126325
K	85010	3.96	1.63	120	125	96822
K	85011	3.47	1.63	25	125	17675
I	85009	4.9	1.54	140	125	132055
I	84008	3.86	1.54	220	125	163471
I	85017	5.37	1.54	145	125	149890
I	86008	3.49	1.54	10	125	6718
H/I						0
H	85006	2.76	1.67	575	125	331286
H	84006	5.8	1.67	70	125	84753
H	84008	6.41	1.67	220	125	294379
H	85017	4.67	1.67	145	125	141355
H	86008	5.43	1.67	60	125	68011
H	84007	3.98	1.67	190	125	157857
PH	86031	2.32	1.81	300	125	157470
PH	85017	4.41	1.81	195	125	194564
PH	86008	4.67	1.81	60	125	63395
PH	84007	2.98	1.81	320	125	215752
GU	85006	3.49	1.83	330	125	263451
GU	84008	3.28	1.83	220	125	165066
GU	85017	3.8	1.83	300	125	260775
GL						0
F/G						0
F	85006	3.1	1.72	160	125	106640
F	85017	1.93	1.72	345	125	143158
F	84007	1.07	1.72	490	125	112725

E	85006	0.91	1.55	150	125	26447
E	85017	2.34	1.55	245	125	111077
E	84007	1	1.55	480	125	93000
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4997014

SECTION : 2625 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	240	125	65835
N	85003	1.58	1.69	100	125	33378
M/N						0
M	82005	2.24	1.71	220	125	105336
M	85005	2.93	1.71	320	125	200412
M	85010	4.6	1.71	30	125	29498
L/M						0
L	85009	4.46	1.68	410	125	384006
L	84008	4.49	1.68	235	125	221582
K/L						0
K	84008	3.93	1.63	580	125	464428
J						0
I	82005	4.98	1.54	190	125	182144
I	85009	4.9	1.54	195	125	183934
I	84008	3.86	1.54	200	125	148610
I	85017	5.37	1.54	20	125	20675
H/I						0
H	86001	2.84	1.67	560	125	331996
H	85006	2.76	1.67	260	125	149799
H	84008	6.41	1.67	200	125	267618
H	85017	4.67	1.67	20	125	19497
H	86008	5.43	1.67	20	125	22670
PH	85017	4.41	1.81	170	125	169620
PH	86008	4.67	1.81	80	125	84527
GU	85006	3.49	1.83	710	125	566820
GU	84008	3.28	1.83	130	125	97539
GU	85017	3.8	1.83	60	125	52155
GU	85019	1.29	1.83	290	125	85575
GL	85017	0.97	1.81	45	125	9876
F/G						0
F	85006	3.1	1.72	330	125	219945
F	85017	1.93	1.72	200	125	82990
F	85019	4.21	1.72	300	125	271545
E	85006	0.91	1.55	180	125	31736
E	85017	2.34	1.55	200	125	90675
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4594418

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND2750

SECTION : 2750 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	85003	1.44	1.69	100	125	30420
M/N						0
M	82005	2.24	1.71	290	125	138852
L/M						0
L	82005	5.75	1.68	120	125	144900
L	85012	1.37	1.68	100	125	28770
L	84008	4.49	1.68	90	125	84861
K/L						0
K	82005	5.16	1.63	80	125	84108
K	85012	1.74	1.63	110	125	38998
K	84008	3.93	1.63	115	125	92085
J						0
I	82005	4.98	1.54	130	125	124625
I	84008	3.86	1.54	130	125	96597
I	85017	5.37	1.54	170	125	175733
I	86008	3.49	1.54	10	125	6718
I	85001	4.38	1.54	230	125	193925
H/I						0
H	85004	3.96	1.67	170	125	140531
H	85012	3.21	1.67	300	125	201026
H	84008	6.41	1.67	90	125	120428
H	85017	4.67	1.67	170	125	165727
H	86008	5.43	1.67	90	125	102016
H	85001	2.15	1.67	340	125	152596
PH	85017	4.41	1.81	80	125	79821
GU	85004	4.92	1.83	420	125	472689
GU	84008	3.28	1.83	175	125	131303
GU	85017	3.8	1.83	180	125	156465
GU	85019	1.29	1.83	25	125	7377
GU	85001	0.94	1.83	500	125	107513
GL	85017	0.97	1.81	180	125	39503
F/G	85019	0.51	1.86	90	125	10672
F	85020	2.49	1.72	320	125	171312
F	85004	2.35	1.72	280	125	141470
F	85013	4.21	1.72	370	125	334906
F	85017	1.93	1.72	230	125	95439
F	85019	4.21	1.72	115	125	104092
E	85020	1.91	1.55	320	125	118420

E	85004	2.23	1.55	190	125	82092
E	85017	2.34	1.55	300	125	136013
D	85020	4.74	1.71	330	125	334348
C	85020	1.19	1.49	330	125	73140
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4719487

SECTION : 2875 M
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	290	125	138852
L/M						0
L	82005	5.75	1.68	20	125	24150
L	85012	1.37	1.68	75	125	21578
L	84008	4.49	1.68	110	125	103719
K/L						0
K	82005	5.16	1.63	20	125	21027
K	85012	1.74	1.63	45	125	15954
K	85013	0.98	1.63	30	125	5990
J						0
I	82005	4.98	1.54	170	125	162971
I	86005	4.79	1.54	30	125	27662
I	85013	6.16	1.54	130	125	154154
H/I						0
H	85004	3.96	1.67	390	125	322394
H	85012	3.21	1.67	165	125	110564
H	85013	4.37	1.67	30	125	27367
H	86006	5.89	1.67	130	125	159840
PH	85017	4.41	1.81	25	125	24944
GU	83001	3.93	1.83	260	125	233737
GU	85004	4.92	1.83	5	125	5627
GU	85017	3.8	1.83	25	125	21731
GU	85019	1.29	1.83	130	125	38361
GU	85001	0.94	1.83	280	125	60207
GL						0
F/G						0
F	85020	2.49	1.72	240	125	128484
F	83001	4.79	1.72	100	125	102985
F	85013	4.21	1.72	300	125	271545
F	85017	1.93	1.72	25	125	10374
F	85019	4.21	1.72	145	125	131247
E	85020	1.91	1.55	235	125	86965
E	83001	1.32	1.55	100	125	25575
E	85017	2.34	1.55	100	125	45338
D	85020	4.74	1.71	320	125	324216
C	85020	1.19	1.49	310	125	68708
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2876264

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND3000

SECTION : 3000 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	140	125	67032
L/M						0
L	82005	5.75	1.68	45	125	54338
L	85012	1.37	1.68	130	125	37401
K/L	85012	1.49	1.73	470	125	151440
K	82005	5.16	1.63	360	125	378486
K	85012	1.74	1.63	140	125	49634
K	85013	0.98	1.63	25	125	4992
J						0
I	85032	5.47	1.54	110	125	115827
I	82005	4.98	1.54	170	125	162971
I	85016	5.55	1.54	40	125	42735
I	86005	4.79	1.54	110	125	101428
I	85001	4.38	1.54	60	125	50589
H/I						0
H	83001	4.54	1.67	255	125	241670
H	85004	3.96	1.67	230	125	190130
H	85012	3.21	1.67	170	125	113915
H	85013	4.37	1.67	5	125	4561
H	86006	5.89	1.67	10	125	12295
H	85001	2.15	1.67	150	125	67322
PH						0
GU	83001	3.93	1.83	360	125	323636
GU	85004	4.92	1.83	70	125	78782
GU	85016	0.79	1.83	200	125	36143
GU	85019	1.29	1.83	200	125	59018
GU	85001	0.94	1.83	290	125	62357
GL	83001	2.25	1.81	200	125	101813
F/G						0
F	85020	2.49	1.72	160	125	85656
F	83001	4.79	1.72	20	125	20597
F	85016	2.13	1.72	200	125	91590
F	85013	4.21	1.72	290	125	262494
F	85019	4.21	1.72	230	125	208185
E	85020	1.91	1.55	160	125	59210
E	83001	1.32	1.55	20	125	5115

E	85016	2.22	1.55	270	125	116134
D	85020	4.74	1.71	310	125	314084
D	85016	2.41	1.71	220	125	113330
C	85020	1.19	1.49	480	125	106386
B						0
A						0

SEAMS $\geq 0.5m$

TOTAL TONNES FOR THIS SECTION :

3891291

SECTION : 3125 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L	85012	1.37	1.68	330	125	94941
K/L						0
K	85012	1.74	1.63	340	125	120539
J						0
I	85031	4.54	1.54	460	125	402017
I	85030	3.98	1.54	10	125	7662
I	85016	5.55	1.54	205	125	219017
I	85001	4.38	1.54	100	125	84315
H/I						0
H	83001	4.54	1.67	570	125	540203
H	85016	6.75	1.67	205	125	288858
H	86005	2.94	1.67	90	125	55235
H	85001	2.15	1.67	250	125	112203
PH	85016	2.07	1.81	375	125	175627
GU	83001	3.93	1.83	840	125	755150
GU	85016	0.79	1.83	365	125	65960
GU	85019	1.29	1.83	280	125	82625
GL						0
F/G						0
F	85020	2.49	1.72	260	125	139191
F	83001	4.79	1.72	450	125	463433
F	85016	2.13	1.72	365	125	167152
F	85013	4.21	1.72	310	125	280597
E	85020	1.91	1.55	110	125	40707
E	83001	1.32	1.55	260	125	66495
E	85016	2.22	1.55	415	125	178502
D	85020	4.74	1.71	190	125	192503
D	85016	2.41	1.71	415	125	213782
C	85020	1.19	1.49	190	125	42111
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

478822

SECTION : 3250 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K	85012	1.74	1.63	15	125	5318
J						0
I	85031	4.54	1.54	410	125	358320
I	85014	5.46	1.54	110	125	115616
I	85016	5.55	1.54	115	125	122863
I	86005	4.79	1.54	60	125	55325
H/I						0
H	83001	4.54	1.67	110	125	104250
H	85014	2.09	1.67	105	125	45810
H	85016	6.75	1.67	120	125	169088
H	86005	2.94	1.67	110	125	67510
PH	85016	2.07	1.81	260	125	121768
GU	85016	0.79	1.83	310	125	56021
GL						0
F/G						0
F	85015	2.73	1.72	90	125	52826
F	85014	2.71	1.72	110	125	64092
F	85016	2.13	1.72	260	125	119067
E	85015	0.95	1.55	110	125	20247
E	85016	2.22	1.55	310	125	133339
D	85016	2.41	1.71	315	125	162268
C	85020	1.19	1.49	20	125	4433
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1778157

SECTION : 3375 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85014	5.46	1.54	460	125	483483
I	85016	5.55	1.54	30	125	32051
H/I						0
H	85014	2.09	1.67	370	125	161426
H	85016	6.75	1.67	30	125	42272
H	86003	3.34	1.67	90	125	62750
PH	85016	2.07	1.81	215	125	100693
GU	85016	0.79	1.83	380	125	68671
GL						0
F/G						0
F	85015	2.73	1.72	80	125	46956
F	85014	2.71	1.72	155	125	90311
F	85016	2.13	1.72	225	125	103039
E	85015	0.95	1.55	160	125	29450
E	85016	2.22	1.55	380	125	163448
D	85016	2.41	1.71	380	125	195752
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1580301

SECTION : 3500 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85014	5.46	1.54	310	125	325826
I	86003	7.25	1.54	10	125	13956
H/I						0
H	85014	2.09	1.67	180	125	78532
H	86003	3.34	1.67	10	125	6972
PH						0
GU						0
GL						0
F/G						0
F	85015	2.73	1.72	170	125	99782
F	85014	2.71	1.72	180	125	104877
F	85021	3.43	1.72	210	125	154865
E	85015	0.95	1.55	540	125	99394
E	85021	1.81	1.55	215	125	75398
D	85018	1.89	1.71	470	125	189874
D	85016	2.41	1.71	100	125	51514
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1200988

SECTION : 3625 N
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85014	5.46	1.54	250	125	262763
I	85018	2.61	1.54	25	125	12561
H/I						0
H	85014	2.09	1.67	240	125	104709
H	85018	3.63	1.67	25	125	18944
H	85021	5.55	1.67	40	125	46343
PH						0
GU						0
GL						0
F/G						0
F	85015	2.73	1.72	180	125	105651
F	85014	2.71	1.72	130	125	75745
F	85018	6.02	1.72	25	125	32358
F	85021	3.43	1.72	140	125	103243
E	85015	0.95	1.55	330	125	60741
E	85021	1.81	1.55	140	125	49096
D	85018	1.89	1.71	280	125	113117
D	85016	2.41	1.71	280	125	144239
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1129507

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND3750

SECTION : 3750 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I	85018	2.61	1.54	180	125	90437
H/I						0
H	85018	3.63	1.67	230	125	174285
H	85021	5.55	1.67	70	125	81099
PH						0
GU						0
GL						0
F/G						0
F	85018	6.02	1.72	140	125	181202
F	85021	3.43	1.72	150	125	110618
E	85021	1.81	1.55	150	125	52603
D	85018	1.89	1.71	310	125	125236
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

815480

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND3875

SECTION : 3875 M
 RESOURCE TYPE :INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H						0
PH						0
QU						0
GL						0
F/G						0
F	85018	6.02	1.72	250	125	323575
F	85021	3.43	1.72	470	125	346602
E	85021	1.81	1.55	390	125	136768
D	85018	1.89	1.71	400	125	161595
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

968540

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

IND4000

SECTION : 4000 N
 RESOURCE TYPE : INDICATED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H						0
PH						0
GU						0
GL						0
F/G						0
F	85021	3.43	1.72	40	125	29498
E	85021	1.81	1.55	120	125	42083
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

71581

SECTION : 1000 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86037	2.49	1.65	580	125	297866
N	85027	2.17	1.69	1030	125	472165
M/M						0
M	86037	6.78	1.71	20	125	28985
M	86022	1.52	1.71	30	125	9747
M	85027	1.2	1.71	950	125	243675
M	86033	5.83	1.71	960	125	1196316
L/M						0
L	86037	2.34	1.68	20	125	9828
L	86022	2.38	1.68	30	125	14994
L	85027	1.62	1.68	890	125	302778
L	86015	1.24	1.68	300	125	78120
L	86033	2.45	1.68	720	125	370440
L	86035	3.35	1.68	80	125	56280
K/L						0
K	86022	1.92	1.63	55	125	21516
K	85027	1.08	1.63	870	125	191444
K	86013	4.77	1.63	600	125	583133
K	86033	5.03	1.63	430	125	440691
K	86035	8.36	1.63	80	125	136268
J	86013	0.61	1.61	890	125	109259
I	86022	4.53	1.54	50	125	43601
I	85027	5.03	1.54	860	125	832717
I	86013	6.98	1.54	890	125	1195849
I	86035	1.23	1.54	245	125	58010
H/I						0
H	85027	2.25	1.67	950	125	446203
H	85026	3.43	1.67	130	125	93082
H	86035	1.16	1.67	710	125	171927
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

7404891

SECTION : 1125 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86037	2.49	1.65	760	125	390308
O	86012	1.46	1.65	30	125	9034
N	86025	1.05	1.69	580	125	128651
N	85027	2.17	1.69	790	125	362146
M/N						0
M	86037	6.78	1.71	490	125	710120
M	86022	1.52	1.71	200	125	64980
M	85027	1.2	1.71	500	125	128250
M	86033	5.83	1.71	640	125	797544
L/M						0
L	86037	2.34	1.68	470	125	230958
L	86022	2.38	1.68	240	125	119952
L	85027	1.62	1.68	580	125	197316
L	86015	1.24	1.68	430	125	111972
L	86033	2.45	1.68	300	125	154350
K/L						0
K	86022	1.92	1.63	930	125	363816
K	85027	1.08	1.63	590	125	129830
K	86015	3.98	1.63	30	125	24328
K	86013	4.77	1.63	660	125	641446
K	86033	5.03	1.63	70	125	71740
J	86013	0.61	1.61	950	125	116624
I	86025	2.9	1.54	60	125	33495
I	86025	4.74	1.54	60	125	54747
I	86022	4.53	1.54	330	125	287768
I	85027	5.03	1.54	400	125	387310
I	85026	5.68	1.54	290	125	317086
I	86013	6.98	1.54	930	125	1249595
I	86035	1.23	1.54	125	125	29597
H/I						0
H	85028	4.08	1.67	40	125	34068
H	85027	2.25	1.67	900	125	422719
H	85026	3.43	1.67	370	125	264925
H	86035	1.16	1.67	600	125	145290
PH						0
GU						0
GL						0
F/G						0
F						0
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF1250

SECTION : 1250 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	300	125	114469
O	86012	1.46	1.65	400	125	120450
N	86025	1.05	1.69	530	125	117561
N	85027	2.17	1.69	530	125	242959
N	86012	1.42	1.69	390	125	116990
M/N						0
M	86037	6.78	1.71	400	125	579690
M	86022	1.52	1.71	150	125	48735
M	85027	1.2	1.71	440	125	112860
M	86033	5.83	1.71	590	125	735236
L/M						0
L	86037	2.34	1.68	410	125	201474
L	86022	2.38	1.68	250	125	124950
L	85027	1.62	1.68	380	125	129276
L	86015	1.24	1.68	580	125	151032
L	86033	2.45	1.68	130	125	66885
K/L						0
K	86021	1.16	1.63	305	125	72087
K	86022	1.92	1.63	355	125	138876
K	85027	1.08	1.63	480	125	105624
K	86015	3.98	1.63	230	125	186513
K	86013	4.77	1.63	290	125	281847
J	86013	0.61	1.61	565	125	69361
J	86034	0.75	1.61	80	125	12075
I	86025	2.9	1.54	40	125	22330
I	86025	4.74	1.54	150	125	136868
I	86022	4.53	1.54	130	125	113363
I	85027	5.03	1.54	90	125	87145
I	85026	5.68	1.54	480	125	524832
I	86013	6.98	1.54	510	125	685262
I	86034	5.1	1.54	90	125	88358
I	86035	1.23	1.54	50	125	11839
H/I						0
H	85028	4.08	1.67	170	125	144789
H	85027	2.25	1.67	395	125	185527
H	85026	3.34	1.67	600	125	418335
H	86035	1.16	1.67	545	125	131972
PH						0
GU						0

GL	0
F/G	0
F	0
E	0
D	0
C	0
B	0
A	0

SEAMS $\geq 0.5m$

TOTAL TONNES FOR THIS SECTION :

6279566

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF1375

SECTION : 1375 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86025	1.85	1.65	70	125	26709
O	86012	1.46	1.65	240	125	72270
N	86025	1.05	1.69	220	125	48799
N	85027	2.17	1.69	240	125	110019
N	86012	1.42	1.69	320	125	95992
M/N						0
M	86037	6.78	1.71	150	125	217384
M	86022	1.52	1.71	250	125	81225
M	86019	0.68	1.71	310	125	45059
M	86033	5.83	1.71	520	125	648005
L/M						0
L	86037	2.34	1.68	200	125	98280
L	86022	2.38	1.68	310	125	154938
L	86019	1.86	1.68	198	125	74214
L	86014	3.05	1.68	160	125	102480
L	86015	1.24	1.68	580	125	151032
L	86033	2.45	1.68	15	125	7718
K/L						0
K	86021	1.16	1.63	540	125	127629
K	86019	3.34	1.63	380	125	258600
K	86014	2.58	1.63	160	125	84108
K	86015	3.98	1.63	380	125	308152
K	86013	4.77	1.63	70	125	68032
J	86013	0.61	1.61	480	125	58926
I	86025	2.9	1.54	130	125	72573
I	86025	4.74	1.54	40	125	36498
I	86021	4.54	1.54	30	125	26219
I	86021	2.59	1.54	40	125	19943
I	85026	5.68	1.54	450	125	492030
I	86013	6.98	1.54	395	125	530742
H/I						0
H	85028	4.08	1.67	330	125	281061
H	85027	2.25	1.67	190	125	89241
H	85026	3.43	1.67	540	125	386647
H	86010	3.91	1.67	70	125	57135
H	86030	2.97	1.67	90	125	55799
H	86035	1.16	1.67	295	125	71434
PH						0
GU						0

GL						0
F/G						0
F	84007	1.07	1.72	220	125	50611
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

5009500

SECTION : 1500 M
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
D	86012	1.46	1.65	110	125	33124
N	86012	1.42	1.69	430	125	128989
M/N						0
M	86022	1.52	1.71	190	125	61731
M	86019	0.68	1.71	250	125	36338
M	85023	16.72	1.71	30	125	107217
M	86033	5.83	1.71	500	125	623081
L/M						0
L	86022	2.38	1.68	160	125	79968
L	86014	3.05	1.68	360	125	230580
L	86015	1.24	1.68	270	125	70308
L	86033	2.45	1.68	10	125	5145
K/L						0
K	86027	2.77	1.63	20	125	11288
K	86021	1.16	1.63	190	125	44907
K	86019	3.34	1.63	200	125	136105
K	86014	2.58	1.63	360	125	189243
K	86015	3.98	1.63	270	125	218950
J	86013	0.61	1.61	430	125	52788
I	85026	5.68	1.54	415	125	453761
I	86013	6.98	1.54	350	125	470278
H/I						0
H	85028	4.08	1.67	540	125	459918
H	85027	2.25	1.67	230	125	108028
H	85026	3.43	1.67	460	125	329366
H	86010	3.91	1.67	110	125	89783
H	86030	2.97	1.67	360	125	223196
H	86036	2.17	1.67	30	125	13590
PH						0
GU						0
GL						0
F/G						0
F	84007	1.07	1.72	820	125	188641
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4366321

SECTION : 1625 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	86012	1.42	1.69	110	125	32997
M/N						0
M	86022	1.52	1.71	180	125	58482
M	85023	16.72	1.71	170	125	607563
M	85010	4.6	1.71	200	125	196650
M	86033	5.83	1.71	210	125	261694
L/M						0
L	86022	2.38	1.68	150	125	74970
L	86014	3.05	1.68	290	125	185745
L	86015	1.24	1.68	150	125	39060
K/L	86027	5.8	1.73	200	125	250850
K	86027	2.77	1.63	120	125	67727
K	86014	2.58	1.63	380	125	199757
K	86015	3.98	1.63	150	125	121639
K	86034	6.49	1.63	10	125	13223
J	86013	0.61	1.61	190	125	23325
I	85026	5.68	1.54	410	125	448294
I	86009	5.8	1.54	240	125	267960
I	86013	6.98	1.54	180	125	241857
H/I						0
H	85028	4.08	1.67	170	125	144789
H	85025	3.72	1.67	20	125	15531
H	85026	3.43	1.67	395	125	282825
H	86010	3.91	1.67	180	125	146918
H	86030	2.97	1.67	30	125	18600
PH						0
GU						0
GL						0
F/G						0
F	85006	3.1	1.72	610	125	406565
F	84007	1.07	1.72	1420	125	326671
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4433691

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF1750

SECTION : 1750 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	86012	1.42	1.69	270	125	80993
M/N						0
M	86022	1.52	1.71	190	125	61731
M	86019	0.68	1.71	80	125	11628
M	85023	16.72	1.71	190	125	679041
M	85010	4.6	1.71	240	125	235980
M	86033	5.83	1.71	110	125	137078
L/M						0
L	86022	2.38	1.68	170	125	84966
L	86014	3.05	1.68	160	125	102480
L	86015	1.24	1.68	110	125	28644
K/L						0
K	86014	2.58	1.63	190	125	99878
K	86015	3.98	1.63	110	125	89202
K	86034	6.49	1.63	70	125	92564
J	84006	3.56	1.61	130	125	93139
I	85026	5.68	1.54	470	125	513898
I	86009	5.8	1.54	390	125	435435
H/I						0
H	85028	4.08	1.67	170	125	144789
H	85026	3.43	1.67	300	125	214804
H	84006	5.8	1.67	10	125	12108
PH	86008	4.67	1.81	15	125	15849
GU	85017	3.8	1.83	60	125	52155
GL						0
F/G						0
F	85006	3.1	1.72	1220	125	813130
F	85017	1.93	1.72	220	125	91289
F	84007	1.07	1.72	1130	125	259957
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4350736

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF1875

SECTION : 1875 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	86012	1.46	1.65	15	125	4517
N	86012	1.42	1.69	60	125	17999
M/N						0
M	86022	1.52	1.71	290	125	94221
M	85023	14.24	1.71	70	125	213066
M	85023	16.72	1.71	110	125	393129
M	85010	4.6	1.71	310	125	304808
L/M						0
L	86016	2.29	1.68	290	125	139461
L	86014	3.05	1.68	110	125	70455
L	86015	1.24	1.68	100	125	26040
K/L						0
K	86014	2.58	1.63	90	125	47311
K	86009	5.81	1.63	90	125	106541
J	84006	3.56	1.61	500	125	358225
I	86017	5.15	1.54	110	125	109051
I	84006	5.04	1.54	450	125	436590
I	86009	5.8	1.54	260	125	290290
H/I						0
H	86029	1.22	1.67	255	125	64942
H	85028	4.08	1.67	40	125	34068
H	86017	4.45	1.67	80	125	74315
H	84006	5.8	1.67	425	125	514569
PH	85017	4.41	1.81	120	125	119732
PH	86008	4.67	1.81	150	125	158488
PH	84007	2.98	1.81	100	125	67423
GU	85017	3.8	1.83	220	125	191235
GL						0
F/G						0
F	85006	3.1	1.72	1430	125	953095
F	85017	1.93	1.72	520	125	215774
F	84007	1.07	1.72	1010	125	232351
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

5237693

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2000

SECTION : 2000 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	86022	1.52	1.71	230	125	74727
M	85023	14.24	1.71	90	125	273942
M	85023	16.72	1.71	90	125	321651
M	85005	2.93	1.71	30	125	18789
M	85010	4.6	1.71	290	125	285143
L/M						0
L	86016	2.29	1.68	310	125	149079
L	86014	3.05	1.68	45	125	28823
L	85010	1.81	1.68	190	125	72219
L	86015	1.24	1.68	20	125	5208
L	86011	4.91	1.68	70	125	72177
K/L						0
K	86027	2.77	1.63	10	125	5644
k	86016	2.61	1.63	80	125	42543
k	86014	2.58	1.63	40	125	21027
k	86009	5.81	1.63	50	125	59189
J	84006	3.56	1.61	240	125	171948
I	84006	5.04	1.54	240	125	232848
I	86009	5.8	1.54	210	125	234465
H/I						0
H	84006	5.8	1.67	240	125	290580
PH	85017	4.41	1.81	230	125	229485
PH	86008	4.67	1.81	190	125	200752
PH	84007	2.98	1.81	330	125	222494
GU	85017	3.8	1.83	320	125	278160
GL						0
F/G						0
F	85006	3.1	1.72	1500	125	999750
F	85017	1.93	1.72	510	125	211625
F	84007	1.07	1.72	990	125	227750
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4730016

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2125

SECTION : 2125 M
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	86022	1.52	1.71	80	125	25992
L/H						0
L	86016	2.29	1.68	280	125	134652
L	85010	1.81	1.68	40	125	15204
K/L						0
K	86027	2.77	1.63	60	125	33863
J	84006	3.56	1.61	190	125	136126
I	84006	5.04	1.54	195	125	189189
I	86004	5.27	1.54	210	125	213040
H/I						0
H	84006	5.8	1.67	190	125	230043
H	86004	7.11	1.67	210	125	311685
PH	85017	4.41	1.81	320	125	319284
PH	86008	4.67	1.81	230	125	243015
PH	84007	2.98	1.81	130	125	87649
GU	85006	3.49	1.83	380	125	303368
GU	85017	3.8	1.83	470	125	408548
GL						0
F/G						0
F	85006	3.1	1.72	1720	125	1146380
F	85017	1.93	1.72	610	125	253120
F	84007	1.07	1.72	500	125	115025
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

4166181

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2250

SECTION : 2250 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N	86027	1.81	1.69	50	125	19118
M/N						0
M						0
L/M						0
L	85010	1.81	1.68	20	125	7602
K/L						0
K						0
J	84006	3.56	1.61	170	125	121797
I	86029	4.42	1.54	25	125	21271
I	86018	1.62	1.54	40	125	12474
I	84006	5.04	1.54	170	125	164934
I	86004	5.27	1.54	160	125	162316
H/I						0
H	84006	5.8	1.67	180	125	217935
H	86004	7.11	1.67	160	125	237474
PH	85017	4.41	1.81	430	125	429038
PH	86008	4.67	1.81	180	125	190186
GU	85006	3.49	1.83	680	125	542870
GU	84008	3.28	1.83	70	125	52521
GU	85017	3.8	1.83	510	125	443318
GL						0
F/G						0
F	85020	2.49	1.72	370	125	198080
F	85006	3.1	1.72	1120	125	746480
F	85017	1.93	1.72	420	125	174279
F	84007	1.07	1.72	120	125	27606
E						0
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3769297

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2375

SECTION : 2375 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J	84006	3.56	1.61	110	125	78810
I	86029	4.42	1.54	120	125	102102
I	86018	1.62	1.54	10	125	3119
I	85024	6.45	1.54	70	125	86914
I	84006	5.04	1.54	110	125	106722
I	84008	3.86	1.54	130	125	96597
I	85017	5.37	1.54	110	125	113710
N/I						0
H	86029	1.22	1.67	50	125	12734
H	86002	4.84	1.67	70	125	70725
H	84006	5.8	1.67	110	125	133183
H	84008	6.41	1.67	130	125	173951
H	85017	4.67	1.67	110	125	107235
PH	86002	0.84	1.81	380	125	72219
PH	85017	4.41	1.81	290	125	289351
GU	85006	3.49	1.83	720	125	574803
GU	84008	3.28	1.83	210	125	157563
GU	85017	3.8	1.83	190	125	165158
GL						0
F/G						0
F	85020	2.49	1.72	600	125	321210
F	85006	3.1	1.72	400	125	266600
F	85017	1.93	1.72	280	125	116186
F	84007	1.07	1.72	40	125	9202
E	85017	2.34	1.55	80	125	36270
E	84007	1	1.55	40	125	7750
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3102111

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2500

SECTION : 2500 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K	86029	2.96	1.63	130	125	78403
J						0
I	86029	4.42	1.54	350	125	297798
I	86001	3.55	1.54	80	125	54670
I	85009	4.9	1.54	30	125	28298
I	84008	3.86	1.54	40	125	29722
H/I						0
H	86031	6.58	1.67	30	125	41207
H	86029	1.22	1.67	290	125	73856
H	86002	4.84	1.67	290	125	293002
H	84006	5.8	1.67	190	125	230043
H	84008	6.41	1.67	110	125	147190
PH	85017	4.41	1.81	180	125	179597
GU	85006	3.49	1.83	730	125	582786
GU	85017	3.8	1.83	30	125	26078
GL						0
F/G						0
F	85020	2.49	1.72	790	125	422927
F	85006	3.1	1.72	20	125	13330
F	85017	1.93	1.72	140	125	58093
F	84007	1.07	1.72	20	125	4601
E	85020	1.91	1.55	800	125	296050
E	85006	0.91	1.55	200	125	35263
E	85017	2.34	1.55	120	125	54405
E	84007	1	1.55	20	125	3875
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2951191

SECTION : 2625 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	50	125	23940
M	85005	2.93	1.71	60	125	37577
M	85010	4.6	1.71	70	125	68828
L/M						0
L	85009	4.46	1.68	15	125	14049
L	84008	4.49	1.68	20	125	18858
K/L						0
K	85009	3.27	1.63	15	125	9994
K	84008	3.93	1.63	20	125	16015
J						0
I	86029	4.42	1.54	205	125	174424
I	86001	3.55	1.54	110	125	75171
I	85009	4.9	1.54	15	125	14149
I	84008	3.86	1.54	20	125	14861
M/I						0
H	86031	6.58	1.67	30	125	41207
H	86029	1.22	1.67	230	125	58575
H	86002	4.84	1.67	70	125	70725
H	85012	3.21	1.67	70	125	46906
H	84008	6.41	1.67	70	125	93666
PH	86031	2.32	1.81	110	125	57739
PH	86002	0.84	1.81	120	125	22806
GJ	83001	3.93	1.83	390	125	350605
GJ	85006	3.49	1.83	320	125	255468
GL						0
F/G						0
F	85020	2.49	1.72	680	125	364038
F	85006	3.1	1.72	100	125	66650
F	85013	4.21	1.72	120	125	108618
F	85019	4.21	1.72	10	125	9052
F	84007	1.07	1.72	50	125	11503
E	85020	1.91	1.55	680	125	251643
E	85006	0.91	1.55	100	125	17631
E	85017	2.34	1.55	80	125	36270
E	84007	1	1.55	100	125	19375
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2350342

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2750

SECTION : 2750 M
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	190	125	52119
N						0
M/N						0
M	82005	2.24	1.71	90	125	43092
M	85005	2.93	1.71	130	125	81417
L/M						0
L						0
K/L						0
K						0
J						0
I	83001	5.51	1.54	100	125	106068
N/I						0
H	86031	6.58	1.67	60	125	82415
H	86029	1.22	1.67	70	125	17827
H	83001	4.54	1.67	330	125	312749
H	85004	3.96	1.67	55	125	45466
PH						0
GU	83001	3.93	1.83	510	125	458484
GU	85004	4.92	1.83	65	125	73154
GU	84008	3.28	1.83	110	125	82533
GL	84007	0.89	1.81	530	125	106722
F/G						0
F	85020	2.49	1.72	270	125	144545
F	85013	4.21	1.72	90	125	81464
F	84007	1.07	1.72	600	125	138030
E	85020	1.91	1.55	320	125	118420
E	85016	2.22	1.55	80	125	34410
E	85017	2.34	1.55	270	125	122411
D	85020	4.74	1.71	940	125	952385
D	85016	2.41	1.71	220	125	113330
C	85020	1.19	1.49	925	125	205015
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3372055

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF2875

SECTION : 2875 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O	85005	1.33	1.65	100	125	27431
N						0
M/N						0
M	82005	2.24	1.71	200	125	95760
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H	83001	4.54	1.67	400	125	379090
PH	86031	2.32	1.81	120	125	62988
GU	83001	3.93	1.83	500	125	449494
GU	85004	4.92	1.83	110	125	123800
GU	85016	0.79	1.83	40	125	7229
GL						0
F/G						0
F	85020	2.49	1.72	220	125	117777
F	85004	2.35	1.72	60	125	30315
F	85016	2.13	1.72	40	125	18318
F	85013	4.21	1.72	100	125	90515
F	85019	4.21	1.72	430	125	389215
F	84007	1.07	1.72	100	125	23005
E	85020	1.91	1.55	230	125	85114
E	85004	2.23	1.55	10	125	4321
E	85016	2.22	1.55	360	125	154845
E	85017	2.34	1.55	270	125	122411
D	85020	4.74	1.71	650	125	658564
D	85016	2.41	1.71	330	125	169995
C	85020	1.19	1.49	590	125	130766
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

3140952

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF3000

SECTION : 3000 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	40	125	19152
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H						0
PH						0
GU	83001	3.93	1.83	210	125	188787
GU	85004	4.92	1.83	70	125	78782
GU	85016	0.79	1.83	140	125	25300
GU	85019	1.29	1.83	20	125	5902
GL						0
F/G						0
F	85020	2.49	1.72	100	125	53535
F	85004	2.35	1.72	80	125	40420
F	85016	2.13	1.72	140	125	64113
F	85013	4.21	1.72	30	125	27155
F	85019	4.21	1.72	590	125	534039
E	85020	1.91	1.55	160	125	59210
E	85004	2.23	1.55	30	125	12962
E	85016	2.22	1.55	430	125	184954
E	85017	2.34	1.55	130	125	58939
D						0
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1353248

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF3125

SECTION : 3125 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	170	125	81396
L/M						0
L						0
K/L						0
K	85012	1.74	1.63	290	125	102812
J						0
I	85030	3.98	1.54	5	125	3831
I	85016	5.55	1.54	15	125	16026
I	85001	4.38	1.54	20	125	16863
H/I						0
H	83001	4.54	1.67	70	125	66341
H	85016	6.75	1.67	70	125	98634
H	85001	2.15	1.67	120	125	53858
PH	85016	2.07	1.81	90	125	42150
GU	83001	3.93	1.83	180	125	161818
GU	85016	0.79	1.83	70	125	12650
GU	85019	1.29	1.83	240	125	70821
GL						0
F/G						0
F	83001	4.79	1.72	40	125	41194
F	85016	2.13	1.72	70	125	32057
F	85013	4.21	1.72	80	125	72412
F	85019	4.21	1.72	730	125	660760
E	85016	2.22	1.55	290	125	124736
D	85020	4.74	1.71	520	125	526851
D	85016	2.41	1.71	260	125	133936
C	85020	1.19	1.49	470	125	104170
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2423314

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF3250

SECTION : 3250 M
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	120	125	57456
L/M						0
L	85012	1.37	1.68	370	125	106449
K/L						0
K	85012	1.74	1.63	20	125	7091
J						0
I	85014	5.46	1.54	50	125	52553
M/I						0
H	83001	4.54	1.67	360	125	341181
H	85014	2.09	1.67	140	125	61080
H	85001	2.15	1.67	70	125	31417
PH						0
GU	85016	0.79	1.83	40	125	7229
GU	85001	0.94	1.83	320	125	68808
GL						0
F/G						0
F	85016	2.13	1.72	20	125	9159
F	85013	4.21	1.72	160	125	144824
F	85019	4.21	1.72	600	125	543090
E	85015	0.95	1.55	40	125	7363
E	85016	2.22	1.55	270	125	116134
D	85020	4.74	1.71	810	125	820672
D	85016	2.41	1.71	270	125	139087
C	85020	1.19	1.49	680	125	150714
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

2664304

SECTION : 3375 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M	82005	2.24	1.71	20	125	9576
L/M						0
L	85012	1.37	1.68	190	125	54663
K/L						0
K						0
J						0
I						0
H/I						0
H	85014	2.09	1.67	250	125	109072
PK	85016	2.07	1.81	90	125	42150
GU	85016	0.79	1.83	230	125	41564
GL	83001	2.25	1.81	340	125	173081
F/G						0
F	85016	2.13	1.72	210	125	96170
F	85013	4.21	1.72	30	125	27155
F	85019	4.21	1.72	40	125	36206
E	85015	0.95	1.55	25	125	4602
E	85016	2.22	1.55	330	125	141941
D	85020	4.74	1.71	480	125	486324
D	85018	1.89	1.71	310	125	125236
D	85016	2.41	1.71	360	125	185450
C	85020	1.19	1.49	690	125	152930
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1686119

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF3500

SECTION : 3500 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L	85012	1.37	1.68	190	125	54663
K/L						0
K						0
J						0
I						0
H/I						0
H	85014	2.09	1.67	270	125	117798
PH						0
GU						0
GL						0
F/G						0
F	85021	3.43	1.72	285	125	210173
E	85021	1.81	1.55	410	125	143782
D	85018	1.89	1.71	690	125	278751
D	85016	2.41	1.71	540	125	278174
C	85020	1.19	1.49	280	125	62059
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

1145400

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF3625

SECTION : 3625 M
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L	85012	1.37	1.68	60	125	17262
K/L						0
K						0
J						0
I	85014	5.46	1.54	60	125	63063
H/I						0
H	85014	2.09	1.67	120	125	52355
PH						0
GU						0
GL						0
F/G						0
F	85015	2.73	1.72	200	125	117390
F	85014	2.71	1.72	20	125	11653
F	85021	3.43	1.72	200	125	147490
E	85015	0.95	1.55	100	125	18406
E	85021	1.81	1.55	270	125	94686
D	85018	1.89	1.71	710	125	286831
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

809136

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF3750

SECTION : 3750 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H	85018	3.63	1.67	80	125	60621
PH						0
GU						0
GL						0
F/G						0
F	85015	2.73	1.72	40	125	23478
F	85018	6.02	1.72	200	125	258860
F	85021	3.43	1.72	100	125	73745
E	85015	0.95	1.55	240	125	44175
E	85021	1.81	1.55	180	125	63124
D	85018	1.89	1.71	920	125	371669
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

895671

SECTION : 3875 N
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m3)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H						0
PH						0
GU						0
GL						0
F/G						0
F	85018	6.02	1.72	140	125	181202
E	85015	0.95	1.55	50	125	9203
E	85021	1.81	1.55	120	125	42083
D	85018	1.89	1.71	920	125	371669
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

604156

LOST-FOX AREA : RESOURCE CALCULATIONS March 1987.

INF4000

SECTION : 4000 M
 RESOURCE TYPE : INFERRED

SEAM NAME	DIAMOND DRILL HOLE	SEAM THICKNESS (m)	SPECIFIC GRAVITY (T/m ³)	SEAM LENGTH (M)	WIDTH INFLUENCE (M)	TOTAL TONNES SEAMS >=0.5m
P						0
O						0
N						0
M/N						0
M						0
L/M						0
L						0
K/L						0
K						0
J						0
I						0
H/I						0
H						0
PH						0
GU						0
GL						0
F/G						0
F	85018	6.02	1.72	30	125	38829
F	85021	3.43	1.72	120	125	88494
E	85021	1.81	1.55	245	125	85918
D	85018	1.89	1.71	920	125	371669
C						0
B						0
A						0

SEAMS >=0.5m

TOTAL TONNES FOR THIS SECTION :

584910

TABLE 15

**WASHABILITY BY SIZE FRACTION
(AFTER CRUSHING TO 35.0 MM)**

S.G. Fraction	35 x 25 MM				25 x 12 MM			
	WT. %	ASH %	CUMULATIVE		WT. %	ASH %	CUMULATIVE	
			WT. %	ASH %			WT. %	ASH %
Float - 1.35	--	--	--	--	--	--	--	--
1.35 - 1.40	--	--	--	--	1.40	1.80	1.40	1.80
1.40 - 1.45	0.10	2.30	0.10	2.30	9.00	6.00	10.40	5.43
1.45 - 1.50	5.10	6.70	5.20	6.62	13.30	11.00	23.70	8.56
1.50 - 1.55	12.50	11.30	17.70	9.92	9.50	16.40	33.20	10.80
1.55 - 1.60	8.00	16.00	25.70	11.82	6.40	22.40	39.60	12.68
1.60 - 1.70	15.70	24.90	41.40	16.78	8.20	27.80	47.80	15.27
1.70 - 1.80	13.10	33.00	54.50	20.68	10.00	34.10	57.80	18.53
1.80 - 2.00	16.40	40.70	70.90	25.31	13.10	42.40	70.90	22.94
2.00 - 2.20	6.00	50.90	76.90	27.31	7.00	55.80	77.90	25.89
2.20 - Sink	23.10	81.40	100.00	39.80	22.10	83.60	100.00	38.65

S.G. Fraction	12 x 8 MM				8 x 6 MM			
	WT. %	ASH %	CUMULATIVE		WT. %	ASH %	CUMULATIVE	
			WT. %	ASH %			WT. %	ASH %
Float - 1.35	--	--	--	--	--	--	--	--
1.35 - 1.40	--	--	--	--	--	--	--	--
1.40 - 1.45	1.00	2.30	1.00	2.30	1.60	2.10	1.60	2.10
1.45 - 1.50	13.70	4.40	14.70	4.26	19.40	4.00	21.00	3.86
1.50 - 1.55	18.60	9.70	33.30	7.30	21.90	9.60	42.90	6.79
1.55 - 1.60	10.90	15.80	44.20	9.39	12.20	16.00	55.10	8.83
1.60 - 1.70	15.50	24.00	59.70	13.19	13.20	23.60	68.30	11.68
1.70 - 1.80	9.40	34.40	69.10	16.07	7.50	33.40	75.80	13.83
1.80 - 2.00	8.40	44.50	77.50	19.15	6.10	44.00	81.90	16.08
2.00 - 2.20	4.40	58.40	81.90	21.26	3.30	59.60	85.20	17.76
2.20 - Sink	18.10	83.60	100.00	32.55	14.80	83.90	100.00	27.55

TABLE 15

**WASHABILITY BY SIZE FRACTION
(AFTER CRUSHING TO 35.0 MM)**

6 x 0.5 MM					0.5 x 0.15 MM				
S.G. Fraction	WT. %	ASH %	CUMULATIVE		WT. %	ASH %	CUMULATIVE		
			WT. %	ASH			WT. %	ASH %	
Float - 1.35	--	--	--	--	0.20	4.00	0.20	4.00	
1.35 - 1.40	4.60	1.80	4.60	1.80	0.20	6.00	0.40	5.00	
1.40 - 1.45	20.80	3.50	25.40	3.19	4.10	1.60	4.50	1.90	
1.45 - 1.50	18.90	8.00	44.30	5.24	11.50	3.90	16.00	3.34	
1.50 - 1.55	14.20	13.10	58.50	7.15	14.10	7.20	30.10	5.15	
1.55 - 1.60	7.50	17.70	66.00	8.35	16.20	13.00	46.30	7.89	
1.60 - 1.70	6.60	22.60	72.60	9.64	3.70	16.90	50.00	8.56	
1.70 - 1.80	1.40	24.50	74.00	9.93	4.50	21.20	54.50	9.60	
1.80 - 2.00	8.30	33.20	82.30	12.27	10.50	32.00	65.00	13.22	
2.00 - 2.20	3.10	54.60	85.40	13.81	5.20	52.90	70.20	16.16	
2.20 - Sink	14.60	82.80	100.00	23.88	29.80	82.90	100.00	36.05	

0.15 x 0.075 MM					0.075 x 0.045 MM				
S.G. Fraction	WT. %	ASH %	CUMULATIVE		WT. %	ASH %	CUMULATIVE		
			WT. %	ASH %			WT. %	ASH %	
Float - 1.35	--	--	--	--	--	--	--	--	
1.35 - 1.40	0.10	6.50	0.10	6.50	0.10	7.60	0.10	7.60	
1.40 - 1.45	0.10	8.50	0.20	7.50	0.10	8.00	0.20	7.80	
1.45 - 1.50	0.10	5.70	0.30	6.90	0.10	9.80	0.30	8.47	
1.50 - 1.55	1.20	5.10	1.50	5.46	0.10	10.40	0.40	8.95	
1.55 - 1.60	6.00	6.90	7.50	6.61	0.20	12.20	0.60	10.03	
1.60 - 1.70	15.10	10.00	22.60	8.88	0.70	12.90	1.30	11.58	
1.70 - 1.80	13.30	17.80	35.90	12.18	15.80	15.90	17.10	15.57	
1.80 - 2.00	13.80	30.50	49.70	17.27	25.10	28.60	42.20	23.32	
2.00 - 2.20	6.10	53.80	55.80	21.26	5.10	35.50	47.30	24.63	
2.20 - Sink	44.20	80.80	100.00	47.58	52.70	77.90	100.00	52.71	

APPENDIX 4
COAL QUALITY DATA

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2066-2069
 DATE: OCTOBER 29, 1986

LAB NO: 2066 - as received sizing @ 35MM

WTZ		
+35MM	26.90	arb
-35MM	73.10	arb

LAB NO: 2067 - 2066 +/- 35MM RECOMBINED, HOMOGENIZED, & SCREENED @35MM

WTZ		
+35MM	13.10	adb
-35MM	86.90	adb

LAB NO: 2068 - 2067 + 35MM CRUSHED TO MINUS 35MM

LAB NO: 2069 - 2067 - 35MM

SIZE DISTRIBUTION, air dried basis

LAB NO:	SIZE FRACTION (MM)	2068		2069	
		WTZ	CUMULATIVE WTZ	WTZ	CUMULATIVE WTZ
	35 X 25	32.90	32.90	4.90	4.90
	25 X 12	23.00	55.90	8.80	13.70
	12 X 8	18.50	66.40	8.00	21.70
	8 X 6	4.90	71.30	6.00	27.70
	6 X 4	3.90	75.20	5.40	33.10
	4 X 2	11.90	87.10	26.10	59.20
	2 X 1	2.80	89.90	7.30	66.50
	1 X 0.5	3.60	93.50	11.10	77.60
	0.5 X 0	6.50	100.00	22.40	100.00

0.5MM X 0 TO BE SCREENED DOWN TO 0.045MM.

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2066-2069
 DATE: OCTOBER 30, 1986

LAB NO: 2066

(TOTAL AS RECEIVED WEIGHT = 10.6 M.T.)

HEAD RAW ANALYSIS, air dried basis

ADM%	MOIST%	ASH%	VOL%	F.C.%	SZ	CV CAL/GM	CLZ	BASIS
4.50	0.80	31.90	6.20	61.10	0.50	5442	Trace	adb
	5.26	30.46	5.92	58.35	0.48	5197		arb
		32.16	6.25	61.59	0.50	5486		db

SIZE CONSIST, as received basis

SIZE FRACTION	WT%	CUM. WT%
A. RETAINED ON 35MM	26.90	26.90
B. PASSING 35MM	73.10	100.00

LAB NO: 2067

— BOTH SIZE FRACTIONS ABOVE (2066 A & B) RECOMBINED
 AND HOMOGENIZED WITH FRONT-END LOADER.

SIZE CONSIST, air dried basis

SIZE FRACTION	WT%	CUM. WT%
A. RETAINED ON 35MM	13.10	13.10
B. PASSING 35MM	86.90	100.00

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2070
 DATE: NOVEMBER 28, 1985

LAB NO: 2070 -- RECOMBINED, CRUSHED (2068) & NATURAL (2069) TO MINUS 35 MM.

SIZE AND RAW ANALYSIS, air dried basis

SIZE FRACTION (MM)	WTZ	RMZ	ASHZ	VOLZ	FCZ	SZ	CLZ	CV CAL/GM	S.G.	H.G.I.	EQ. MZ	CUMULATIVE	
												WTZ	ASHZ
35 X 25	8.60	0.90	41.60	7.90	49.60	0.54	TRACE	4385	1.81	47	5.9	8.60	41.60
25 X 12	10.70	1.20	39.20	6.70	52.90	0.46	TRACE	4587	1.79	46	6.9	19.30	40.27
12 X 8	8.30	0.80	32.20	6.00	61.00	0.55	TRACE	5430	1.68	42	8.1	27.60	37.84
8 X 6	5.90	0.80	27.10	5.30	66.80	0.55	TRACE	5934	1.61	38	6.3	33.50	35.95
6 X 4	5.20	1.40	25.40	5.60	67.60	0.50	TRACE	5987	1.60	40	6.2	38.70	34.53
4 X 2	24.20	1.90	23.00	5.10	70.00	0.50	TRACE	6087	1.58	40	6.8	62.90	30.10
2 X 1	6.70	1.20	23.40	5.30	70.10	0.49	TRACE	6102	1.59	45	6.3	69.60	29.45
1 X 0.5	10.10	2.10	27.30	5.60	65.00	0.45	TRACE	5757	1.63	65	6.6	79.70	29.18
0.5 X 0.3	6.20	1.00	34.10	6.20	58.70	0.42	TRACE	5179	1.70	—	10.1	85.90	29.53
0.3 X .15	5.50	1.10	42.30	7.10	49.50	0.38	TRACE	4195	1.80	—	6.2	91.40	30.30
.15 X .075	4.10	1.20	50.30	7.90	40.60	0.40	TRACE	3317	1.91	—	9.3	95.50	31.16
.075 X .045	1.80	1.40	53.80	8.40	36.40	0.42	.007	2961	1.92	—	10.4	97.30	31.58
.045 X 0	2.70	1.30	53.70	8.20	36.80	0.47	.007	3147	1.97	—	—	100.00	32.18

ULTIMATE ANALYSIS, air dried basis

SIZE FRACTION (MM)	H2O	C	H	N	S	ASHZ	# (BY DIFF)
35 X 25	0.89	50.87	1.45	0.64	0.51	41.60	4.04
25 X 12	1.22	51.25	1.36	0.64	0.46	39.16	5.91
12 X 8	0.75	62.07	1.65	0.72	0.55	32.20	2.06
8 X 6	0.77	65.59	1.859	0.59	0.55	27.07	3.57
6 X 4	1.42	66.43	1.98	0.62	0.56	25.42	3.57
4 X 2	1.94	67.23	2.09	0.68	0.55	23.04	4.47
2 X 1	1.23	67.65	2.08	0.69	0.49	23.40	4.46
1 X 0.5	2.11	66.04	1.78	0.70	0.45	27.34	1.58
0.5 X 0.3	1.02	55.51	1.76	0.71	0.57	34.13	6.30
0.3 X 0.15	1.05	48.73	1.55	0.67	0.38	42.33	5.29
0.15 X .075	1.16	43.09	1.32	0.66	0.40	50.31	3.06
.075 X .045	1.36	36.28	1.33	0.55	0.42	53.04	6.22
.045 X 0	1.35	38.38	1.10	0.50	0.47	53.71	4.49

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2070
 DATE: NOVEMBER 28, 1986

ASH FUSION TEMPERATURES (DEG. F)

SIZE FRACTION (MM)	OXIDIZING				REDUCING			
	IDT	ST	HT	FT	IDT	ST	HT	FT
35 X 25	2165	2235	2285	2450	2115	2185	2305	2410
25 X 12	2205	2280	2425	2620	2135	2235	2415	2495
12 X 8	2200	2305	2440	2540	2145	2280	2405	2440
8 X 6	2235	2360	2510	2625	2165	2325	2455	2530
6 X 4	2235	2330	2445	2615	2160	2295	2440	2540
4 X 2	2255	2420	2570	2660	2205	2380	2465	2575
2 X 1	2245	2435	2565	2635	2170	2410	2540	2620
1 X 0.5	2245	2470	2565	2630	2180	2400	2500	2625
0.5 X 0.3	2230	2465	2570	2600	2200	2375	2500	2600
0.3 X 0.15	2220	2435	2540	2560	2185	2320	2355	2530
.15 X .075	2255	2440	2550	2580	2210	2330	2410	2540
.075X .045	2275	2480	2545	2580	2225	2340	2390	2550
.045X 0	2250	2485	2570	2655	2225	2370	2475	2650

MINERAL ANALYSIS OF ASH

SIZE FRACTION: (MM)	35 X 25	25 X 12	12 X 8	8 X 6	6 X 4	4 X 2	2 X 1	1 X 0.5
SiO2	60.11	64.17	65.03	65.24	63.32	65.03	65.67	63.32
Al2 O3	17.20	17.88	17.21	18.54	19.99	19.71	20.35	21.05
TiO2	0.77	0.86	0.92	1.00	1.07	1.06	1.15	1.09
Fe2 O3	6.52	5.23	4.75	3.85	4.33	3.53	3.47	3.70
CaO	5.80	5.04	4.24	3.58	4.14	3.51	3.25	3.33
MgO	3.98	3.42	2.93	2.54	3.00	2.45	2.45	2.62
Na2O	1.63	1.64	1.71	1.76	1.79	1.75	1.70	1.70
K2 O	0.95	0.95	0.96	1.04	1.05	1.02	1.05	1.07
P2 O5	0.74	0.41	0.31	0.34	0.32	0.27	0.31	0.19
SO3	2.10	2.27	2.50	1.90	2.47	1.72	1.77	1.55
UNDET.	-0.20	1.07	0.56	-0.21	1.48	0.05	1.17	-0.38

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2070
 DATE: NOVEMBER 28, 1986

MINERAL ANALYSIS OF ASH

SIZE FRACTION: (MM) 0.5 X 0.3 0.3 X 0.15 0.15 X .075 .075 X .045 .045 X 0

	0.5 X 0.3	0.3 X 0.15	0.15 X .075	.075 X .045	.045 X 0
SiO2	61.18	60.53	58.18	56.26	56.47
Al2 O3	21.62	22.45	23.24	24.36	25.11
TiO2	0.97	0.88	0.83	0.81	0.83
Fe2 O3	4.58	5.33	5.86	6.01	5.10
CaO	3.53	4.06	4.39	4.81	4.84
MgO	3.12	3.70	4.11	4.23	3.73
Na2O	1.71	1.89	1.98	1.93	1.85
K2 O	1.07	1.11	1.14	1.19	1.23
P2 O5	0.19	0.18	0.17	0.17	0.17
SO3	1.80	1.35	1.00	0.95	1.10
UNDET.	-0.23	1.48	0.90	0.72	0.43

FLOAT-SINK ANALYSIS, air dried basis: 35MM X 25MM

S.G. FRACTION	WTZ	RMZ	ASHZ	CUMULATIVE	
				WTZ	ASHZ
FLOAT - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	—	—	—	0.00	—
1.40 - 1.45	0.10	1.30	2.30	0.10	2.30
1.45 - 1.50	5.10	1.80	6.70	5.20	6.62
1.50 - 1.55	12.50	2.20	11.30	17.70	9.92
1.55 - 1.60	8.00	2.20	16.00	25.70	11.82
1.60 - 1.70	15.70	2.20	24.90	41.40	16.78
1.70 - 1.80	13.10	3.80	33.80	54.50	20.68
1.80 - 2.00	16.40	2.50	40.70	70.90	25.31
2.00 - 2.20	6.00	2.00	50.90	76.90	27.31
2.20 - SINK	23.10	2.20	81.40	100.00	39.80

FLOAT-SINK ANALYSIS, air dried basis: 25MM X 12MM

S.G. FRACTION	WTZ	RMZ	ASHZ	CUMULATIVE	
				WTZ	ASHZ
FLOAT - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	1.40	0.70	1.80	1.40	1.80
1.40 - 1.45	9.00	0.70	6.80	10.40	5.43
1.45 - 1.50	13.30	0.90	11.00	23.70	8.56
1.50 - 1.55	9.50	1.00	16.40	33.20	10.80
1.55 - 1.60	6.40	1.40	22.40	39.60	12.68
1.60 - 1.70	8.20	1.80	27.80	47.80	15.27
1.70 - 1.80	10.00	1.90	34.10	57.80	18.53
1.80 - 2.00	13.10	2.50	42.40	70.90	22.94
2.00 - 2.20	7.00	1.90	55.80	77.90	25.89
2.20 - SINK	22.10	1.50	83.60	100.00	38.65

Birtley Coal
 & Minerals Testing

1000 - 1000 - 1000 - 1000

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2070
 DATE: NOVEMBER 28, 1986

FLOAT-SINK ANALYSIS, air dried basis: 12MM X 8MM

S.G. FRACTION	WT%	RM%	ASH%	CUMULATIVE	
				WT%	ASH%
FLOAT - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	—	—	—	0.00	ERROR
1.40 - 1.45	1.00	0.50	2.30	1.00	2.30
1.45 - 1.50	13.70	0.50	4.40	14.70	4.26
1.50 - 1.55	18.60	0.70	9.70	33.30	7.30
1.55 - 1.60	10.90	0.70	15.80	44.20	9.39
1.60 - 1.70	15.50	1.00	24.00	59.70	13.19
1.70 - 1.80	9.40	1.70	34.40	69.10	16.07
1.80 - 2.00	8.40	1.70	44.50	77.50	19.15
2.00 - 2.20	4.40	1.40	58.40	81.90	21.26
2.20 - SINK	18.10	1.40	83.60	100.00	32.55

FLOAT-SINK ANALYSIS, air dried basis: 8MM X 6MM

S.G. FRACTION	WT%	RM%	ASH%	CUMULATIVE	
				WT%	ASH%
FLOAT - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	—	—	—	0.00	0.00
1.40 - 1.45	1.60	0.40	2.10	1.60	2.10
1.45 - 1.50	19.40	1.00	4.00	21.00	3.86
1.50 - 1.55	21.90	0.70	9.60	42.90	6.79
1.55 - 1.60	12.20	0.80	16.00	55.10	8.83
1.60 - 1.70	13.20	1.10	23.60	68.30	11.68
1.70 - 1.80	7.50	1.70	33.40	75.80	13.83
1.80 - 2.00	6.10	1.70	44.00	81.90	16.08
2.00 - 2.20	3.30	1.60	59.60	85.20	17.76
2.20 - SINK	14.80	1.30	83.90	100.00	27.55

FLOAT-SINK ANALYSIS, air dried basis: 6MM X 0.5MM

S.G. FRACTION	WT%	RM%	ASH%	CUMULATIVE	
				WT%	ASH%
FLOAT - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	4.60	0.40	1.80	4.60	1.80
1.40 - 1.45	20.80	0.50	3.50	25.40	3.19
1.45 - 1.50	18.90	0.80	8.00	44.30	5.24
1.50 - 1.55	14.20	1.20	13.10	58.50	7.15
1.55 - 1.60	7.50	1.40	17.70	66.00	8.35
1.60 - 1.70	6.60	2.10	22.60	72.60	9.64
1.70 - 1.80	1.40	2.80	24.50	74.00	9.93
1.80 - 2.00	8.30	4.20	33.20	82.30	12.27
2.00 - 2.20	3.10	2.20	54.60	85.40	13.81
2.20 - SINK	14.60	1.40	82.80	100.00	23.88

Birtley Coal
& Minerals Testing

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2070
 DATE: NOVEMBER 28, 1986

FLOAT-SINK ANALYSIS, air dried basis: 0.5MM X 0.15MM

S.G. FRACTION	WT%	RM%	ASH%	CUMULATIVE	
				WT%	ASH%
FLOAT - 1.35	0.20	1.50	4.00*	0.20	4.00
1.35 - 1.40	0.20	2.40	6.00*	0.40	5.00
1.40 - 1.45	4.10	0.80	1.60	4.50	1.90
1.45 - 1.50	11.50	1.00	3.90	16.00	3.34
1.50 - 1.55	14.10	1.80	7.20	30.10	5.15
1.55 - 1.60	16.20	2.90	13.00	46.30	7.89
1.60 - 1.70	3.70	2.30	16.90	50.00	8.56
1.70 - 1.80	4.50	3.00	21.20	54.50	9.60
1.80 - 2.00	10.50	3.00	32.00	65.00	13.22
2.00 - 2.20	5.20	2.10	52.90	70.20	16.16
2.20 - SINK	29.80	2.00	82.90	100.00	36.85

* -- VISUAL INSPECTION OF SAMPLE REVEALS CONTAMINATION W/WOOD, ROOTS, ETC. HENCE, THE HIGHER ASH VALUES.

FLOAT-SINK ANALYSIS, air dried basis: 0.15MM X 0.075MM

S.G. FRACTION	WT%	RM%	ASH%	CUMULATIVE	
				WT%	ASH%
FLOAT - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	0.10	1.20	6.50*	0.10	6.50
1.40 - 1.45	0.10	1.40	8.50*	0.20	7.50
1.45 - 1.50	0.10	1.50	5.70*	0.30	6.90
1.50 - 1.55	1.20	1.60	5.10	1.50	5.46
1.55 - 1.60	6.00	3.30	6.90	7.50	6.61
1.60 - 1.70	15.10	5.70	10.00	22.60	8.88
1.70 - 1.80	13.30	5.20	17.80	35.90	12.18
1.80 - 2.00	13.80	4.30	30.50	49.70	17.27
2.00 - 2.20	6.10	2.40	53.80	55.80	21.26
2.20 - SINK	44.20	2.40	80.80	100.00	47.58

* -- VISUAL INSPECTION OF SAMPLE REVEALS CONTAMINATION W/WOOD, ROOTS, ETC. HENCE, THE HIGHER ASH VALUES.

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN BULK SAMPLE #2
 LAB NO: 2070
 DATE: NOVEMBER 28, 1986

FLOAT-SINK ANALYSIS, air dried basis: 0.075MM X 0.045MM

S.G. FRACTION	WT%	RM%	ASH%	CUMULATIVE	
				WT%	ASH%
Float - 1.35	—	—	—	0.00	0.00
1.35 - 1.40	0.10	1.40	7.60	0.10	7.60
1.40 - 1.45	0.10	1.30	8.00	0.20	7.80
1.45 - 1.50	0.10	1.40	9.80	0.30	8.47
1.50 - 1.55	0.10	1.90	10.40	0.40	8.95
1.55 - 1.60	0.20	1.80	12.20	0.60	10.03
1.60 - 1.70	0.70	1.60	12.90	1.30	11.58
1.70 - 1.80	15.80	3.50	15.90	17.10	15.57
1.80 - 2.00	25.10	3.80	28.60	42.20	23.32
2.00 - 2.20	5.10	4.10	35.50	47.30	24.63
2.20 - Sink	52.70	2.30	77.90	100.00	52.71

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: NT. KLAPPAN H SEAM, ADIT 1986, BULK SAMPLE #2 RECEIVED SEPT./86
 LAB NO: 3073-3076
 DATE: MARCH 13, 1987

LAB NO: 3073

SIZE ANALYSIS, air dried basis

SIZE FRACTION (MM)	WT(KG)	WTZ	CUMULATIVE WTZ
35MM X 6MM	1677	32.50	32.50
6MM X 0.5MM		47.00	79.50
0.5MM X 0	3479	20.50	100.00

NB: +35MM (672 KG, 13% BY WT.) STAGED CRUSHED TO -35MM & RECOMBINED WITH THE NATURAL -35MM.

LAB NO: 3074 - 35MM X 6MM SIZE FRACTION

FLOAT-SINK ANALYSIS, air dried basis

S.G. FRACTION	SAMPLE CODE	WT (KG)	WTZ	RCZ	ASHZ	CUMULATIVE	
						WTZ	ASHZ
FLOAT - 1.48	CC	235.3	17.40	0.50	6.30	17.40	6.30
1.48 - 1.55	MIDDLE	187.3	13.90	1.00	12.00	31.30	8.83
1.55 - SINK	REJ	927.6	68.70	1.50	47.28	100.00	35.19

LAB NO: 3075 - 35MM X 6MM SIZE FRACTION

FLOAT-SINK ANALYSIS, air dried basis

S.G. FRACTION	SAMPLE CODE	WT (KG)	WTZ	RCZ	ASHZ	CUM.	
						WTZ	ASHZ
FLOAT - 1.625	CC	153.6	43.90	0.60	12.10	43.90	
SINK - 1.625	REJ	196.3	56.10	—	—	100.00	

LAB NO: 3076 - 6MM X 0.5MM SIZE FRACTION

FLOAT-SINK ANALYSIS, air dried basis

S.G. FRACTION	SAMPLE CODE	WT (KG)	WTZ	RCZ	ASHZ	CUM. CUMULATIVE	
						WTZ	ASHZ
FLOAT - 1.60	CC	20.523	62.00	0.70	7.40	62.00	7.40
SINK - 1.60	REJ	12.585	38.00	2.40	49.20	100.00	23.28

**Birtley Coal
& Minerals Testing**

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN H SEAM, ADIT 1986, BULK SAMPLE #2 RECEIVED SEPT./86
 LAB NO: 3073-3076
 DATE: MARCH 13, 1987

DETAILED ANALYSES OF PRODUCTS

LAB NO:	CODE NO:	RMZ	ASHZ	VOLZ	F.C.Z	SZ	CV		S.G.	H.G.I.	EDM.Z	BASIS
							CLZ*	CAL/GM				
3074	CC	0.50	6.30	4.40	88.80	0.48	0.59	7850	1.44	29	6.5	adb
			6.33	4.42	89.25	0.48	7889	cb				
3074	MIDOL	1.00	12.00	4.50	82.50	0.42	1.31	7221	1.50	31	5.7	adb
			12.12	4.55	83.33	0.42	7294	cb				
3075	CC	0.60	12.10	4.50	82.80	0.44	1.05	7230	1.50	32	6.3	adb
			12.17	4.53	83.30	0.44	7274	cb				
3076	CC	0.70	7.40	4.70	87.20	0.47	0.89	7656	1.47	33	5.6	adb
			7.45	4.73	87.81	0.47	7710	cb				

* HIGH CL VALUES PROBABLY DUE TO CHLORINATED HYDROCARBON RESIDUES IN FLOAT-SINK SOLUTION.

ULTIMATE ANALYSIS, air dried basis

LAB NO.	SAMPLE CODE	H2O	C	H	N	S	ASHZ	B (BY DIFF)
3074	CC	0.45	88.02	2.73	0.98	0.48	6.33	1.01
3074	MIDOL	0.95	80.95	2.50	0.88	0.42	12.01	2.29
3075	CC	0.63	81.15	2.47	0.91	0.44	12.14	2.26
3076	CC	0.67	86.01	2.64	0.95	0.47	7.37	1.89

MINERAL ANALYSIS OF ASH

LAB NO:	CODE NO:	SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	UNDET
3074	CC	56.90	25.02	1.84	4.28	3.39	1.97	2.09	0.90	1.83	0.77	-1.01
3074	MIDOL	61.18	23.98	2.03	2.90	1.99	1.71	1.98	1.00	0.93	0.62	-1.68
3075	CC	67.17	20.43	1.46	3.09	2.07	1.86	1.59	0.89	0.85	0.77	0.18
3076	CC	65.88	22.13	2.22	2.43	1.68	1.42	1.67	0.98	0.87	0.40	-0.32

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN H SEAM, ADIT 1986, BULK SAMPLE #2 RECEIVED SEPT./86
 LAB NO: 3073-3076
 DATE: MARCH 13, 1987

ASH FUSION TEMPERATURES (DEG. F)

LAB NO.	CODE NO:	OXIDIZING				REDUCING			
		IDT	ST	HT	FT	IDT	ST	HT	FT
3074	CC	2325	2500	2590	2730	2150	2385	2570	2665
3074	HIDOL	2300	2590	2625	2705	2240	2500	2565	2680
3075	CC	2280	2505	2610	2725	2175	2410	2475	2695
3076	CC	2315	2645	2690	2755	2275	2590	2655	2745

DETAILED ANALYSES OF REJECTS

LAB NO:	CODE NO:	RM%	ASH%	VOL%	F.C.%	SZ	CV CAL/GM	BASIS
3074	REJ	1.50	47.20	7.70	43.60	0.64	3718	adb
			47.92	7.82	44.26	0.65	3775	db
3076	REJ	2.40	49.20	7.00	41.40	0.40	3420	adb
			50.41	7.17	42.42	0.41	3504	db

MINERAL ANALYSIS OF ASH

LAB NO:	CODE NO:	SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	UNDET
3074	REJ	62.89	16.44	0.76	5.72	4.93	3.56	1.51	0.93	0.63	2.30	-0.33
3076	REJ	65.88	19.95	0.88	3.53	2.91	2.67	1.71	1.16	0.34	1.25	0.28

ASH FUSION TEMPERATURES (DEG. F)

LAB NO.	CODE NO:	OXIDIZING				REDUCING			
		IDT	ST	HT	FT	IDT	ST	HT	FT
3074	REJ	2155	2315	2365	2590	2140	2225	2285	2520
3076	REJ	2265	2450	2520	2620	2255	2425	2520	2545

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN H SEAM ADIT 1986 (BULK SAMPLE #2)
 35MM X 6MM SINKS (REJECT) @ 1.625 S.G.
 LAB NO: 3075 (EJ)
 DATE: MARCH 27, 1987

PROXIMATE

MOIST%	ASH%	VOL%	F.C.%	SZ	CV CAL/GH	BASIS
2.00	54.00	8.60	35.40	0.54	2973	adb
	55.10	8.78	36.12	0.55	3034	db

ASH FUSION TEMPERATURES (DEG. F)

OXIDIZING

IDT	ST	HT	FT
2145	2235	2435	2710

REDUCING

IDT	ST	HT	FT
2085	2220	2350	2595

MINERAL ANALYSIS OF ASH

SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	UNDET
61.82	16.61	0.71	6.28	5.53	3.90	1.58	0.91	0.81	1.20	-0.65

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: MT. KLAPPAN H SEAM, ADIT 1986, BULK SAMPLE #2 RECEIVED SEPT./86
 LAB NO: 3073-3076
 DATE: MARCH 13, 1987

LAB NO: 3074 CC

SIZE CONSIST, air dried basis: BEFORE & AFTER DROP SHATTER TEST*

BEFORE DROP SHATTER TEST

SIZE FRACTION (MM)	TEST SAMPLE #1		TEST SAMPLE #2	
	WTZ	CUMULATIVE	WTZ	CUMULATIVE
		WTZ		WTZ
35 X 25	9.90	9.90	11.30	11.30
25 X 12	29.40	39.30	28.70	40.00
12 X 8	35.30	74.60	34.70	74.70
8 X 6	19.00	93.60	19.20	93.90
6 X 0.5	6.20	99.80	5.90	99.80
0.5 X 0	0.20	100.00	0.20	100.00

LAB NO: 3074 CC

SIZE CONSIST, air dried basis: BEFORE & AFTER DROP SHATTER TEST*

AFTER DROP SHATTER TEST

SIZE FRACTION (MM)	TEST SAMPLE #1		TEST SAMPLE #2	
	WTZ	CUMULATIVE	WTZ	CUMULATIVE
		WTZ		WTZ
35 X 25	9.40	9.40	10.60	10.60
25 X 12	27.10	36.50	26.40	37.00
12 X 8	33.90	70.40	34.20	71.20
8 X 6	21.50	91.90	20.90	92.10
6 X 0.5	7.50	99.40	7.30	99.40
0.5 X 0	0.60	100.00	0.60	100.00

* DROP SHATTER TEST PER ASTM D-440 -- 50 LB - TEST SAMPLE DROPPED
 2 TIMES FROM HEIGHT OF 6 FT. ONTO A 1/2" STEEL PLATE.

Birtley Coal
 & Minerals Testing

CLIENT: GULF CANADA RESOURCES INC.
 PROJECT: HT. KLAPPAN H SEAM, ADIT 1986, BULK SAMPLE #2 RECEIVED SEPT./86
 LAB NO: 3073-3076
 DATE: MARCH 13, 1987

LAB NO# 3075 CC

SIZE CONSIST, air dried basis: BEFORE & AFTER DROP SHATTER TEST*

BEFORE DROP SHATTER TEST

SIZE FRACTION (MM)	TEST SAMPLE #1		TEST SAMPLE #2	
	CUMULATIVE		CUMULATIVE	
	WTZ	WTZ	WTZ	WTZ
35 X 25	17.50	17.50	16.00	16.00
25 X 12	33.10	50.60	32.70	48.70
12 X 8	31.80	82.40	32.50	81.20
8 X 6	15.30	97.70	16.10	97.30
6 X 0.5	2.00	99.70	2.40	99.70
0.5 X 0	0.30	100.00	0.30	100.00

LAB NO# 3075 CC

SIZE CONSIST, air dried basis: BEFORE & AFTER DROP SHATTER TEST*

AFTER DROP SHATTER TEST

SIZE FRACTION (MM)	TEST SAMPLE #1		TEST SAMPLE #2	
	CUMULATIVE		CUMULATIVE	
	WTZ	WTZ	WTZ	WTZ
35 X 25	15.70	15.70	13.80	13.80
25 X 12	31.20	46.90	30.60	44.40
12 X 8	30.10	77.00	31.70	76.10
8 X 6	17.70	94.70	18.40	94.50
6 X 0.5	4.50	99.20	4.70	99.20
0.5 X 0	0.80	100.00	0.80	100.00

* DROP SHATTER TEST PER ASTM D-440 — 50 LB - TEST SAMPLE DROPPED
 2 TIMES FROM HEIGHT OF 6 FT. ONTO A 1/2" STEEL PLATE.