QUINSAM COAL LIMITED

1985 DRILL PROGRAM

INCLUDING

ANALYTICAL RESULTS

CONFIDENTIAL

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QUINSAM COAL LIMITED

1985 DRILL PROGRAM

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TABLE OF CONTENTS

		PAGE
1.0	**INTRODUCTION**	1
2.0	**DESCRIPTION OF WORK**	2
2.1	**Types of Equipment Used**	2
2.1.1	Site Preparation	2
2.1.2	Drilling and Coring Equipment	2
2.1.3	Geophysical Equipment	3
2.2	**Cost Summary**	3
2.3	**Sampling**	4
2.3.1	Core Recoveries	4
3.0	**GEOLOGY**	6
3.1	**Stratigraphy**	6
3.1.1	Pit 1, 2-3S	6
3.1.2	Pit 2N	7
3.2	**Structure**	7
3.2.1	Pit 1, 2-3S	7
3.2.2	Pit 2N	8
4.0	**COAL QUALITY**	10
4.1	**Sample Test and Analytical Procedures**	10
4.2	**Raw Coal Analytical Work**	11
4.3	**Float-Sink on Coal Samples**	11
4.4	**Roof/Floor Samples: Analytical Work**	24
4.5	**Correlation with Previous Work**	24

QUINSAM COAL LIMITED

1985 DRILL PROGRAM

INCLUDING ANALYTICAL RESULTS

LIST OF TABLES

		PAGE
TABLE 2.01	Cost Comparison, 1982, 1983 and 1985 Programs	3
TABLE 2.02	Core Recovery, 1985 Program	5
TABLE 3.01	Corehole Summary, 1985 Program	9
TABLE 4.01	Raw Coal Head Sample Results for Pit 1, 2-3S (Air Dry Basis)	12
TABLE 4.02	Raw Coal Head Sample Results for Pit 2N (Air Dry Basis)	13
TABLE 4.03	Main Seam 1S (QU-85-01C): Float-Sink Results for 25 x 6.7 mm Fraction	14
TABLE 4.04	Main Seam 1S (QU-85-01C): Float-Sink Results for 6.7 x 0.6 mm	15
TABLE 4.05	Main Seam 1S (QU-85-01C): Float-Sink Results for 0.6 x 0.15 mm	16
TABLE 4.06	Basal Seam 1S (QU-85-01C): Float-Sink Results for 25 x 6.7 mm Fraction	17
TABLE 4.07	Basal Seam 1S (QU-85-01C): Float-Sink Results for 6.7 x 0.6 mm Fraction	18
TABLE 4.08	Basal Seam 1S (QU-85-01C): Float-Sink Results for 0.6 x 0.15 mm Fraction	19
TABLE 4.09	Combined Seam 1S (QU-85-01C): Float-Sink Results for 25 x 6.7 mm Fraction	20
TABLE 4.10	Combined Seam 1S (QU-85-01C): Float-Sink Results for 6.7 x 0.6 mm Fraction	21
TABLE 4.11	Combined Seam 1S (QU-85-01C): Float-Sink Results for 0.6 x 0.15 mm Fraction	22

QUINSAM COAL LIMITED

1985 DRILL PROGRAM

INCLUDING ANALYTICAL RESULTS

LIST OF TABLES (Continued)

		PAGE
TABLE 4.12	Size Distribution Results for Main, Basal and Combined Seam 1S: QU-85-01C	23
TABLE 4.13	Weighted Averages for 1985 Raw Coal Analyses Compared to Previous Brinco Data for Pit 1, 2-3S (Air Dry Basis)	25
TABLE 4.14	Weighted Averages for 1985 Raw Coal Analyses Compared to Previous Brinco Data for Pit 2N (Air Dry Basis)	26

LIST OF FIGURES

FIGURE 2.01	Location of Coreholes, 1985 Program
FIGURE 3.01	Location of Transverse Sections, A-A' and B-B', Pit 2-3S
FIGURE 3.02	Cross-Sections A-A', B-B'
FIGURE 4.01	Test and Analytical Procedures for Drill Core Samples
FIGURE 4.03	Test and Analytical Procedures for Roof, Floor and In-Seam Partings

QUINSAM COAL LIMITED

1985 DRILL PROGRAM

INCLUDING ANALYTICAL RESULTS

LIST OF APPENDICES

APPENDIX A 1) SAMPLE INVENTORY, COAL SAMPLES
2) SAMPLE INVENTORY, ACID GENERATION SAMPLES

APPENDIX B 1) DRILL LOGS
2) GEOPHYSICAL LOGS

APPENDIX C 1) COREHOLE LOG DESCRIPTIONS
2) STRIP LOG AND CORE COLUMN DESCRIPTIONS

APPENDIX D PHOTOGRAPHIC PLATES

APPENDIX E CROSS-SECTIONS WITH UPDATED 1985 INFORMATION

APPENDIX F TEST AND ANALYTICAL PROGRAM FOR 1985 DRILL CORE SAMPLES

APPENDIX G ANALYTICAL INSTRUCTIONS AND RESULTS

APPENDIX H RESULTS OF PETROGRAPHIC EXAMINATION

1.0 INTRODUCTION

This report summarizes drilling and coring operation undertaken by Brinco Limited, on the Quinsam Coal Property in June, 1985. This test drilling and coring was designed to:

a) Provide drill cutting samples of the overburden column in Pit 1, 2-3S and Pit 2N for acid generation testwork in order to expand the data base on acid generation potential.

b) Provide core samples of the coal seams in Pit 1, 2-3S and Pit 2N for coal quality analysis in order to determine the possibility of selectively mining the No. 1 Seam in both pits, producing a saleable raw product that does not require processing through a preparation plant.

The report also includes coal quality data obtained for each of the six drill core samples. Included in these data are: the individual main and basal seam raw coal quality results obtained from core samples from Seam 1S in Pit 1, 2-3S, raw coal quality results for the single drill core sample from Seam 2 in Pit 2-3, and the individual rider and main seam raw coal quality results obtained from cove samples from Seam 1N in Pit 2N. In addition to raw coal quality data, float-sink analytical results were obtained for dill core samples of the main and basal sections in Seam 1S for drill hole QU-85-01C located in Pit 1S. This work was conducted to determine the washability characteristics of coal in close proximity to the proposed Seam 1S bulk sample subsequently obtained in September 1985.

2.0 DESCRIPTION OF WORK

During the period June 17 to June 22, 1985 inclusive, a total of six (6) holes were completed, three (3) in Pit 1, 2-3S and three (3) in Pit 2N. The work is broken down as follows:

Overburden/Interburden Drilling:	212 m	(697 ft)
Coring:	45 m	(148 ft)
TOTAL:	257 m	(843 ft)

The location of the six core holes is shown on **Figure 2.01.** The holes were located in the field by chaining from nearby drillholes. No surveying for top-hole elevations or locations according to the mine grid was undertaken. Grid locations and elevations are interpreted from the 1:2500 scale base maps available at Brinco head office.

No cementing or abondonment operations were undertaken upon the completion of drilling.

2.1 Types of Equipment Used

2.1.1 Site Preparation

All holes were located on existing access - no clearing or cutting was required prior to drilling operations.

2.1.2 Drilling and Coring Equipment

Drillwell Enterprises Ltd., of Cowichan Bay, B.C., supplied one Bucyrus-Erie Model 12R truck mounted drilling rig. The rig is a top-head hydraulic drive equipped with a Whelen drill-thru casing hammer.

A conventional split tube 3 m Christensen core barrel was used for core retrieval.

Overburden drilling was completed with the use of a Mission downhole percussion hammer equipped with a tungsten carbide button bit. Coring was completed with a modified insert type core bit.

2.1.3 Geophysical Equipment

Davies Exploration Logging Ltd., of Blairmore, Alberta supplied a geophysical logging unit mounted in a four-wheel drive suburban van. The log suite employed is caliper, resistivity, density, gamma and neutron curves.

2.2 Cost Summary

The following tabulates drilling and coring costs for each of the programs undertaken in 1982, 1983 and 1985.

TABLE 2.01

COST COMPARISON 1982, 1983 AND 1985 PROGRAMS

CONTRACTOR	YEAR OF PROGRAM	NO.OF HOLES	CASED (METRES)	DRILLED (METRES)	CORED (METRES)	TOTAL COST($)	COST PER METRE $
Ken's Drilling	1982	7	41.3	207.1	61.4	24,192	78.09
Drillwell	1983	10	71.7	-	167.8	22,283	93.02
Drillwell	1985	6	22.2	189.8	45.0	11,442	44.52

The 1982 and 1985 programs are roughly comparable: the amount of coring undertaken in 1982 was roughly 30% of the total drilled; the amount of coring undertaken in 1985 was 17.5% of the total

drilled. For future estimating purposes, a figure of $65 per metre could be used if coring amounts to 25% of the total program and casing work is about 10% of the total program.

2.3 Sampling

In the 1985 program, overburden rock (excluding the unconsolidated till) was drilled with the down-the-hole hammer. Drill cuttings were collected at 1.0 metre intervals. The cuttings for each 1.0 metre interval were placed on polyethelene sheets and coned and quartered. The split fraction was placed in properly labelled plastic sample bags for shipment to the laboratory. Approximately, 1.0 kilogram of representative material from each 1.0 metre interval was saved for acid generation testwork in the laboratory.

The coal sections were cored, described and sampled for coal testing and analytical work. Floor dilution samples were separately bagged and also shipped for analytical testing (see Sample Inventory, **Appendix A**).

2.3.1 Core Recoveries

Core recoveries followed a general trend that was noticeable in previous programs. Good recoveries are normal in the Seam 1S and Seam 2 in Pit 1, 2-3S. Recoveries suffered in the Pit 2N area at the base of the Seam 1N, where soft partings and pliable floor material affect the coring operation. **Table 2.02** illustrates core recoveries for each of the holes:

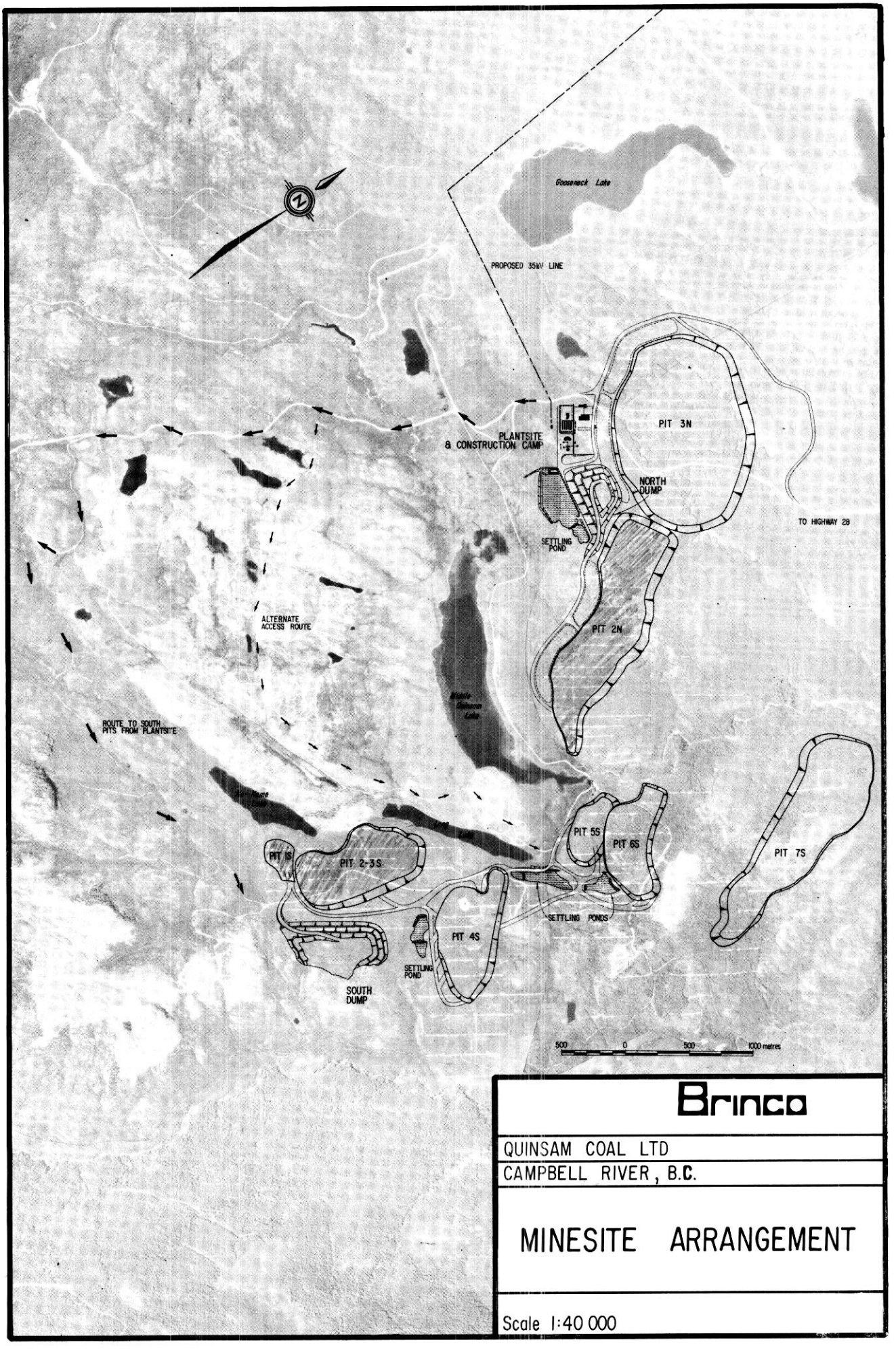
TABLE 2.02

CORE RECOVERY, 1985 PROGRAM

HOLE NUMBER	PIT	SEAM	% TOTAL RECOVERY	% RECOVERY IN COAL	DESCRIPTION OF IN-SEAM LOSS
QU-85-01C	1S	1S	98.3	98.6	-
QU-85-02C	2-3S	2	99.8	99.8	-
QU-85-02C	2-3S	1S	95.1	96.6	0.11 m mudstone
QU-85-03C	2-3S	1S	92.0	100.0	-
QU-85-04C	2N	1N	97.2	100.0	-
QU-85-05C	2N	1N	87.4	95.0	0.16 m coal
QU-85-06C	2N	1R	87.3	74.4	0.10 m coal
QU-85-05C	2N	1N	87.3	87.8	0.10 m mudstone; 0.20 m coal

It should be noted that Holes 05 and 06 show lower recoveries. With cross-referencing the corelog descriptions to the geophysical logs, we arrive at a reasonable prediction of type of material and thickness lost. Where mudstone parting material has been lost, which is the case in Holes 06 and 02, the total in-situ ash content from the laboratory results may be optimistic. This can be mathematically corrected.

The sample thicknesses as measured in the field can be more correctly stated as a result of interpreting the geophysical logs in the case of core losses. An example is Hole 04 where it appeared that up to 0.30 m of core from within the coal seam was lost. The geophysical interpretations indicate that the 0.30 m was lost from below the floor of the seam, resulting in a correction in the total sample thickness (see Sample Inventory, **Appendix A**). In general, geophysical interpretations are more accurate than core measurements where losses occur. Thicknesses shown on the marked copies of the geophysical logs are therefore correct.



Brinco

QUINSAM COAL LTD

CAMPBELL RIVER, B.C.

MINESITE ARRANGEMENT

Scale 1:40 000

3.0 GEOLOGY

3.1 Stratigraphy

Various earlier reports by Luscar Ltd. and Brinco Mining Limited detail the stratigraphy and description of the coal seams over the Middle Quinsam Mining Block. The reader is referred to these for in-depth descriptions. A few important points as indicated by the recent drilling will be touched upon in this section.

3.1.1 Pit 1, 2-3S

Hole QU-85-01C, located on the southwest corner of the Seam 1S Bulk Sample Site in Pit 1S provides details of the coal seam and overburden lithology which may assist in the contemplated sampling operations later this year. The reader is referred to the corelog descriptions in **Appendix C** and the photographs in **Appendix D.** It should be noted that the siltstone overlying the Seam 1S in this area is tightly cemented and hard; weathering and oxidation have not penetrated this rather impervious cap to a depth of more than 1-1.5 metres.

Hole QU-85-03C, located in Pit 2-3S on the main road, (see **Figure 2.01,** Location of Coreholes), intersected an anomaly in the Seam 2 Horizon. Coring for the Seam 2 was initiated at 34.75 metres in medium grey, medium grained sandstone. This is the normal lithology type overlying the Seam 2 in most areas of Pit 2-3S. Of this sandstone, 1.46 metres of this was penetrated followed by 0.2 metres of coaly

mudstone. A very thin lens of coal was encountered at the base of this mudstone, which probably represents what remains of the Seam 2. Normal thicknesses of the Seam 2 occur in adjacent holes, the closest being Hole QU-85-03C.

It can be concluded that in the area of Pit 2-3S, any locations where the sandstone roof rests directly on the Seam 2 indicate that the potential exists for the non-deposition of the Seam and/or replacement by sandstone. Prior to mining, some studies should be undertaken to determine the extent of this barren area, as it is likely to exhibit a narrow, but long and possibly curving appearance.

3.1.2 Pit 2N

No abnormalities were encountered with regards to stratigraphy and description of the coal seams in Pit 2N. It should be noted that the interburden between the Rider of Seam 1N and the Main Seam 1N thins to less than 0.25 metres in Hole QU-85-06C. For this reason it was sampled as a unit for analytical purposes, as has been done in the past.

3.2 Structure

3.2.1 Pit 1-2-3S

Hole QU-85-03C is located in Pit 2-3S near an area of anomalous structure. This structure is illustrated in **Figure 3.01 (Location of Transverse Sections, A-A' and B-B', Pit 2-3S).** The location of these sections is shown on **Figure 3.02.** Displacement is indicated along a linear topographic

feature, the surface expression of which partially contains No-Name Lake. The lineal expression and rapid change in vertical displacement over a short distance may indicate the presence of a reverse fault structure in this area. Hole 03C has advanced this structural model by closing down the distance between the uplifted and downthrown portion. However, it is important to note that no faulting or fracturing showing major movement has been indicated in holes drilled to date. The structural irregularity can still be interpreted as a folding action until such time as a core-hole is placed directly on the lineament.

3.2.2 Pit 2N

No structural irregularities were encountered in the recent drilling in Pit 2N; however, the normal trend of small slips and abundance of slicken-sided fracture planes in the cored sections, indicates that some faulting may occur in this area, especially in the northwest side of the pit.

TABLE 3.01

COREHOLE SUMMARY, 1985 PROGRAM

HOLE NUMBER	LOCATION	ELEVATION	TILL DEPTH (m)	SEAM 2 DEPTH THICKNESS METRES	SEAM 2 DEPTH THICKNESS METRES	SEAM 2 DEPTH THICKNESS METRES	SEAM 2 DEPTH THICKNESS METRES
QU-85-01C	Pit 1S	Unsurveyed	1.0	-	-	4.75/3.175	7.995/1.590
QU-85-02C	Pit 2-3S	Unsurveyed	1.0	11.20/1.41	-	33.75/3.250	36.600/1.595
QU-85-03C	Pit 2-3S	Unsurveyed	1.2	36.10/trace	-	52.08/3.225	55.305/1.245
QU-85-04C	Pit 2N	Unsurveyed	1.2	17.72/0.28	38.35/0.52	39.54/3.060	-
QU-85-05C	Pit 2N	Unsurveyed	1.5	-	45.09/0.38	45.96/3.200	-
QU-05-06C	Pit 2N	Unsurveyed	1.0	12.62/0.38	32.00/0.39	32.62/2.780	-

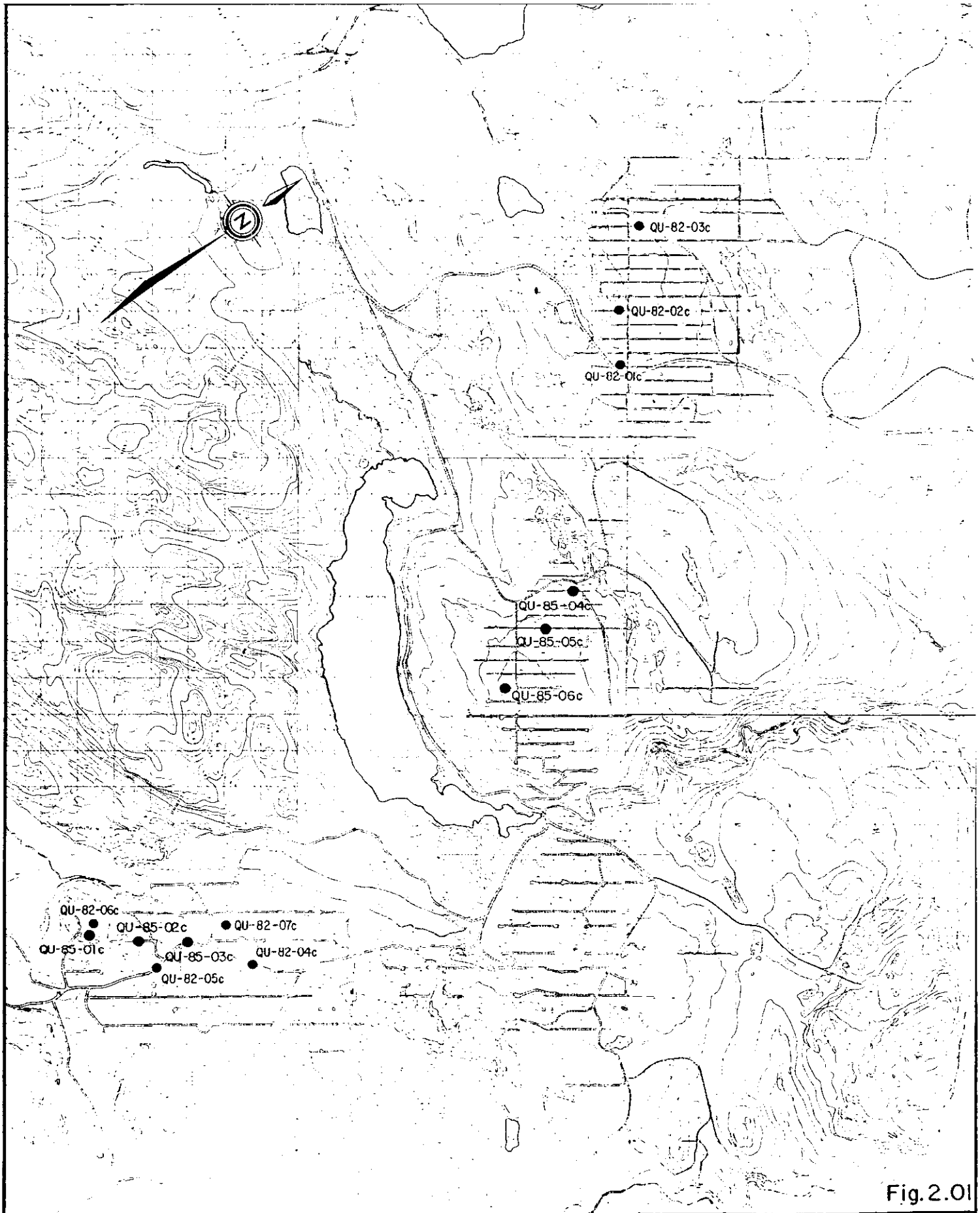


Fig. 2.01

QUINSAM COAL LIMITED

1982 & 1985 DRILL & TEST PROGRAM

COREHOLE LOCATIONS

DATE	DRAWN BY	DWG. NO.
AUG. 1985	SG/IK	0519-002

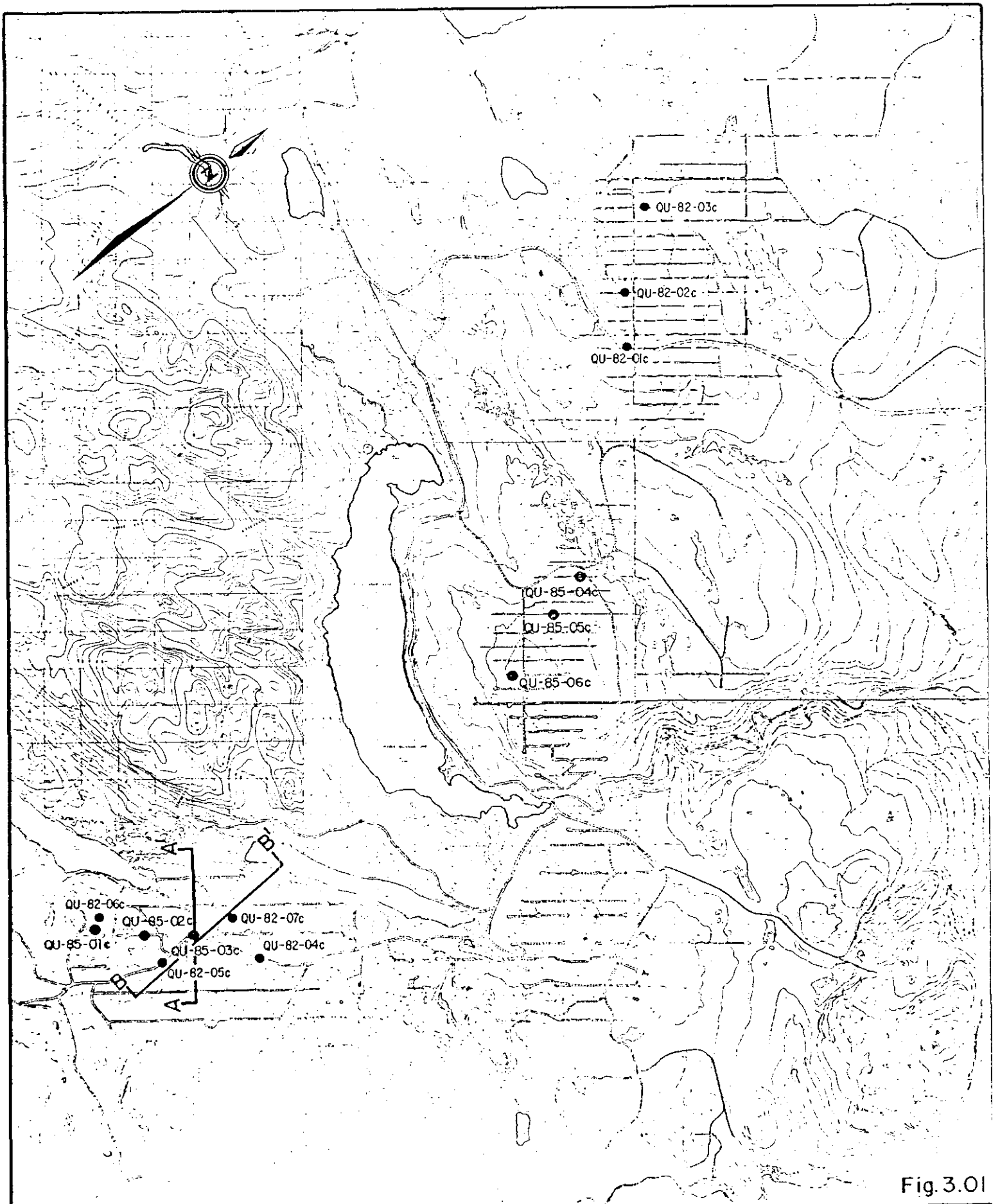


Fig. 3.01

QUINSAM COAL LIMITED

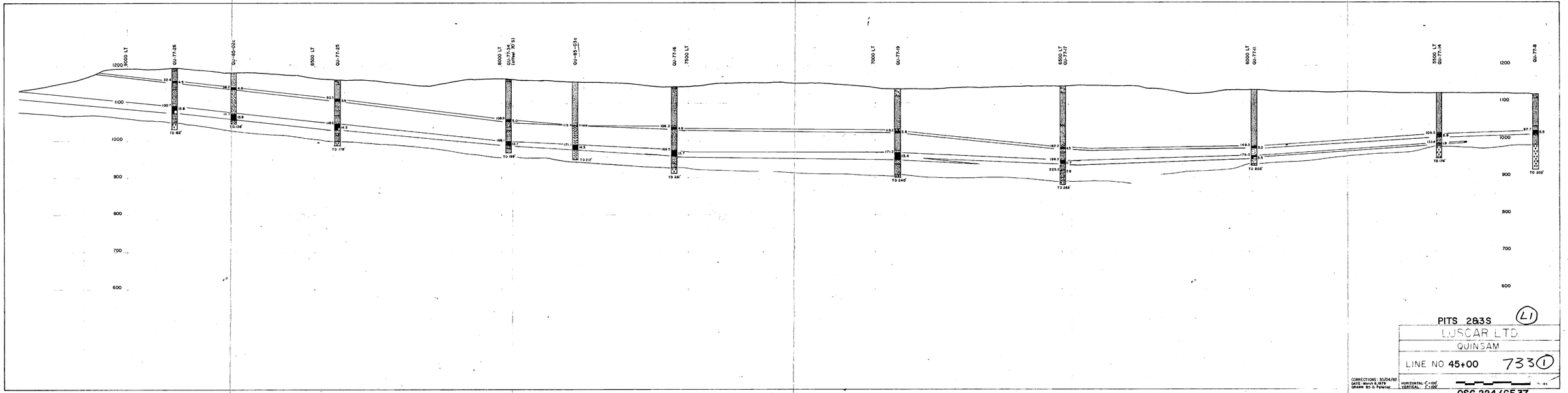
1982 & 1985 DRILL & TEST PROGRAM

COREHOLE LOCATIONS

LOCATION OF SECTIONS

2-3S

DATE	DRAWN BY	DWG. NO.
AUG 1985	SG/IK	



PITS 2835 (L1)

LUSCAR LTD

QUINSAM

LINE NO. 45+00 7330 (1)

CORRECTIONS: 30/04/82
DATE: March 6, 1979
DRAWN BY: D. Painter

HORIZONTAL: 1"=100'
VERTICAL: 1"=100'

QSG 224/GF 37

4.0 COAL QUALITY

The primary objective of the analytical work on the 1985 drill core samples was to utilize the data in order to determine the possibility of selectively mining the Seam 1 in both pits, in order to obtain an "as-mined" coal complying with current market requirements.

In addition to this primary objective, the initial data obtained would be carefully examined and further specialized analytical work carried out to suit other specific needs. (i.e. distinction between cleaned coal from main and basal sections of Seam 1S; oxidation characteristics of coal from each location; ash characteristics of the main and rider components of Seam 1N; etc.)

4.1 Sample Test and Analytical Procedures

Chemex Labs Ltd. of North Vancouver was asked to conduct analytical work in accordance with the program described in **Appendix F** and the flowsheets given in **Figures 4.01 and 4.03.** The results obtained from this work are given in full in **Appendix G.**

On receipt of the samples on June 24, 1985, Chemex was instructed by Brinco to proceed with sample preparation to obtain raw coal head sub-samples from all coal samples (see **Figure 4.01).** The remainder of each sample was to be stored in air tight containers. Samples of roof, floor and the rider seams were also to be stored awaiting further instructions. The single exception to this was the sample material obtained from QU-85-01C for the drill site closest to the location of the proposed Seam 1S bulk sample. The coal sections from this drill core taken from the main and basal

section of the Seam 1S were tested in accordance with the flowsheet given in **Figure 4.01** with the exception of the float-sink work at 1.7 R.D. only. The floor section sample was tested in accordance with the flowsheet given in **Figure 4.03.**

4.2 Raw Coal Analytical Work

Each raw coal head sample was analysed as indicated by the flowsheet in **Figure 4.01,** but petrographic work was restricted to a Safranin-O oxidation test. This work was conducted by D.E. Pearson and Associates Ltd. The oxidation test results from this work demonstrated that, for all practical purposes, the samples were unoxidized for all sources. These results are given in **Appendix H.**

The results obtained from Chemex are summarized in **Table 4.01** which gives results for raw coal from Seam 1S main and basal sections for core holes located in Pit 1, 2-3S; and in **Table 4.02** which gives results for Seam 1N main and rider seams for core holes in Pit 2N. One set of results was also obtained for Seam 2 which is included in **Table 4.01.**

4.3 Float-Sink on Coal Samples

Float-sink results obtained for QU-85-01C drill core samples of the main and basal sections of Seam 1S are included in **Tables 4.03, 4.04 and 4.05** (Main, Seam 1S) and **Tables 4.06, 4.07 and 4.08** - (Basal, Seam 1). Composite values for the total seam are given in **Tables 4.09, 4.10 and 4.11** . Size distribution results for each seam sub-section and the total Seam 1S are given in **Table 4.12.**

Based on twenty pairs of values of ash content and calorific value from **Tables 4.09, 4.10 and 4.11,** a linear regression equation

representing Seam 1S in the vicinity of drill hole QU-85-01C is as follows:

Gross Calorific Value (KCal/kg)
= 8047.1240 - 96.4339 x (Ash Content), on a dry basis

The regression coefficient for this equation is -0.9995.

4.4 Roof/Floor Samples: Analytical Work

The Seam 1S floor dilution sample obtained from drill core QU-85-01C was analysed and the results given in **Table 4.13** were obtained:

4.5 Correlation with Previous Work

The raw coal analytical results described earlier, when averaged in accordance with seam thickness, have been compared with previous Brinco drill-core analytical data from the 1982 drilling program. These comparisons are shown in **Table 4.14,** which shows Pit 1, 2-3S, Seam 1S and Seam 2 data; and **Table 4.15** which shows Pit 2N, Seam 1N with and without the inclusion of the rider.

TABLE 4.01

RAW COAL HEAD SAMPLE RESULTS FOR PIT 1-2-3S (Air Dry Basis)

PARAMETER	HOLE NUMBER (+ DESCRIPTION)						
	QU-85-01C (Seam 1S) Basal	QU-85-01C (Seam 1S) Main	QU-85-02C (Seam 1S) Basal	QU-85-02C (Seam 1S) Main	QU-85-03C* (Seam 1S) Basal	QU-85-03C (Seam 1S) Main	QU-85-02C (Seam 2) Main
Proximate Analysis:							
Residual Moisture (%)	2.67	3.11	2.59	3.32	2.57	2.97	3.08
Ash Content (%)	31.98	13.76	40.20	12.99	39.58	16.99	18.75
Volatiles (%)	29.21	35.57	26.32	35.81	26.38	35.23	35.99
Fixed Carbon (%)	36.14	47.56	30.89	47.88	31.47	44.81	42.18
Total Sulphur (%)	0.49	0.83	0.70	1.57	0.46	1.21	2.80
Total Chlorine (%)	0.01	0.02	0.01	0.01	0.01	0.01	0.01
Gross Calorific Value (kCal/kg)	4875	6519	4100	6596	4171	6212	6041
Relative Density	1.58	1.37	1.67	1.37	1.67	1.40	1.47
Seam Section Thickness, m	1.590	3.175	1.595	3.250	1.245	3.225	1.410

*Seam 2 was not found in this drill core: Geological sections suggest it has been pinched out in this area.

TABLE 4.02

RAW COAL HEAD SAMPLE RESULTS FOR PIT 2N (Air Dry Basis)

PARAMETER	HOLE NUMBER (DESCRIPTION)					
	QU-85-04C (Seam 1N) Main	QU-85-04C (Seam 1N) Rider	QU-85-05C (Seam 1N) Main	QU-85-05C (Seam 1N) Rider	QU-85-06C (Seam 1N) Main	QU-85-06C (Seam 1N) Rider
Proximate Analysis:						
Residual Moisture (%)	3.95	3.63	4.11	2.89	3.87	3.09
Ash Content (%)	10.18	12.27	13.39	25.59	11.40	15.93
Volatiles (%)	37.05	38.20	35.85	33.88	37.27	36.62
Fixed Carbon (%)	48.87	45.90	46.65	37.64	47.46	44.36
Total Sulphur (%)	0.56	2.00	0.36	5.30	0.76	2.12
Total Chlorine (%)	0.02	0.01	0.01	0.01	0.02	0.02
Gross Calorific Value (kCal/kg)	6710	6605	6447	5399	6542	6377
Relative Density	1.34	1.38	1.38	1.53	1.36	1.41
Seam Section Thickness, m	3.430	0.390	3.475	0.380	2.895	0.390

4.4 Roof/Floor Samples: Analytical Work

The Seam 1S floor dilution sample obtained from drill core QU-85-01C was analysed and the results given in **Table 4.13** were obtained:

4.5 Correlation with Previous Work

The raw coal analytical results described earlier when averaged in accordance with seam thickness have been compared with previous Brinco drill-core analytical data from the 1982 drilling programs. These comparisons are shown in **Table 4.13,** which shows Pit 1, 2-3S, Seam 1S and Seam 2 data; and **Table 4.14** which shows Pit 2N, Seam 1N with and without the inclusion of the rider.

Further correlations will be added later when the results from planned analytical work have been obtained.

TABLE 4.13

ANALYTICAL RESULTS OBTAINED FOR THE FLOOR SAMPLE BENEATH SEAM 1S FROM DRILL CORE QU-85-01C

Moisture (%)	1.95
Ash (%)	58.58
Gross Calorific Value (kCal/kg)	2240
Total Sulphur (%)	0.30
Relative Density (g/cm^3)	1.91

Ash Analysis:	
SiO_2 (%)	60.65
Al_2O_3 (%)	30.70
Fe_2O_3 (%)	1.79
CaO (%)	0.73
MgO (%)	0.34
TiO_2 (%)	1.68
Na_2O (%)	0.11
K_2O (%)	0.10
P_2O_5 (%)	0.10
SO_3 (%)	0.21
LOI (%)	0.74

Ash Fusion Temperature:	Oxidizing (°C)	Reducing (°C)
Initial Deformation	+ 1450	+ 1450
Softening (H=W)	+ 1450	+ 1450
Hemisphere (H=1/2W)	+ 1450	+ 1450
Flow	+ 1450	+ 1450

TABLE 4.14

WEIGHTED AVERAGES FOR 1985 RAW COAL ANALYSES COMPARED TO PREVIOUS BRINCO DATA FOR PIT 1, 2-3S (Air Dry Basis)

	1985 DATA		1982 DATA	
	Main Seam Only	Main Seam Plus Basal	Main Seam Only	Main Seam Plus Basal
Seam 1S				
Moisture (%)	3.13	2.97	2.72	2.54
Ash (%)	14.58	21.65	20.84	28.35
Volatiles (%)	35.54	32.98	35.04	32.22
Fixed Carbon (%)	46.75	42.40	41.40	36.89
Total Sulphur (%)	1.21	1.00	1.42	1.07
Gross Calorific Value (kCal/kg)	6442	5799	5987*	5317*
(No. of samples)	(3)	(6)	(4)	(2)
Seam 2				
Moisture (%)	3.08	N/A	2.61	N/A
Ash (%)	18.75	N/A	19.04	N/A
Volatiles (%)	35.99	N/A	36.91	N/A
Fixed Carbon (%)	42.18	N/A	41.44	N/A
Total Sulphur (%)	2.80	N/A	5.68	N/A
Gross Calorific Value (kCal/kg)	6041	N/A	6240*	N/A
(No. of samples)	(1)	(0)	(3)	(0)

N/A = not applicable

* Determined from regression equations for 1982 samples; all other values are actual 1982 or 1985 analytical results.

TABLE 4.15

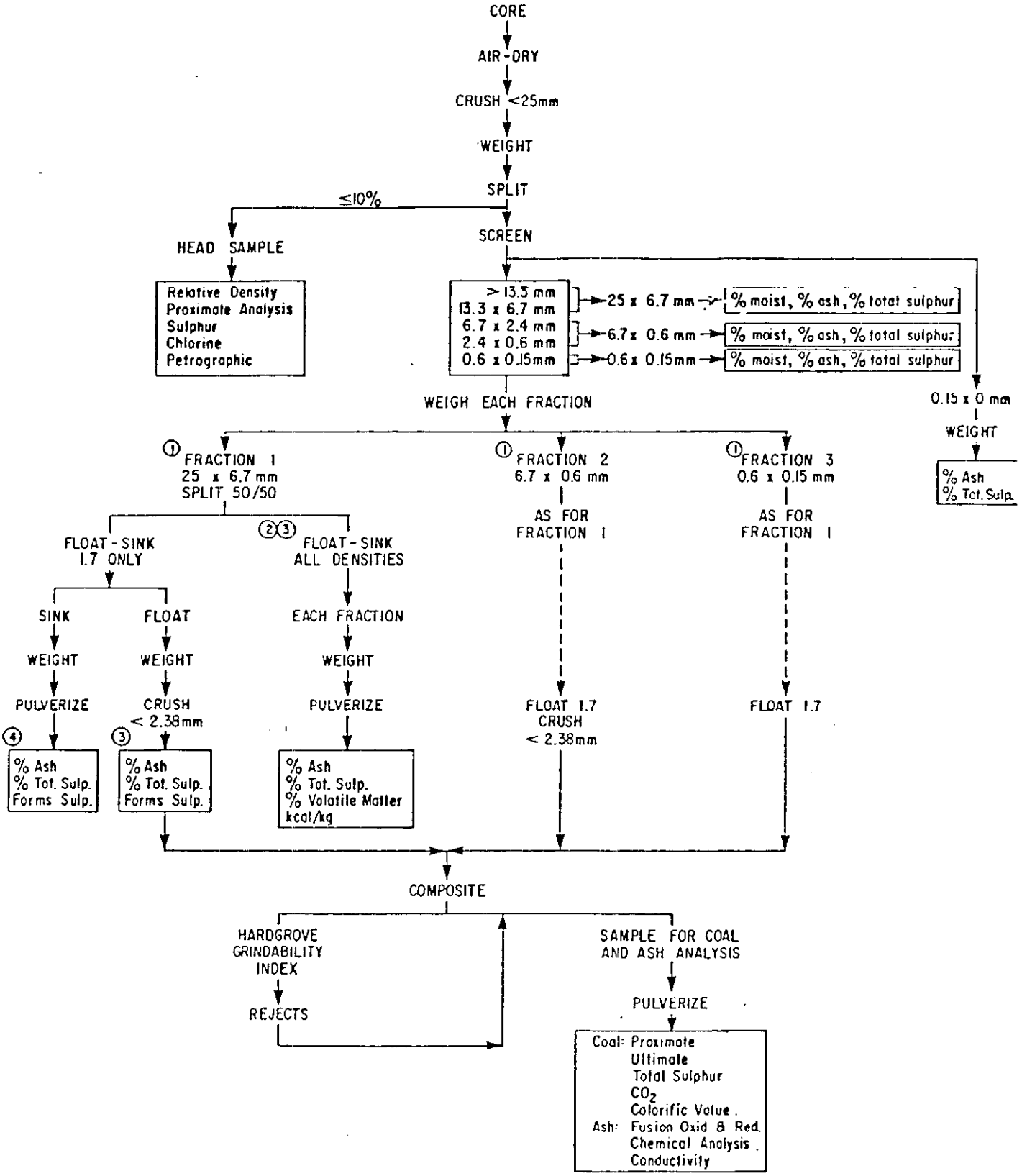
WEIGHTED AVERAGES FOR 1985 RAW COAL ANALYSES

COMPARED TO PREVIOUS BRINCO DATA FOR PIT 2N (Air Dry Basis)

	1985 DATA		1983 DATA	
Seam 1N	Main Seam Only	Main Seam Plus Rider	Main Seam Only	Main Seam Plus Rider
Moisture (%)	3.98	3.90	4.29	4.16
Ash (%)	11.67	12.33	10.37	11.39
Volatiles (%)	36.68	36.64	37.21	37.21
Fixed Carbon (%)	47.67	47.13	48.14	47.23
Total Sulphur (%)	0.55	0.57	0.39	0.68
Gross Calorific Value (kCal/kg)	6567	6521	6610	6530

FIGURE 4.01

TEST AND ANALYTICAL PROCEDURES FOR DRILL CORE SAMPLES OF 75mm AND 150mm DIAMETER



NOTE 1: For samples too small, the split may be omitted and the separation made at 1.7 only (75mm core samples only).

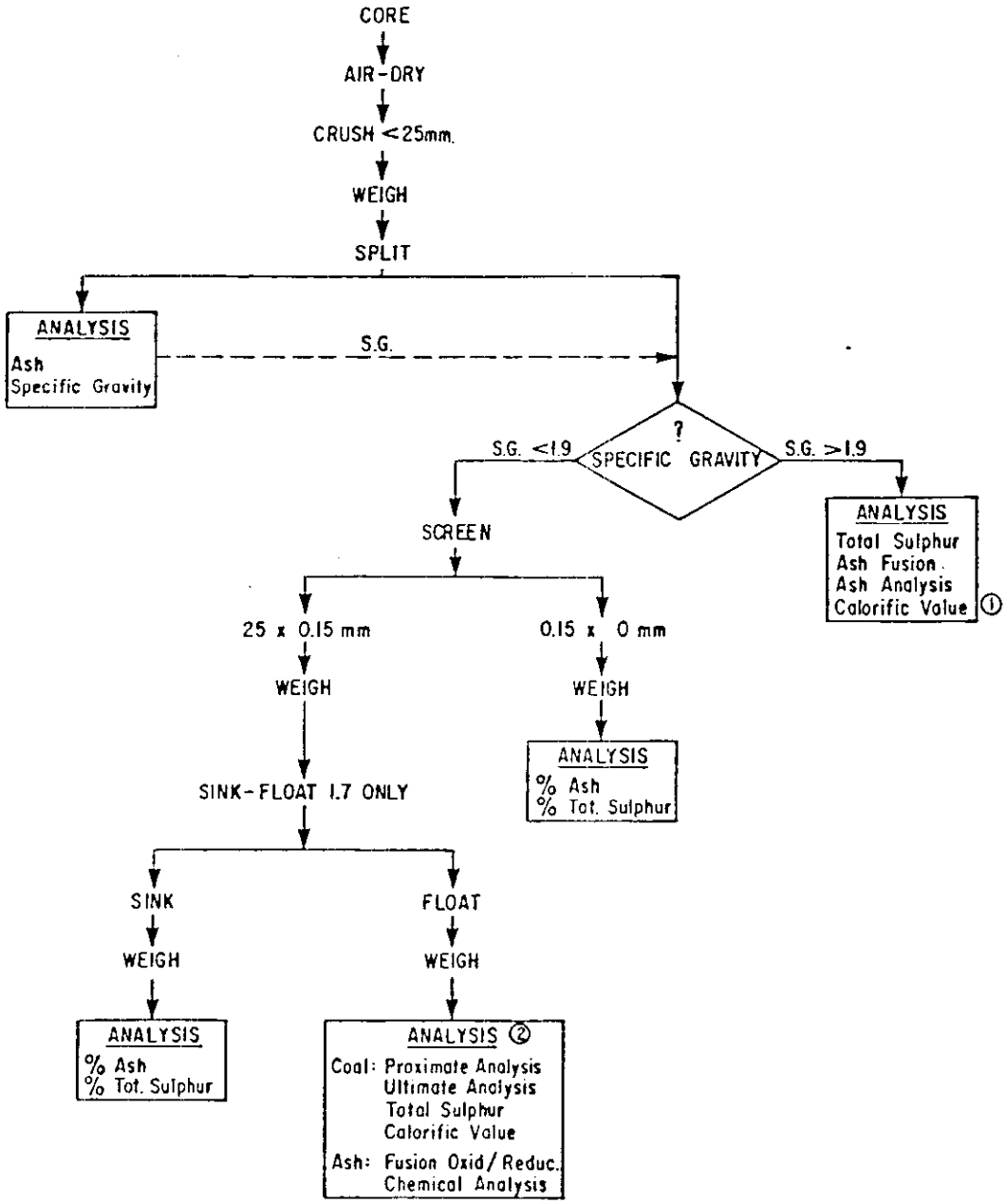
NOTE 2: 75mm core diameter, Float-Sink densities 1.3, 1.5, 1.7 and 1.9.

NOTE 3: 150mm core diameter, Float-Sink densities 1.30, 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.65, 1.70, 1.90.

NOTE 4: These analyses may be delayed until after the composites and final detailed analyses for clean coal and ash have been completed.

FIGURE 4.03

TEST AND ANALYTICAL PROCEDURES FOR DRILL CORE AND BULK SAMPLE ROOF, FLOOR AND IN-SEAM PARTING COMPONENTS AND RIDER SEAM COMPONENTS



NOTE: Moisture determination of all samples will be required to express results on a dry basis.

① Calorific Value, only if Ash is <60%

② Sample permitting, if not do as if specific gravity >1.9

APPENDIX A

1) SAMPLE INVENTORY, COAL SALES

2) SAMPLE INVENTORY, ACID GENERATION SAMPLES

FROM STEPHEN GARDNER DEPARTMENT PAGE 1 OF 3

SEND TO QUINSAM COAL LTD.
CAMPBELL RIVER, B.C.

DATE JUNE 21/85

SUBJECT COAL SAMPLE INVENTORY - QUINS

MESSAGE

Please find the following coal and floor dilution samples:

HOLE Number	Sample No.	Interval(m)	Thickness(m)	Description
QU-85-01C	1	5.00 - 8.175	3.175	No. 1 Seam
QU-85-01C	2	8.175 - 9.765	1.590	No. 1 Basal Zone
QU-85-01C	2A	9.765 - 9.841	.076	Floor Dilution
QU-85-02C	1	11.645 - 13.055	1.410	No. 2 Seam
QU-85-02C	1A	13.055 - 13.130	.076	Floor Dilution
QU-85-02C	2	33.87 - 37.12	3.25	No. 1 Seam
QU-85-02C	3	37.12 - 38.715	1.595	No. 1 Basal Zone
QU-85-02C	3A	38.715 - 38.791	.076	Floor Dilution
QU-85-04C	1	38.75 - 39.14	.39	No. 1 Rider Sea
QU-85-04C	1A	39.14 - 39.22	.08	Floor Dilution
QU-85-04C	2	39.81 - 43.24	3.43	No. 1 Seam
QU-85-04C	2A	43.24 - 43.32	.08	Floor Dilution

Signed: Stephen Gardner

USE LOWER PORTION FOR REPLY

REPLY FROM

DATE

FROM STEPHEN GARDNER DEPARTMENT

SEND TO

QUINSAM COAL LTD.
CAMPBELL RIVER, B.C.

DATE JUNE 21/85

SUBJECT COAL SAMPLE INVENTOI
QUINSAM 1985

MESSAGE

Please find the following coal and floor dilution samples:

HOLE NUMBER	SAMPLE No.	INTERVAL (m)	THICKNESS (m)	DESCRIPTION
QU-85-03c	1	52.15 - 55.375	3.225	No. 1 SEAM
QU-85-03c	2	55.375 - 56.620	1.245	No. 1 SEAM BASAL 2
QU-85-03c	2 A	56.620 - 56.700	.08	No. 1 Floor Dilutio.

Signed, Stephen Gardner

USE LOWER PORTION FOR REPLY REPLY FROM DATE

FROM STEPHEN GARDNER DEPARTMENT

SEND TO QUINSAM COAL LTD
CAMPBELL RIVER, B.C.

DATE JUNE 22/85

SUBJECT COAL SAMPLE INVENTORY

MESSAGE Please find the following coal & floor dilution samples:

HOLE NUMBER	SAMPLE No.	INTERVAL (m)	THICKNESS (m)	Description
QU-85-05C	1	45.505 - 45.885	.38	No. 1 RIDER SEAM
QU-85-05C	1A	45.885 - 45.961	.076	No. 1 RIDER FLOOR DILUT.
QU-85-05C	2	46.375 - 49.850	3.475	No. 1 SEAM
QU-85-05C	2A	49.850 - 49.926	.076	No. 1 SEAM FLOOR DILUTION
QU-85-06C	1	32.41 - 32.80	.39	No. 1 RIDER SEAM
QU-85-06C	1A	32.80 - 32.875	.075	No. 1 RIDER FLOOR DILUTION
QU-85-06C	2	32.875 - 33.025	.15	INTERBURDEN
QU-85-06C	3	33.025 - 35.920	2.895	No. 1 SEAM
QU-85-06C	3A	35.920 - 36.00	.08	No. 1 FLOOR DILUTION

Signed, Stephen Gardner

USE LOWER PORTION FOR REPLY REPLY FROM DATE

FROM STEPHEN GARDNER DEPARTMENT PAGE 1 OF

SEND TO MR. TOM LIDKEA
QUINSAM COAL LTD.

DATE JUNE 22/85

SUBJECT SAMPLE INVENTORY
ACID GENERATION TESTING

MESSAGE

HOLE NUMBER	PIT DESIGNATION	SAMPLED SECTION (m)	SAMPLE INTERVAL (m)	No. of SAMPLES		SAMPLE TYPE
QU-85-01c	1S	1.00-2.00	1.00	1		cuttings
"	"	2.00 - 3.00	1.00	1		core
"	"	3.00 - 4.00	1.00	1		core
"	"	4.00 - 4.80	.80	1		core
"	"	4.80 - 4.93	.13	1		core
"	"	9.841 - 11.0	1.16	1		core
QU-85-02c	2-3S	2.00 - 11.00	1.00 each	10	No 1 sample from	cuttings
"	"	11.00 - 11.51	.51	1		core
"	"	11.51 - 11.645	.135	1		core
"	"	13.13 - 13.545	.415	1		core
"	"	13.545 - 13.995	.450	1		core
"	"	14.00 - 33.00	1.00 each	19		cuttings
"	"	33.00 - 33.87	.87	1		core
~~" ~~	~~" ~~	~~33.77 - 33.87~~	~~.10~~	~~1~~		~~core~~
"	"	38.81 - 39.01	.20	1		core

TOTAL SAMPLES 85-01c = 6
TOTAL SAMPLES 85-02c = 35

USE LOWER PORTION FOR REPLY

REPLY FROM Stephen Gardner DATE

FROM: STEPHEN GARDNER — DEPARTMENT: —

SEND TO: MR. TOM LIDKEA
QUINSAM COAL LTD.

DATE: JUNE 22/85

SUBJECT: SAMPLE INVENTORY
ACID GENERATION TESTING

MESSAGE

HOLE NUMBER	PIT DESIGNATION	SAMPLED SECTION (m)	SAMPLE INTERVAL (m)	No. OF SAMPLES	SAMPLE TYPE
2U-85-03c	2-3S	1.00 - 34.00	1.0 each	33	cuttings
"	"	34.00 - 34.75	.75	1	cuttings
"	"	34.75 - 35.50	.75	1	core
"	"	35.50 - 36.21	.71	1	core
"	"	36.21 - 37.01	.80	1	core
"	"	37.01 - 37.75	.74	1	core
"	"	37.75 - 38.75	1.00	1	core
"	"	38.75 - 39.75	1.00	1	core
"	"	39.75 - 40.75	1.00	1	core
"	"	40.75 - 42.00	1.25	1	cuttings
"	"	42.00 - 51.00	1.00 each	9	cuttings
"	"	51.00 - 52.15	1.15	1	cuttings
"	"	56.70 - 58.15	.45 No. 1 Flux	1	core

TOTAL SAMPLES HOLE 03 = 53

USE LOWER PORTION FOR REPLY — REPLY FROM — DATE

FROM: STEPHEN GARDNER — DEPARTMENT —

SEND TO: MR. TOM LIDKEA
QUINSAM COAL LTD.

DATE: JUNE 22/85

SUBJECT: SAMPLE INVENTORY
ACID GENERATION TESTING

MESSAGE

HOLE NUMBER	PIT DESIGNATION	SAMPLED SECTION (m)	SAMPLE INTERVAL (m)	No. of SAMPLES	SAMPLE TYPE
QU-85-04	2N	12.5 - 13.0	.50 m	1	cuttings
"	"	13.0 - 38.0	1.00 each	25	cuttings
"	"	39.22 - 39.81	.59	1	core
"	"	~~35~~ 43.32 - 43.85	.53	1	Core No. 11
			TOTAL	28	samples
QU-85-05	2N	1.5 - 2.0	.5	1	cuttings
"	"	2.0 - 30.0	1 each	28	cuttings
"	"	30.0 - 45.0	1 each	15	cuttings
"	"	45.0 - 45.19	.19	1	core
"	"	45.19 - 45.505	.315	1	core
"	"	45.961 - 46.375	.414	1	core (Interburd IR - 1)
"	"	49.926 - 51.0	1.074	1	core (No. 1 Fl.
			TOTAL	48	samples

Signed, Stephen Gardner

USE LOWER PORTION FOR REPLY — REPLY FROM — DATE

FROM STEPHEN GARDNER DEPARTMENT PAGE 4 OF 4

SEND TO

TO MR. TOM LIDKEA
QUINSAM COAL LTD.

DATE JUNE 22/85

SUBJECT SAMPLE INVENTORY
ACID GENERATION TESTWORK

MESSAGE HOLE NUMBER	PIT DESIGNATION	SAMPLED SECTION (m)	SAMPLE INTERVAL (m)	No. of SAMPLES	SAMPLE TYPE
QU-85-06	PIT 2N	1.5 - ~~32~~ 2.0	.50 ~~each~~	1	cuttings
QU-85-06	PIT 2N	2.0 - 32.0	1m. each	30	cuttings
QU-85-06	"	32.0 - ~~35~~ .41	.41	1	core
"	"	36.00 - 36.53	.53	1	core } N
"	"	36.53 - 37.34	.81	1	core } Fl
"	"	37.34 - 38.00	.66	1	core }
				TOTAL 35	SAMPLES

Signed, Stephen Gardner

USE LOWER PORTION FOR REPLY REPLY FROM DATE

APPENDIX B

1) DRILL LOGS

2) GEOPHYSICAL LOGS

QUINSAM COAL LIMITED

DRILLER'S LOG

Pit Number: Pit 1S Date: June 18, 1985

Company: Drillwell Enterprises Ltd.

Hole Number: QU-85-01C

Approximate Location: Near 1S Bulk Sample Site

Surveyed Location:

Elevation:

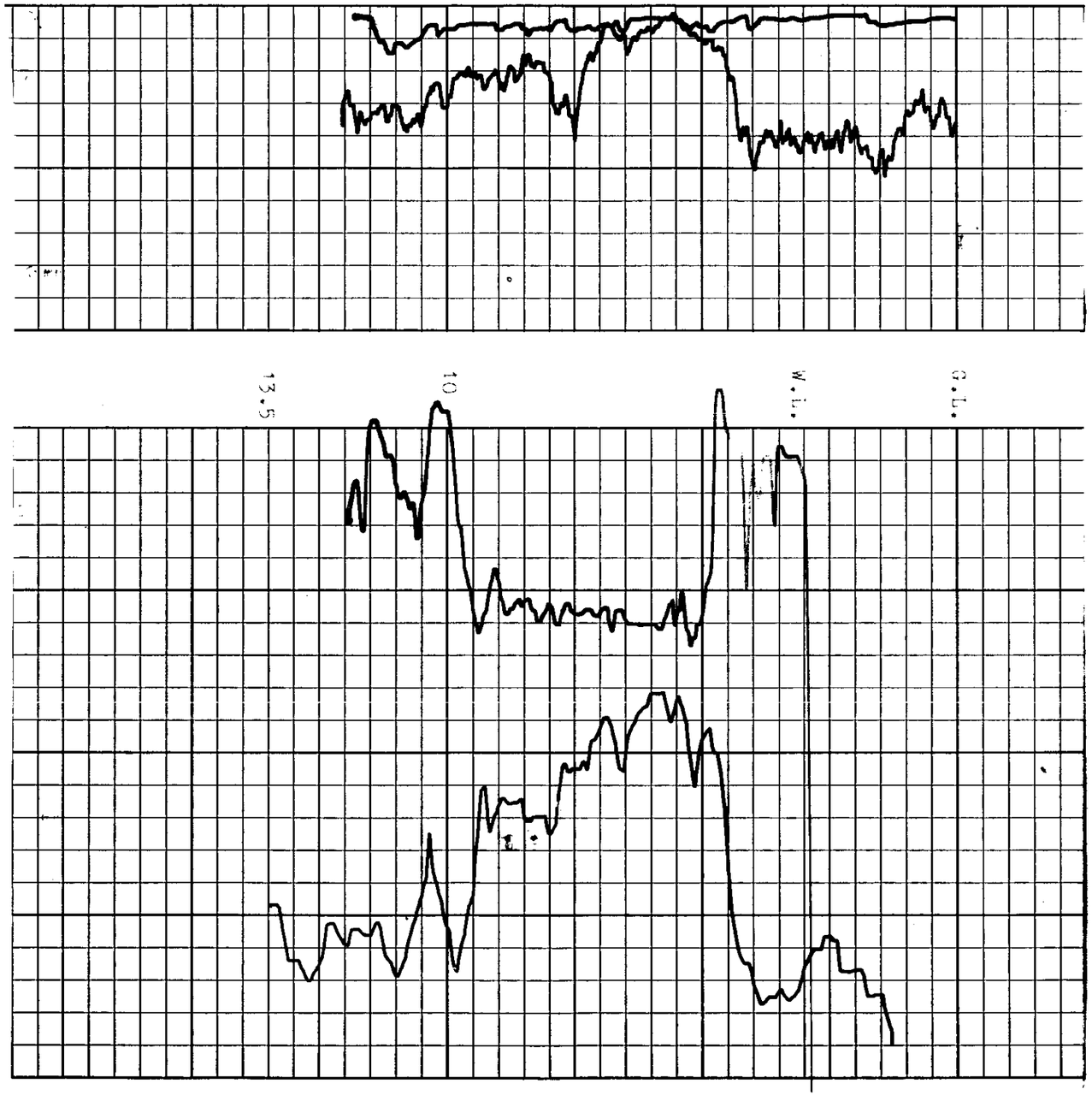
Driller: D. Slade

Metres

FROM	TO	LOG	REMARKS
0	2m	Broken Sandstone & Siltstone	
2	5	Siltstone, Hard	Core #1, 2-5m
5	10	Coal	Core #2, 5-8m
10	13	Siltstone	Core #3, 8-11m.

Comments: Began coring at 2 metres; hole not surveyed in.

Water Horizon: m.



CALIPER 3/1 | NATURAL GAMMA | 3 | RESISTIVITY | 10 | DENSITY

DAVIES EXPLORATION LOGGING LTD.

COMPANY Brinco Mining Limited

HOLE NUMBER QU - 85 - 01

LOCATION

PROVINCE B.C.

ELEVATION

LOG TYPE: CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY

DATE June 29 1985

DRILLED DEPTH 13.5

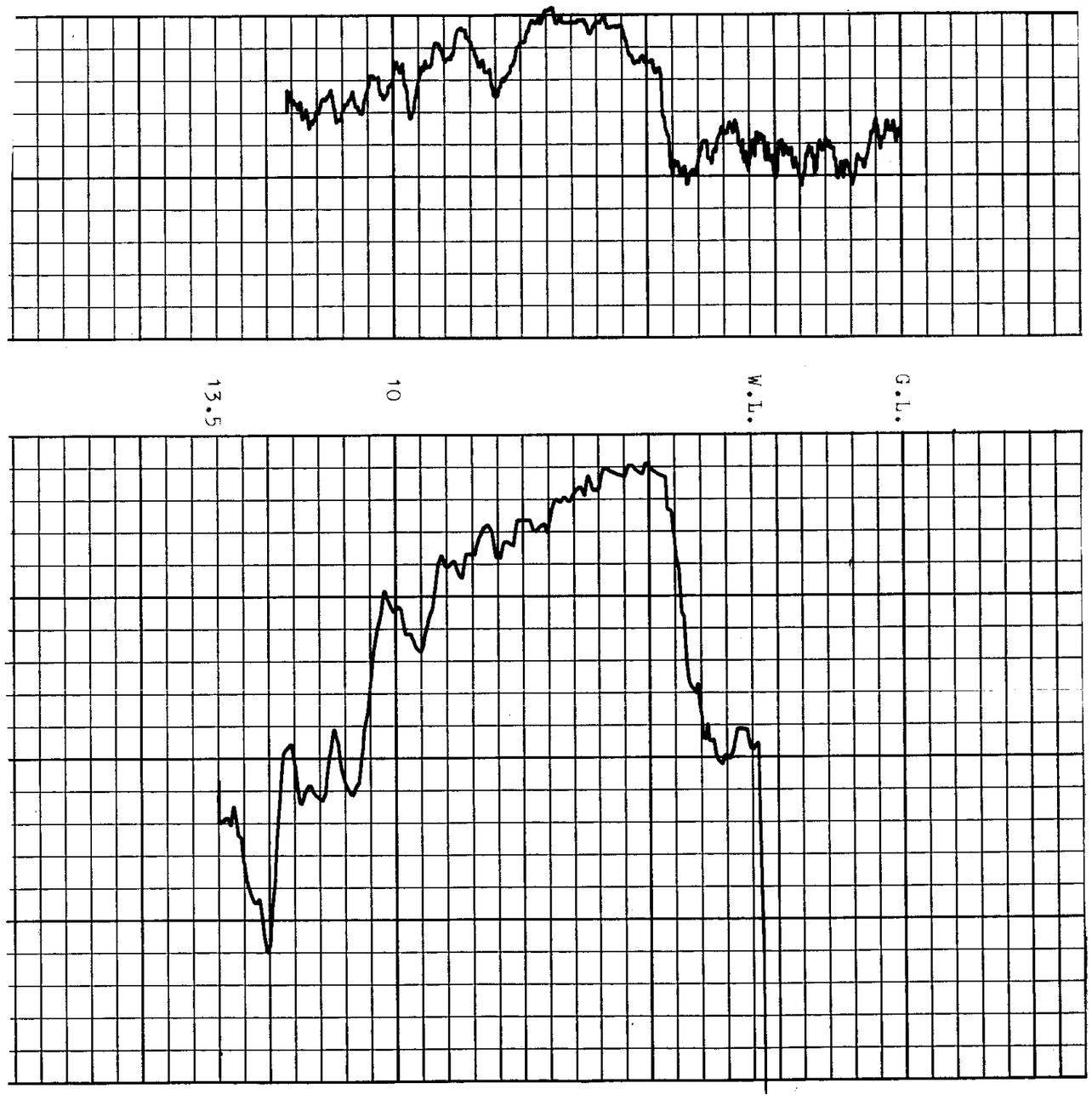
LOGGED DEPTH 13.5

ZERO DATUM G.L.

HOLE DIAMETER 6"

CASING LENGTH

REMARKS:



DAVIES EXPLORATION LOGGING LTD.

COMPANY	Brinco Mining Limited
HOLE NUMBER	QU - 85 - 01
LOCATION	
PROVINCE	B.C.
ELEVATION	
LOG TYPE:	Natural Gamma & Neutron
DATE	June 29 1985
DRILLED DEPTH	13.5
LOGGED DEPTH	13.5
ZERO DATUM	G.L.
HOLE DIAMETER	6"
CASING LENGTH	
REMARKS:	

QUINSAM COAL LIMITED

DRILLER'S LOG

Pit Number: Pit 2-3S Date: June 19, 1985

Company: Drillwell Enterprises Ltd.

Hole Number: QU-85-02C

Approximate Location: Near No. 2 Seam Bulk Sample Site, Pit 2S, hole not surveyed.

Surveyed Location:

Elevation:

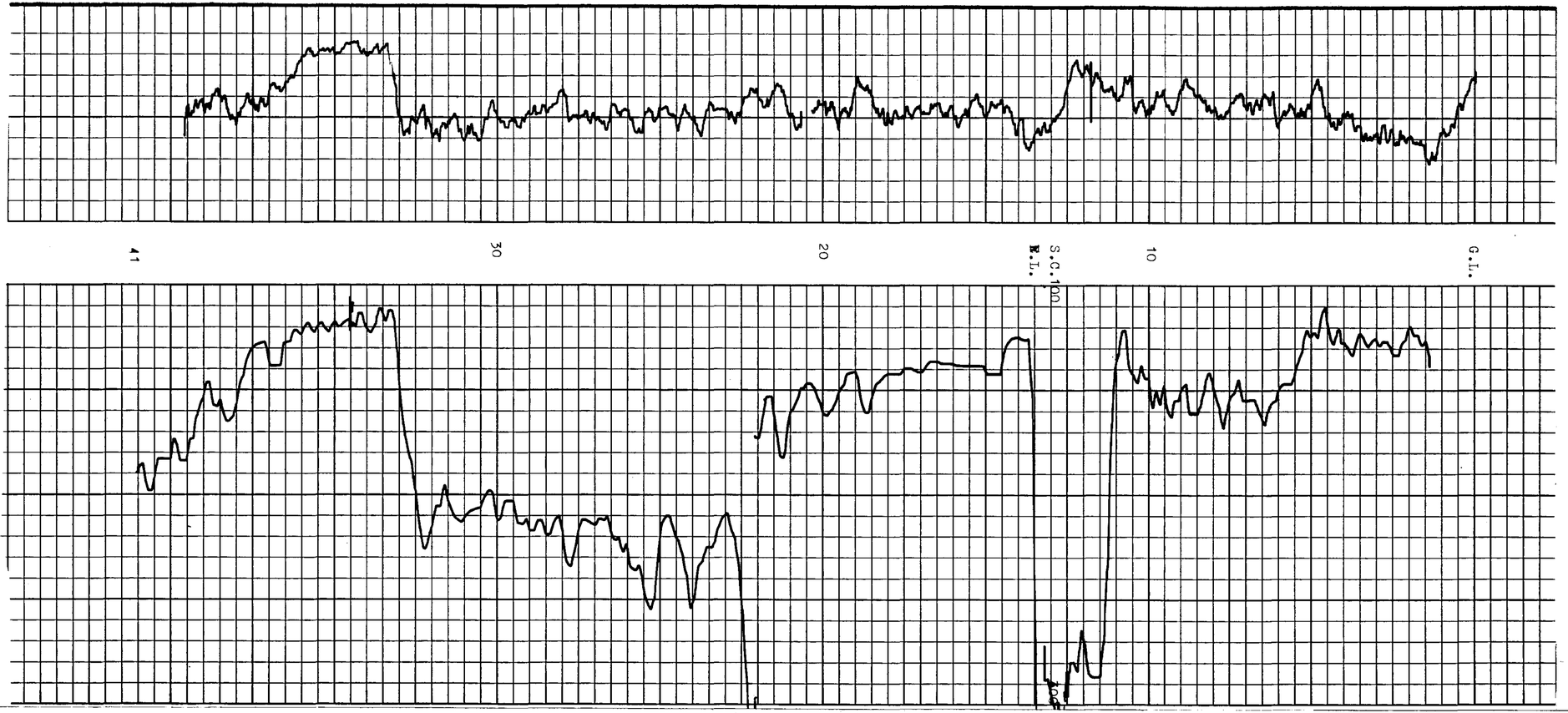
Driller: D. Slade

Metres

FROM	TO	LOG	REMARKS
0	1	Brown soil and sandstone	
1	12	Sandstone, fine, grey	Core #1, 11-14m
12	14	Coal	
14	34	Siltstone	Core #2, 33-36m
34	39	Coal	Core #3, 36-39m
39	42	Siltstone	

Comments:

Water Horizon: m.



0 Natural Gamma 30 900 Neutron 140

DAVIES EXPLORATION LOGGING LTD.

COMPANY: Brinco Mining Limited

HOLE NUMBER: QU - 85 - 02

LOCATION:

PROVINCE: B.C.

ELEVATION:

LOG TYPE: Natural Gamma & Neutron

DATE: June 29 1985

DRILLED DEPTH: 42

LOGGED DEPTH: 41

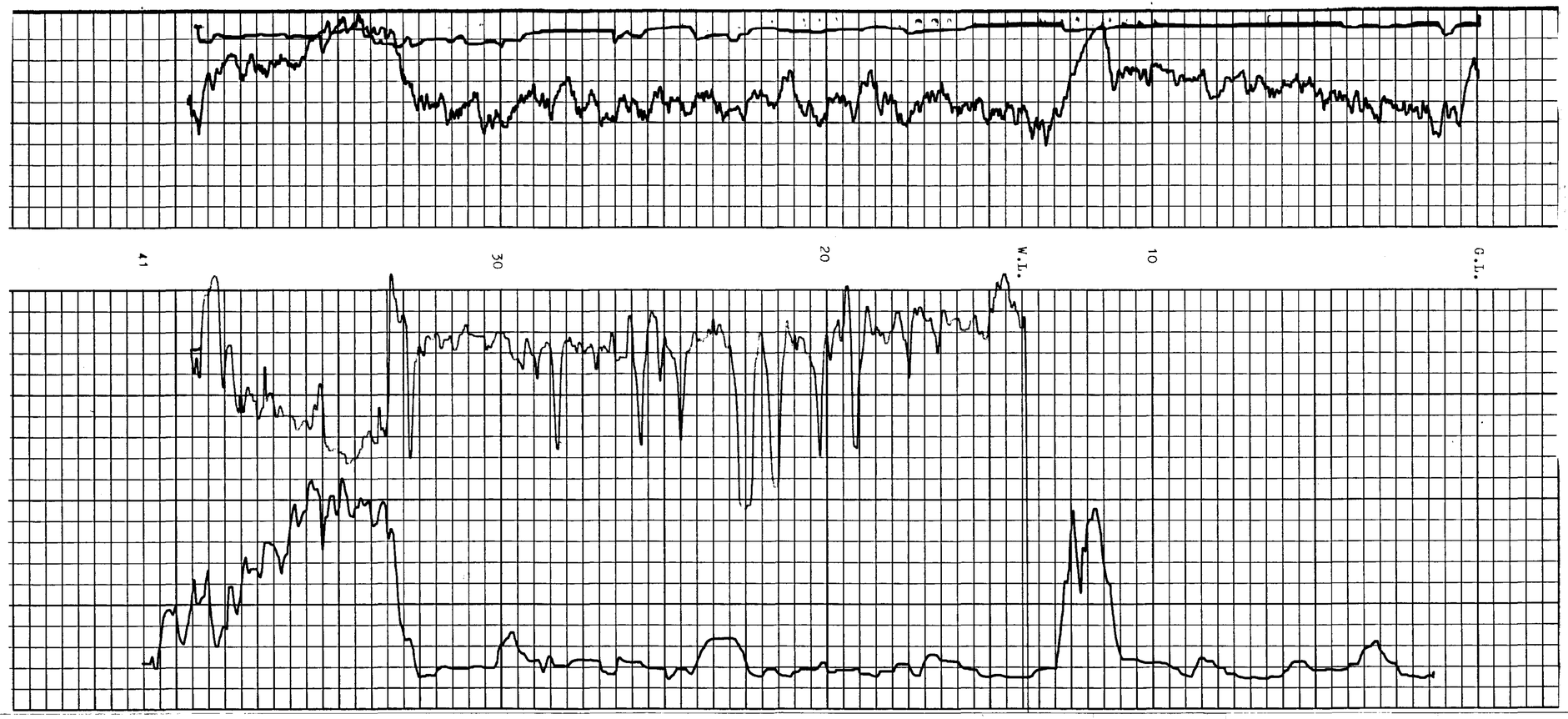
ZERO DATUM: G.L.

HOLE DIAMETER: 6"

CASING LENGTH:

REMARKS:

(42)



CALIPER 6" 1 | 3 | NATURAL GAMMA

RESISTIVITY | 10 | DENSITY

DAVIES EXPLORATION LOGGING LTD.

COMPANY Brinco Mining Limited

HOLE NUMBER QU - 85 - 02

LOCATION

PROVINCE B.C.

ELEVATION

LOG TYPE: CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY

DATE June 29 1985

DRILLED DEPTH 42

LOGGED DEPTH 41

ZERO DATUM G.L.

HOLE DIAMETER 6"

CASING LENGTH

REMARKS:

L3

QUINSAM COAL LIMITED

DRILLER'S LOG

Pit Number: Pit 2-3S Date: June 17, 1985

Company: Drillwell Enterprises Ltd.

Hole Number: QU-85-03C

Approximate Location: On main trail near centre of Pit 2-3S, 55.2 m. N.E. of Hole 77-34 on NW side of road.

Surveyed Location:

Elevation:

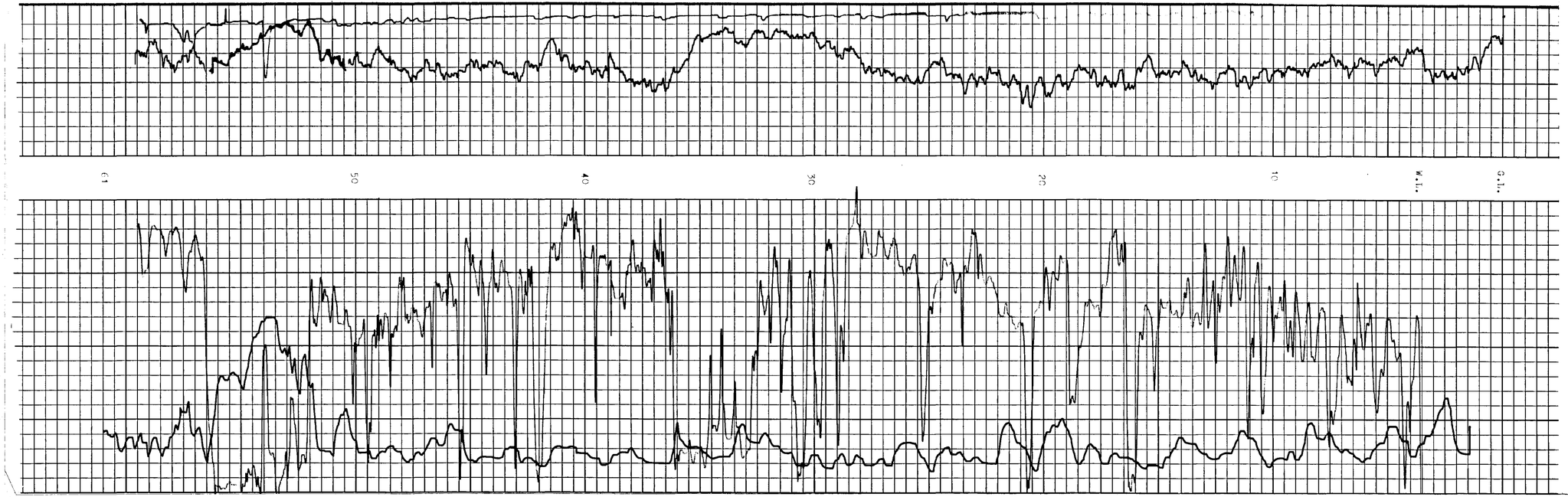
Driller: D. Slade

Metres

FROM	TO	LOG	REMARKS
0	1.2	Brown Sandstone, broken	
1.2	36.6	Sandstone	Core #1, 34.75 - 37.35m
36.6	37.8	Siltstone, thin coal	Core #2, 37.75 - 40.75m
37.8	51.5	Siltstone	
51.5	56.4	Coal	Core #3, 52.15 - 55.15m
56.4	64.6	Siltstone	Core #4, 55.15 - 58.15m

Comments: Hole not surveyed in.

Water Horizon: 18.3 m. 2 g.p.m.



CALIPER 3/1 | 3 | NATURAL GAMMA

RESISTIVITY | 10 | DENSITY

DAVIES EXPLORATION LOGGING LTD.

COMPANY Brinco Mining Limited

HOLE NUMBER QU - 85 - 03

LOCATION

PROVINCE B.C.

ELEVATION

LOG TYPE: CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY

DATE June 29 1985

DRILLED DEPTH 64

LOGGED DEPTH 61

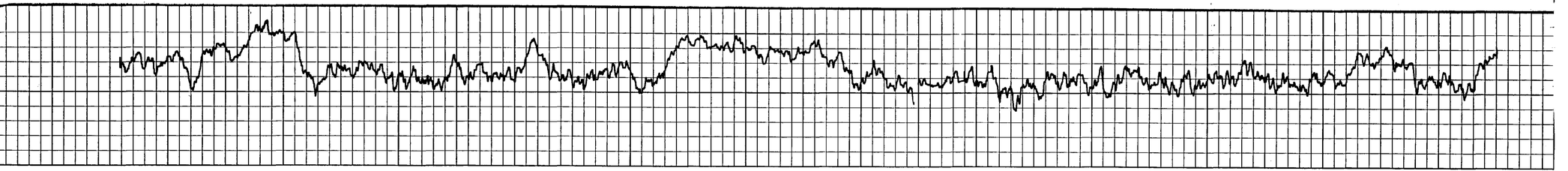
ZERO DATUM G.L.

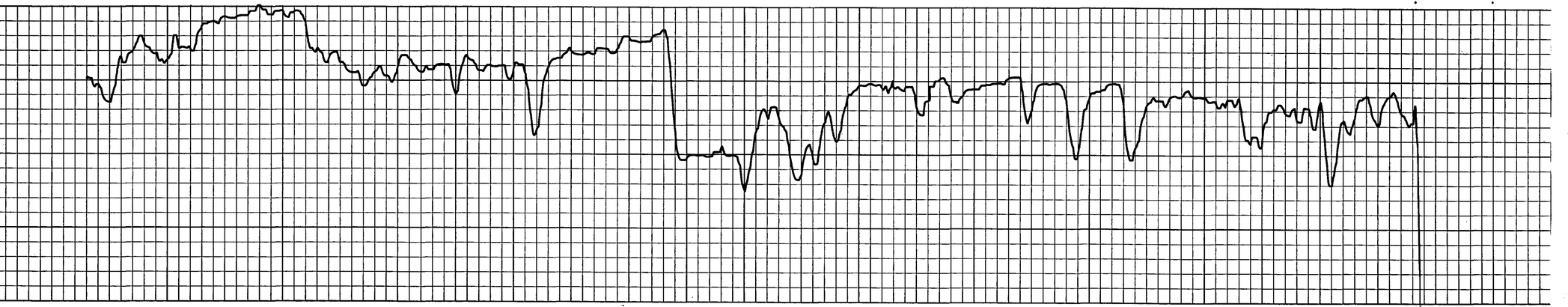
HOLE DIAMETER 6"

CASING LENGTH

REMARKS:

L4





0 Natural Gamma 30 100 Neutron 600

DAVIES EXPLORATION LOGGING LTD.

COMPANY	Brinco Mining Limited
HOLE NUMBER	QU - 85 - 03
LOCATION	
PROVINCE	B.C.
ELEVATION	
LOG TYPE:	Natural Gamma & Neutron
DATE	June 29 1985
DRILLED DEPTH	64
LOGGED DEPTH	61
ZERO DATUM	G.L.
HOLE DIAMETER	6"
CASING LENGTH	

REMARKS:

L5

QUINSAM COAL LIMITED

DRILLER'S LOG

Pit Number: Pit 2N Date: June 21, 1985

Company: Drillwell Enterprises Ltd.

Hole Number: QU-85-04C

Approximate Location: NW side of Pit 2N, Line 107+50, 59.1 metres north of hole 78-50C

Surveyed Location:

Elevation:

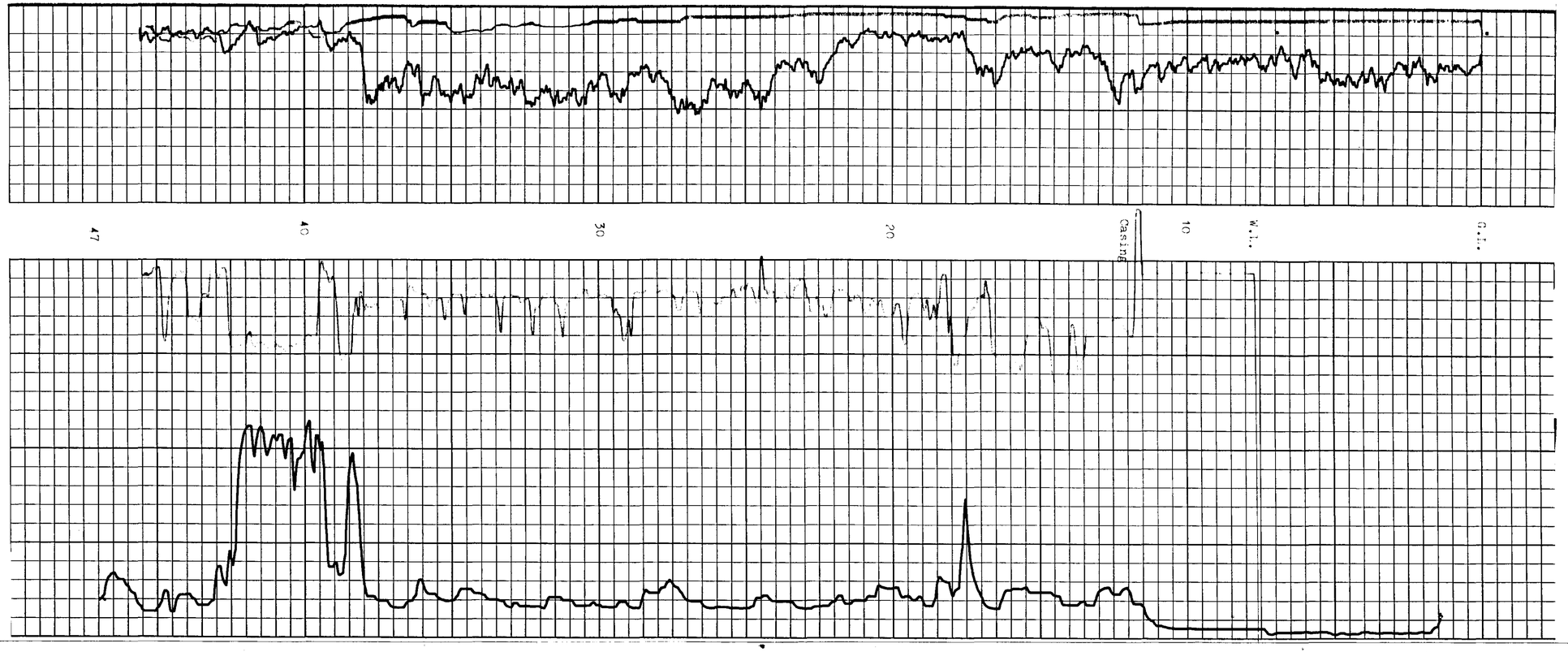
Driller: D. Slade

Metres

FROM	TO	LOG	REMARKS
0	12	Tight grey till & boulders	
12	17	Sandstone, fine, grey	
17	18	Siltstone	
18	18.5	Coal	
18.5	20	Siltstone	
20	38.75	Shale	
38.75	39.25	Coal	Core #1, 38.75 - 41.75m.
39.25	40.35	Coal	Core #2, 41.75 - 44.75m.
40.35	48	Siltstone, mudstone, shale layers	

Comments:

Water Horizon: m.



DAVIES EXPLORATION LOGGING LTD.

COMPANY Brinco Mining Limited

HOLE NUMBER QU - 85 - 04

LOCATION

PROVINCE B.C.

ELEVATION

LOG TYPE: CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY

DATE June 30 1985

DRILLED DEPTH 48

LOGGED DEPTH 47

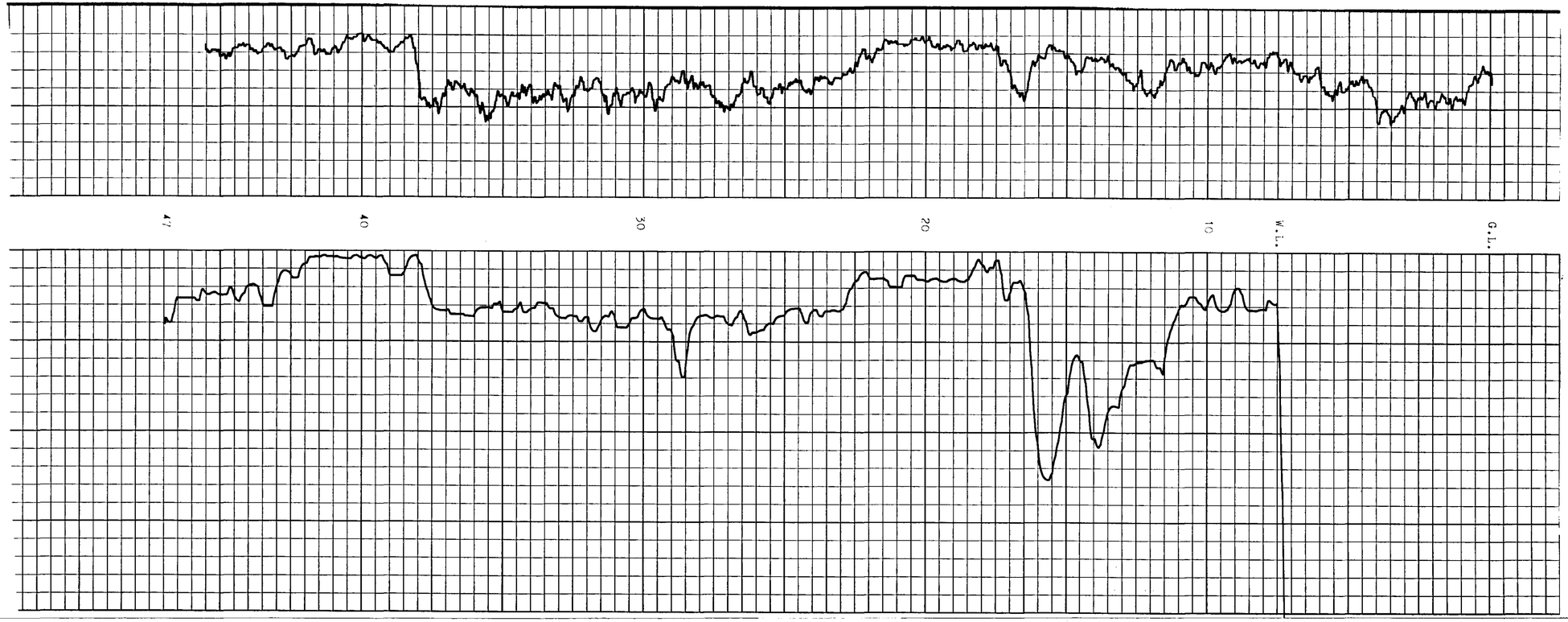
ZERO DATUM G.L.

HOLE DIAMETER 6"

CASING LENGTH 11.6

REMARKS:

L6



0 Natural Gamma 30 100 Neutron 600

DAVIES EXPLORATION LOGGING LTD.

COMPANY: Brinco Mining Limited

HOLE NUMBER: QU - 85 - 04

LOCATION:

PROVINCE: B.C.

ELEVATION:

LOG TYPE: Natural Gamma & Neutron

DATE: June 30 1985

DRILLED DEPTH: 48

LOGGED DEPTH: 47

ZERO DATUM: G.L.

HOLE DIAMETER: 6"

CASING LENGTH: 11.6

REMARKS:

47

QUINSAM COAL LIMITED

DRILLER'S LOG

Pit Number: Pit 2N Date: June 20, 1985

Company: Drillwell Enterprises Ltd.

Hole Number: QU-85-05C

Approximate Location: Centre of Pit 2N, Line 100+00, Hole not surveyed in.

Surveyed Location:

Elevation:

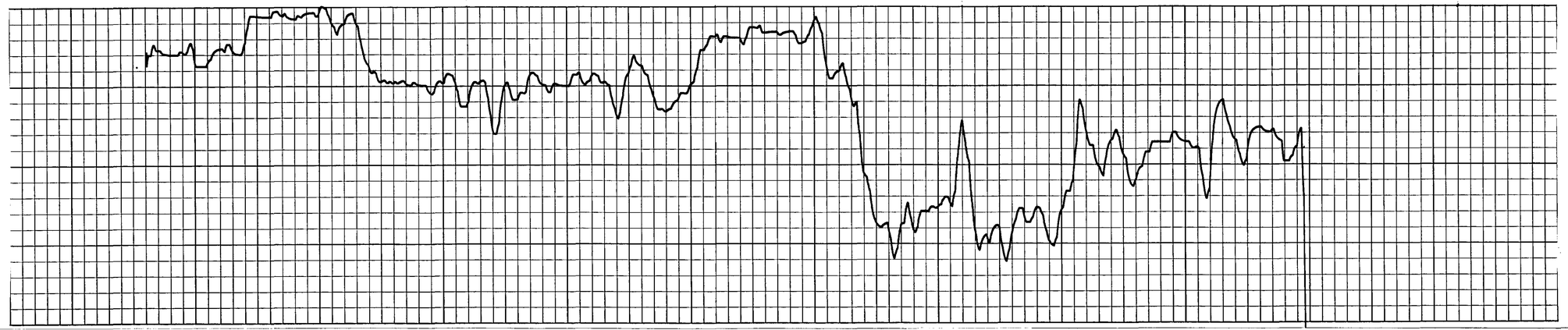
Driller: D. Slade

Metres

FROM	TO	LOG	REMARKS
0	1.5	Brown rocky soil	
1.5	15	Sandstone	
15	16	Shale	
16	23.5	Sandstone, white, coarse, soft	
23.5	25	Conglomerate	
25	26	Siltstone	
26	45	Shale	
45.5	50	Coal	Core #1, 45 - 48m.
50	54	Mudstone	Core #2, 48 - 51m.

Comments: Hole not surveyed in.

Water Horizon: m.



DAVIES EXPLORATION LOGGING LTD.

COMPANY: Brinco Mining Limited

HOLE NUMBER: QU - 85 - 05

LOCATION:

PROVINCE: B.C.

ELEVATION:

LOG TYPE: Natural Gamma & Neutron

DATE: June 30 1985

DRILLED DEPTH: 54

LOGGED DEPTH: 53

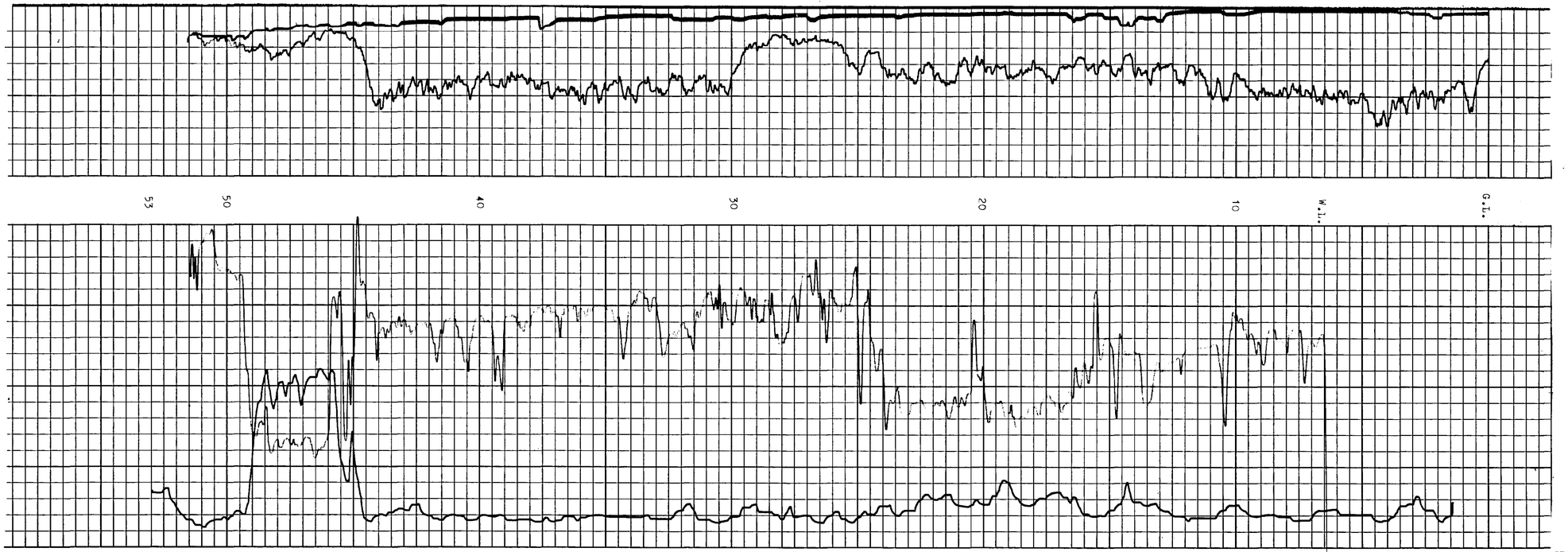
ZERO DATUM: G.L.

HOLE DIAMETER: 6"

CASING LENGTH:

REMARKS:

(8)



CALIPER 3/1 | 3 |

NATURAL GAMMA

RESISTIVITY | 10 |

DENSITY

DAVIES EXPLORATION LOGGING LTD.

COMPANY Brinco Mining Limited

HOLE NUMBER QU - 85 - 05

LOCATION

PROVINCE B.C.

ELEVATION

LOG TYPE: CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY

DATE June 30 1985

DRILLED DEPTH 54

LOGGED DEPTH 53

ZERO DATUM G.L.

HOLE DIAMETER 6"

CASING LENGTH

REMARKS:

L9

QUINSAM COAL LIMITED

DRILLER'S LOG

Pit Number: Pit 2N Date: June 22, 1985

Company: Drillwell Enterprises Ltd.

Hole Number: QU-85-06C

Approximate Location: Near West side of Pit 2N, Line 90+00, 29 metres North of Hole 78-06C

Surveyed Location:

Elevation:

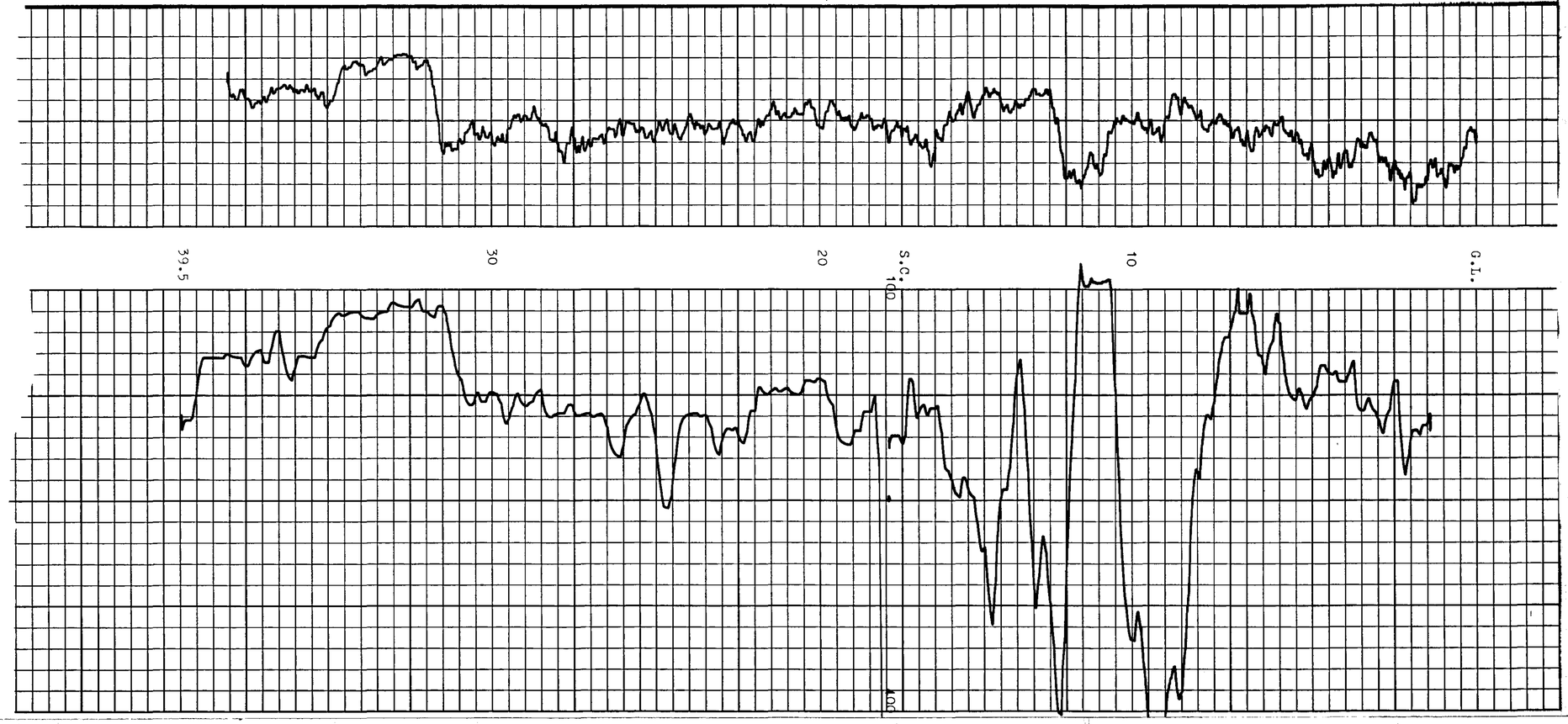
Driller: D. Slade

Metres

FROM	TO	LOG	REMARKS
0	1	Brown gravel	
1	12	Sandstone	
12	13	Shale	
13	13.75	Coal	
13.75	24	Mudstone	
24	32	Shale	
32	33	Shale	Core #1, 32 - 35m.
33	36	Coal	Core #2, 35 - 38m.
36	37	Mudstone	
37	38	Sandstone, .3m Coal at 37.5	

Comments: Hole not surveyed in.

Water Horizon: m.

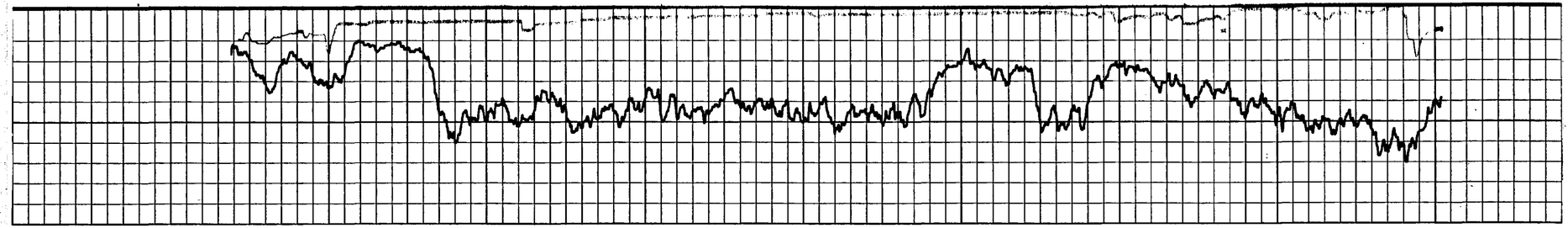


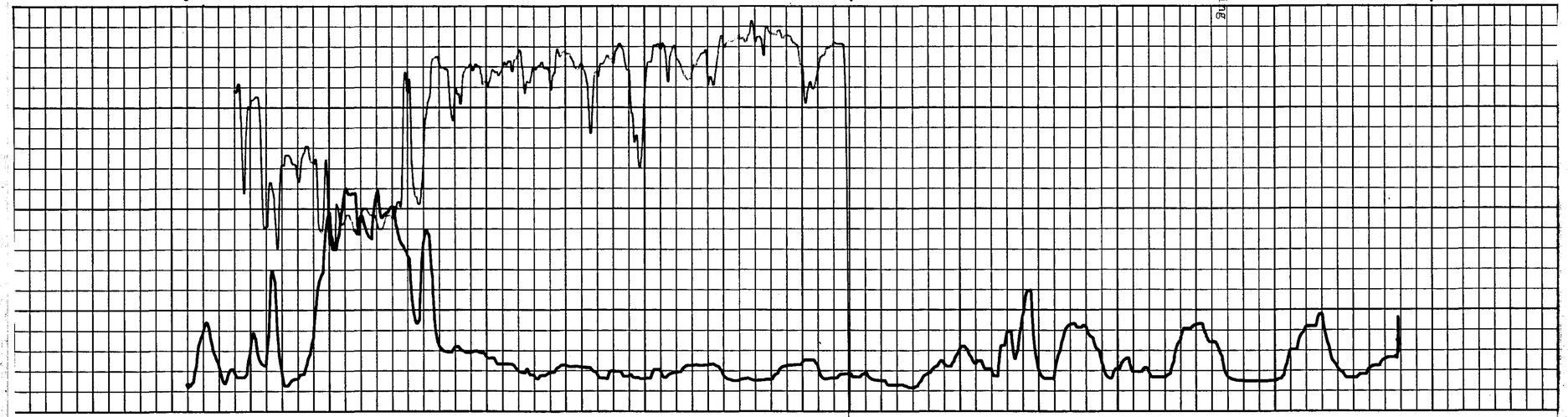
Natural Gamma 30 850 Neutron 1150

DAVIES EXPLORATION LOGGING LTD.

COMPANY	Brinco Mining Limited
HOLE NUMBER	QU - 85 - 06
LOCATION	
PROVINCE	B.C.
ELEVATION	
LOG TYPE:	Natural Gamma & Neutron
DATE	June 30 1985
DRILLED DEPTH	40
LOGGED DEPTH	39.5
ZERO DATUM	G.L.
HOLE DIAMETER	6"
CASING LENGTH	
REMARKS:	

L10





CALIPER 5/1

NATURAL GAMMA 0 3

RESISTIVITY 10

DENSITY 1 2

DAVIES EXPLORATION LOGGING LTD.

COMPANY Brinco Mining Limited

HOLE NUMBER QU - 85 - 06

LOCATION

PROVINCE B.C.

ELEVATION

LOG TYPE: CALIPER, NATURAL GAMMA, RESISTIVITY, DENSITY

DATE June 30 1985

DRILLED DEPTH 40

LOGGED DEPTH 39.5

ZERO DATUM G.L.

HOLE DIAMETER 6"

CASING LENGTH

REMARKS:

L11

APPENDIX C

- COREHOLE LOG DESCRIPTIONS

- STRIP LOG AND CORE COLUMN DESCRIPTIONS

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-95-01
PAGE 1 OF 2

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE DEPTH
1	2.0	5.0	3.0				
				2.800		Siltstone: Medium grey; very hard; softer at base; uniform; calcareous shells and some small plant imprints	
				.130	2.93	Siltstone: Medium grey to brown; coaly laminae increasing towards base; softer.	
2	5.0	8.0	3.0	.020		COAL: Bright & blocky; clean; fissile; disseminated pyrite on cleat surfaces	
				.025		BONE: Dark grey to black; fine sandy texture; hard; abundant coaly material	
				.070		COAL: Same as above	
				.010		BONE: Same as above	
				.110		COAL: Hard; clean; Bright & blocky; calcite on vertical cleats and bedding planes; some visible pyrite;	
				.030		BONE: Dark brown to black; sandy texture; carbonaceous	
				1.385		COAL: Same as above; hard; clean	
				.035		BONE: Same as above; thin coal bands mixed in.	
				.490		COAL: Bright & blocky; clean; hard; abundant calcite	
				.025		COAL: Clean but abundant calcite on vertical cleats	
				.460	2.99	COAL: Clean with some dull sections; blocky; thin platy sections; hard	
3	8.0	11.0	3.0	.185		COAL: Same as above	
				.080		COAL: Brown streak; dull; platy; some vitrinite bands	
	TOTALS		#1			2.93 ÷ 3.0 x 100 = 97.7 % REC. SEAM	
			#1			2.99 ÷ 3.0 x 100 = 99.7 % TOTAL REC. SEAM(S)	

COAL SEAM ①

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COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-01
PAGE 2 OF 2

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE
				.035		COAL : Cleaner ; blocky ; abundant calcite	
				.03c		COAL : Brown streak & dull ; platy	
				.03c		Mudstone : Dark grey ; carbonaceous ; broken ;	
				.45c		COAL : Dull and bright banded ; some cleaner blocky sections ; abundant mudstone material interbanded ; core badly broken ;	
				.34c		COAL : cleaner & unbroken ; some dull sections	
				.04c		COAL : Platy ; scaly ; broken ; dull ; some bright vitrinite bands ;	
				.61c		COAL : Clean ; blocky ; bright ; uniform	
				.05c		Mudstone : Dull grey to black ; fissile ; carbonaceous	
				.005		COAL : vitrinite ; with calcite	
				.07c		Mudstone : Same as above	
				.10c		Mudstone : Dark grey ; only slightly carbonaceous ; fissile ;	
				.03c		COAL : Very soft ; easily crushed ; extremely abundant calcite material throughout ;	
				.55c		Mudstone : Medium grey ; fairly hard and competent ; silty ; becoming darker at base ;	
				.12c		COAL : Dull and bright ; dirty ; hard ; some blocky sections ;	
				.72c	2.975	Mudstone : Dark grey ; some carbonaceous material ; softer ; broken ; END OF CORE	
TOTALS			3.2			2.975 ÷ 3.2 x 100 = 77.5 % REC.	SEAM
						÷ — x 100 = % TOTAL REC.	SEAM(S)

COAL SAMPLE (1)

COAL SAMPLE (2) FLOAT SECTION

QUINSAM
COAL LIMITED

Hole Number: QU-95-01C Pit Number: Pit 1S

Location: Near 1S Bulk Sample Site Elevation:

Page 1 of 1

DESCRIPTION	SAMPLE INTERVAL
SILTSTONE: Med. grey, hard; some calcareous shells.	
SILTSTONE: Med. grey to brown; coaly laminae increasing towards base.	
COAL: No. 1 Seam; Bright; Blocky; Clean; Some Pyrite Finely Disseminated	COAL SAMPLE ①
COAL: Bright; Blocky; Clean; (BONE LAYER)	
COAL: No. 1 Basal Zone; Dull, Platy Sections with Brown Streak; Carbonaceous Mudstone Laminations; Bottom .61 m. cleaner	COAL SAMPLE ②
MUDSTONE: Dull grey to black; fissile	
MUDSTONE: Medium grey; fairly hard; silty	
COAL: Dull & Bright Sections; Hard	
MUDSTONE: Dark grey; softer; broken	

CORE COLUMN Scale: 1:20

CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
	4.0			
	5.0			
	6.0			
	7.0			
	8.0			
	9.0			
	10.0			
	11.0			

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: 01-85-0

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE
1	11.0	14.0	3.0	.29c		Sandstone: Medium grained; medium grey; very thin darker grey laminations; hard; unbroken	
				.14S		Sandstone: Medium grey; fine grained; finely laminated; hard; lithic	
				.00S		Sandstone: Dark grey to black; coaly wisps abundant; hard;	
				.05c		Sandstone: Medium grey; fine grained; lithic; hard; cross-bedded	
				.02c		Sandstone: Lighter grey; Medium to coarse grained; lithic;	
				.11c		Sandstone: Fine grained; lithic; hard; abundant coal markings and fine coal laminations	
				.00S		Sandstone: Black; hard; cross-bedded carbonaceous and coaly	
				.02c		Sandstone: Medium grey; fine-grained lithic; hard; undulations lower contact	
	11.64S			.03c		COAL: Roof of No. 7 Seam: blocky; vitreous; lense of pyritic material up to 2 mm thick;	
				.01c		Mudstone: Dull black; coaly	
				.03c		COAL: Bright and blocky; hard	
				.00S		Mudstone: Same as above	
				.34c		COAL: Bright and blocky; hard; uniform; clear; blobs of amber and visible pyrite; thin vertical calcite veining;	
				.01S		Mudstone: Carbonaceous and coaly; pyritic nodules visible up to 3mm diameter;	
	TOTALS					÷ x 100 = % REC. SEAM	
						÷ x 100 = % TOTAL REC. SEAM(S)	

CORE SAMPLE ① (cont'd)

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-86-02
PAGE 2 OF 4

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE DEPTH
				.52m		COAL: Bright and blocky; clean; brittle but hard; vertical fracture with calcite infilling up to 2 mm thick	
				.005		Mudstone: Medium brown; carbonaceous; platy;	
				.32m		COAL: Bright and blocky; clean; uniform; visible pyritic	
				.03m		COAL: Bright; vitreous; dull platy sections	
				.035		Mudstone: Soft; Dark grey; wet; pliable; carbonaceous	
				.03m		COAL: Bright and blocky; soft; easily crushed;	
				.05m		COAL: Dull; dirty; with mudstone bands	
				.115		Mudstone: Dark grey to black; thin bright coal laminae throughout; carbonaceous	
				.005		COAL: vitrinite	
				.090		Mudstone: Same as above.	
				.26m		Mudstone: Medium to dark grey; minor coaly laminae increasing at base; pyritic;	
				.02m		COAL: Vitrinite band with calcite infill;	
				.11m	2.995	Mudstone: Same as above; minor thin coaly wisps;	
TOTALS			3.000			2.995 ÷ 3.000 x 100 = 99.8 % REC. No. 2 SEAM	
						÷ x 100 = % TOTAL REC. SEAM(S)	

Coal Sample (1)

Coal sample to Calibrate

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-02

PAGE 3 OF 4

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE
1	33.0	36.0	3.0				
				.72o		Siltstone: Medium grey; hard; calcite filling on vertical fract. sets; slight to moderate effervescence on some thin lighter coloured sections;	
				.11o		Lost Core	
				.44o		Siltstone: Same as above; hard & uniform	
				.07o		Lost Core?	
				.03o		Mudstone: Dark grey; highly broken & mixed; some coaly material; abundant pyritic & calcitic on horizontal bedding planes.	
				.04o		COAL: Bright and blocky; fairly clean; visible pyrite on cleats; silt laminae at base.	
COAL SAMPLE (2)				.65o		COAL: Bright and blocky; some minor very thin bony sections but generally uniform and clean; hard; visible pyrite on cleats;	
				.06o		Bone: Brownish grey; sandy matrix; coaly material mixed in; very hard	
				1.36o	2.9m	COAL: Clean; hard; bright and blocky; visible pyrite on cleats; some thin calcite veining; uniform; no partings.	
3	36.0	39.0	3.0				
				.11o	.11	Lost core?	
COAL (3) (continued)				1.03o		COAL: Same as above;	
				.21o		COAL: Softer; some dull sections; with platy fracture; generally clean	
	TOTALS		12.			2.9 ÷ 3.0 x 100 = 97% REC. SEAM	
						÷ - x 100 = % TOTAL REC. SEAM(S)	

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-02c

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE DEPTH
3				.07c		COAL: Dull brown streak; dirty	
				.02c		COAL: Bright and blocky; clean; vitreous	
				.22c		COAL: Dull and bright banded; platy fracture; thin vitrinite band near base;	
				.00S		PYRITE: Silty pyritic lamination	
				.01c		COAL: Bright and blocky; vitrinite	
				.00S		Mudstone: medium to dark brown; hard	
				.39c		COAL: Bright and dull banded; brown streaks in dull layers; platy; becoming dirtier near base;	
				.03S		Mudstone: Dark to medium brown; hard; carbonaceous; silty	
				.10c		COAL: Same as above	
				.04c		Mudstone: Same as above	
				.16c		COAL: Same as above; slightly less dirt material	
				.01c		COAL: Bright and blocky; vitrinite	
				.05c		COAL: Dull and bright banded; fairly hard; some dirt material;	
				.19c		COAL: Bright and blocky sections; fairly clean; calcite veining	
				.19c		COAL: Dull and bright banded; dirty; abundant carbonaceous mudstone laminae throughout.	
				.20c		Mudstone: Medium to dark brown; carbonaceous zones; thin bright coaly laminae; some softer fissile sections	
				.09c	3.10c	COAL: Dull and bright banded; broken; dirty	
TOTALS			3.-			3.10c ÷ 3.- x 100 = 96.8 % REC.	SEAM
						÷ x 100 = % TOTAL REC.	SEAM(S)

Core Sample (3)

Core Sample (3A) (Addition)

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COAL LIMITED

Hole Number: QU-95-02c Pit Number: Pit 2-35

Location: Near No. 2 Seam Bulk Sample Site Elevation:

Page 1 of 2

DESCRIPTION	SAMPLE INTERVAL
SANDSTONE: Medium grained; medium grey Very thin darker grey laminations	
SANDSTONE: Medium grey; fine grained	
SANDSTONE: Medium grey; fine; lithic; Cross-bedded	
COAL: No. 2 Seam; Bright; Blocky; Clean; Some visible pyrite Some minor mudstone partings	COAL SAMPLE ①
MUDSTONE: Dark grey to Medium grey; Thin coal bands and coaly wisps throughout;	

CORE COLUMN
Scale: 1:20

CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
	11.0			
	12.0		.015	
	13.0		.035	
			.02	
	14.0			
	15.0			
	16.0			
	17.0			
	18.0			

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Hole Number: Qu-85-02c Pit Number: Pit 2-3 S

Location: _____ Elevation: _____

Page 2 of 2

DESCRIPTION	SAMPLE INTERVAL
SILTSTONE : Medium grey; hard; slight to moderate effervescence on some lighter coloured sections;	
COAL : No. 1 SEAM; Bright & Blocky; Some very thin bony sections; hard; visible pyrite on cleats	
BONE : Sandy matrix; very hard	COAL SAMPLE (2)
COAL : Bright and blocky; fairly clean; no partings; visible pyrite on cleats;	
COAL : Same as above	
COAL : Softer; some dull sections	COAL SAMPLE (3)
COAL : Dull and bright sections; Some mudstone partings;	
MUDSTONE : Medium to dark; Carbonaceous zones; thin bright coaly laminae;	
COAL : Dull and Bright banded; dirty	

CORE COLUMN Scale: 1:20

CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
	33.0		.22	
			.11 LOST CORE	
			.44	
			.07 .03 LOST CORE	
	34.0		.69	
			.06	
	35.0		1.36	
	36.0		.11 LOST CORE	
			1.03	
	37.0		.21	
			.71	
	38.0		.025 .10 .04 .14 .19 .18	
	39.0		.20 .06	

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-03

PAGE 1 OF 4

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE
1	34.75	37.75	3.0	.14	.14	Lost core	
				1.460		Sandstone: Medium grey; medium grained; massive; hard; 6° uniform	
				.050		Mudstone: Dark grey; fissile; coaly near base	
				.150		Mudstone: Dark; thin bright coaly laminae; carbonaceous	
				1.200	2.86	Mudstone: Dark grey; soft sections; thin coal lenses 4° to core axis; abundant lenses and blebs of pyrite; silty near base;	
2	37.75	40.75	3.0				
				.050		Siltstone: Medium grey; hard; minor coaly stringers at 39.35 m; minor carbonaceous shells; thin, lighter coloured bands showing effervescence; Put in Box 1	
				3.000	3.05	Siltstone: Same as above	
3	52.15	55.15	3.00	.560		COAL: No. 1 Seam; hard; bright and blocky; some pyrite on cleats; calcite veining;	
				.040		COAL: Dull; dirty; fissile and platy; abundant black mudstone;	
				.050		Mudstone: Dark brown; abundant carbonaceous material;	
				.040		COAL: Dull; dirty; platy; some thin bright bands	
				.020		Mudstone: Medium brown; hard; silty	
				.190		COAL: Bright and blocky; hard; some	
	TOTALS		1			2.36 ÷ 3.00 x 100 = 75.3 % REC.	SEAM
			2			3.05 ÷ 3.00 x 100 = 101.6 % TOTAL REC.	SEAM(S)

COAL SAMPLE ① (continued)

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COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-03
PAGE 2 OF 4

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE DEPTH
						calcite veining;	
3				.01c		COAL: Dull; dirty.	
				.42c		COAL: Bright and blocky; clean; hard	
				.05c		COAL: Clean but some fissility; high angle fractures with calcite 2 mm thick in veins;	
				.47c		COAL: Hard; clean; bright and blocky; some pyrite;	
				.13c		Mudstone: Dark brown; soft; abundant coaly material throughout; crushed friable	
				.05c		COAL: Dull; dirty; soft; muddy; fissile	
				.41c		COAL: Bright and blocky; clean; hard	
				.00s		Mudstone: dark brown; hard; silty	
				.14c		COAL: Bright and blocky; clean; hard;	
				.03c		COAL: Dirty; platy	
				.07c		COAL: Cleaner; blocky	
				.10c	2.37s	COAL: Clean but cracked	
4	55.15	58.15	3.0m	.09c		COAL: Bright and blocky; clean but broken; high angle slickensided fractures; abundant calcite on vertical cleats;	
				.03s		COAL: Dull; dirty; fissile; abundant mudstone material;	
				.11c		COAL: Clean; bright; badly broken; abundant calcite	
				.02c		COAL: Black; abundant mudstone material; blocky fracture.	
				.41c		COAL: Dull; dirty; bright and dull banded; abundant black mudstone	
	TOTALS		3		2.37s ÷ 3.0 x 100 = 95.8 % REC.		SEAM
					÷ x 100 = % TOTAL REC.		SEAM(S)

COAL SAMPLE ①

COAL SAMPLE ② (continued)

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COREHOLE LOG

HOLE NUMBER: QU-85-03
PAGE 3 OF 4

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE
						laminations throughout;	
				.19o		Mudstone: Dark grey to black; fairly hard; coaly throughout;	
				.14o		COAL: Dull; dirty; mudstone laminations throughout;	
				.04S		COAL: Bright and black; clean; hard; abundant calcite on cleats;	
				.19o		COAL: Dull; dirty; abundant mudstone mixed in; some bright vitrinite bands;	
				.02o		Mudstone; Dark grey; hard; silty; slightly coaly;	
				.0S		COAL: Very dirty; dull and bright banded; abundant mudstone;	
				.05o		Mudstone; Medium brown to grey; hard; silty	
				.14o		COAL: Dull and bright banded abundant mudstone material; floor of No. 1 Seam;	
				.09o		Mudstone: soft; medium grey; crushed fissile; slickensided; Lost core?	
				.78o		Mudstone: Medium grey; harder; high angle fracturing; smooth; slickensided surfaces throughout; silty;	
				.09o		Mudstone: Softer; crushed and milled; LOST CORE	
				.12o		Mudstone: Soft; pliable; wet; crushed and squeezed;	
	TOTALS					÷ x 100 = % REC. SEAM ÷ x 100 = % TOTAL REC. SEAM(S)	

COAL SAMPLE (2)

COAL SAMPLE 2 Bulked

Quinsam COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-95-6

PAGE 4 OF 4

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE
				.210	.225	Mudstone: Medium grey; harder especially at top; silty at top; thin coal laminae in middle.	

	TOTALS	4		.225 ÷ 3.0 x 100 = 15.3 % REC.	SEAM
				÷ x 100 = % TOTAL REC.	SEAM(S)

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Hole Number: QU-85-03c Pit Number: Pit 2-35

Location: On road, 55.2 m. N.E of Hole 77-34 Elevation:

Page 1 of 2

DESCRIPTION	SAMPLE INTERVAL	CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)
			34.0		
SANDSTONE : Medium grey ; medium grained hard ; uniform					.10 LOST CORE
			35.0		1.46
			36.0		
MUDSTONE : No. 2 SEAM HORIZON ; trace of coal ; carbonaceous					.45 .15
MUDSTONE : Dark grey ; soft sections ; abundant lenses and blebs of pyrite ;			37.0		1.20
			38.0		
SILTSTONE : Medium grey ; hard ; thin, lighter coloured bands showing effervescence			39.0		3.05
			40.0		
			41.0		

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COAL LIMITED

Hole Number: QU-85-03c Pit Number: Pit 2-3s

Location: _____ Elevation: _____

Page 2 of 2

DESCRIPTION	SAMPLE INTERVAL	CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
			52.0			
COAL: No. 1 SEAM; hard; clean; bright; blocky; some pyrite					.56	
MUDSTONE: Carbonaceous					.04	
COAL: Hard; clean; bright	COAL SAMPLE ①		53.0		.02 .18	
					.42	
					.05	
MUDSTONE: Dark brown; soft; crushed; carbonaceous					.42	
			54.0		.13	
COAL: Generally clean but some dull fissile sections					.955	
			55.0		.09 .025 .11	
COAL: No. 1 Basal Unit; Dull; Dirty Bright and Dull Banded;	COAL SAMPLE ②				.43	
MUDSTONE: Carbonaceous					.19	
COAL: Dull; dirty; mudstone laminations			56.0		.14 .045 .19 .05 .03 .14 .09	
MUDSTONE: High angle slickensided fracturing					.28	
			57.0		LOST CORE ??	
MUDSTONE: Soft; pliable; wet; crushed and squeezed;					.09	
MUDSTONE: Harder; silty					.12	
			58.0		.21	
			59.0			

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-04

PAGE 1 OF 2

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE DEPTH
1	38.75	41.75	3.0				
				.39		COAL: No. 1 Ritz Seam. Bright and blocky; clean; hard; small amount of pyrite; lost core at top;	
				.20		Mudstone: Medium brown; calcite on coal contact; coaly; slickensided horizontal surfaces	
				.45		Mudstone: Medium grey; competent; uniform; some slickensides especially at base	
				.17		Mudstone: Same as above; top is fractured and slickensided	
				.04		COAL: Dull with some bright sections; abundant amber; some mudstone mixed in;	
				1.39		COAL: Bright and blocky; hard; uniform; clean; abundant calcite; some pyrite; amber present in layers;	
				.04		BONE: Dark brown to black; medium sandy texture; carbonaceous	
				.41	2.94	COAL: Same as above	
2	41.75	44.75	3.0				
				.40		COAL: Same as above	
				.05		COAL: Broken; softer; light in weight; clean	
				.30		Lost core?? ← NO LOST CORE: FLOOR BELOW SEAM IS LOST CORE HORIZON - SEE E-LOG	
				.13		Crushed Coal;	
				.27		COAL: Bright and blocky; clean;	
	TOTALS		6			2.94 ÷ 3.0 x 100 = 98.0 % REC.	SEAM
						÷ - x 100 = % TOTAL REC.	SEAM(S)

COAL SAMPLE ①

COAL SAMPLE ⑱ (dilution)

COAL SAMPLE ② (continued)

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COREHOLE LOG

HOLE NUMBER: QU-85-04
PAGE 2 OF 2

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE
						light ; fish scale fracturing;	
				.06		Coal: Bright, vitreous; clean; badly fractured:	
				.28		Coal: Clean; harder; bright and blocky	
				.04		Mudstone: Medium brown; soft; pliable	
				.05		Mudstone: broken and mixed	
				.20		Lost core?	
				.14		Mudstone: crushed; milled and wet; slightly plastic:	
				.26		Mudstone: Brownish grey; uniform and competent	
				.06		Mudstone: large mudstone fragments cemented together; wavy or undulatory lower contact with sandstone;	
				.32		Sandstone: Grey; medium grained; variable texture; muddy;	
						some cross-bedding;	
				.05		Sandstone: fine grained; muddy; variable	
				.28	2.89	Mudstone: Medium grey; badly broken	
	TOTALS		2			2.89 ÷ 3.00 x 100 = 96.3 % REC.	SEAM
						÷ _ x 100 = % TOTAL REC.	SEAM(S)

COAL SAMPLE (2)

COAL SAMPLE 2A (DUPLICATE)

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COAL LIMITED

Hole Number: QU-85-04c Pit Number: Pit 2N

Location: NW side of Pit, Line 107+50 Elevation:

Page 1 of 1

DESCRIPTION	SAMPLE INTERVAL	CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
			38.0			
COAL: No. 1 Rider; Clean; Bright and Blocky; small amount of pyrite	COAL SAMPLE ①		39.0		.39	
MUDSTONE: Medium grey; uniform but coaly at top; some slickensided fractures;					.67	
					.04	
COAL: No. 1 SEAM; Bright and Blocky; Hard; uniform; clean;			40.0		1.39	
	COAL SAMPLE ②		41.0			
BONE: Sandy texture; black; carbonaceous					.04	
COAL: Same as above;					.81	
COAL: Broken; softer; light in weight;			42.0		.05	
COAL: Crushed and milled					.30	LOST CORE
					.13	
COAL: Clean; blocky; bright; some broken sections			43.0		.61	
MUDSTONE: Soft; pliable; broken; mixed					.09	
MUDSTONE: Crushed; milled; wet; slightly plastic;					.20	LOST CORE
MUDSTONE: Brownish grey; more competent and undisturbed;			44.0		.14 .26 .06	
SANDSTONE: Medium grey; m. grained; variable texture; some 'cross-bedding'					.37	
MUDSTONE: Medium grey; badly broken;					.28	
			45.0			

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: Qu-85-0[illegible]

PAGE 1 OF 2

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION — LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.	TRUE DEPTH
1	45.0	48.0	3.0				
				.190		Mudstone: Medium grey; silty; some thin light coloured sections that effervesce; competent	
				.315		Mudstone: Medium grey getting darker towards base; v. fine coal laminae throughout;	
				.115		COAL: No. 1 Rider Seam; bands of vitrinite up to 2 mm in dull matrix; dirty "dull" and bright banded; coal content increasing towards base; base is high angle slickensided fracture;	
				.100	.100	LOST CORE: crushed coal and mudstone mixed	
				.105		COAL: Clean; hard; bright and blocky	
				.035		COAL: Bright and dull banded; horizontal calcite veining on bedding planes	
				.025		COAL: Softer plate; vitrinite band at base 3 mm thick	
				.410		Mudstone: Medium brownish grey; soft; slickensided fracture in middle; minor coaly laminae throughout	
				.030		Mudstone: Medium grey; soft; fissile;	
				.050		Mudstone: Dark grey; harder; carbonaceous	
				1.500		COAL: No. 1 Seam; bright and blocky; hard; uniform; clean; calcite veining prominent in some	
	TOTALS			÷	x 100 =	% REC.	SEAM
				÷	x 100 =	% TOTAL REC.	SEAM(S)

COAL SAMPLE ①

COAL SAMPLE 1A (addition)

COAL SAMPLE ② continued

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COREHOLE LOG

HOLE NUMBER: QU-BC05c
PAGE 2 OF 2

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE
						Thin sections ; amber evident	
				.03c		BAND : Dark grey ; sandy texture ; carbonaceous & stringers	
				.09c		COAL : Same as above	
2	48.0	51.0	3.0				
				.95c		COAL : Same as above	
				.03c		Mudstone : crushed and soft ; wet ; coal mixed in	
				.24c		COAL : Same as above	
				.32c	.32 .16	LOST CORE see geophysical log LOST CORE : crushed coal mixed in core tube	
				.31c		COAL : Bright and blocky ; clean ; hard	
				.03c		Mudstone : Medium grey ; soft ; wet ; plastic	
				— .31		LOST CORE : see geophysical log	
				.44c		Mudstone : Medium grey ; fairly competent but fractured at a high angle ; uniform ; significant high angle fracture with slickensided surfaces at base	
				.64c	2.67	Mudstone : Same as above ; slightly harder and siltier	
	TOTALS					2.67 ÷ 3.22 x 100 = 87.7 % REC.	SEAM
						÷ — x 100 = % TOTAL REC.	SEAM(S)

coal sample (1)

coal sample (2) dilution

QUINSAM
COAL LIMITED

Hole Number: QU-95-05C Pit Number: Pit 2N

Location: CENTRE OF 2N Line 100+00 Elevation:

Page 1 of 1

DESCRIPTION	SAMPLE INTERVAL
MUDSTONE: Medium grey; silty; some thin light-coloured sections that effervesce	
MUDSTONE: Medium grey; darker towards base; softer; thin coal laminae	
COAL: No. 1 Rider Seam; bands of vitrinite in a dull matrix;	COAL SAMPLE ①
COAL: Clean; hard; bright and blocky;	
COAL: Softer; dull and bright bands;	
MUDSTONE: Soft; minor coaly laminae	
COAL: No. 1 SEAM; Bright and blocky Hard; uniform; clean; calcite veining prominent in some thin sections;	COAL SAMPLE ②
BONE: Sandy texture; carbonaceous	
COAL: Same as above	
MUDSTONE: Crushed and soft; wet; coal mixed in;	
COAL: Same as above	
CRUSHED COAL MIXED IN CORE TUBE	
COAL: Clean; hard; bright and blocky	
MUDSTONE: High angle slickensided fractures; fairly competent; especially at base; siltier at base	

CORE COLUMN Scale: 1:20

CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
	45.0		.19	
			.315	
			.115	
			.10 LOST CORE	
			.105	
	46.0		.06	
			.49	
			1.50	
	47.0			
	48.0		.03	
			1.04	
	49.0		.03	
			.24	
			.32 LOST CORE?	
			.31	
	50.0		1.10	
	51.0			

QUINSAM COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-85-06

PAGE 1 OF 3

CORE No.	CORE FOOTAGES (metres) DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE
1	32.0	35.0	3.0				
				.110		Mudstone: Medium grey; soft; minor coaly impriints;	
				.700		Mudstone: Brownish grey; soft; broken; abundant coal laminae throughout;	
				.100	.100	LOST CORE!	
				.035		BAND COAL: Very hard; dull with thin vitrinite bands; Sandy texture; will not break clean from coal at lower contact; pyritic;	
				.015		COAL: Clear; brittle; blocky; bright	
				.010		Mudstone: Dark grey; silty; carbonaceous	
				.330		COAL: No. 1 Ripple Seam; clean; hard, bright and blocky; abundant laminae of finely disseminated pyrite;	
				.050		Mudstone: Medium brown; abundant thin coal laminae throughout; fairly hard; does not break clean from coal;	
				.025		Mudstone: greyish brown; slightly carbonaceous	
				.075		Mudstone: Dark grey; soft; fissile; crushed; coaly	
				.075		Mudstone: Dark brown to black; abundant coaly laminae throughout; slightly harder;	
				.020		Mudstone: Soft; crushed; partially destroyed by coring	
	TOTALS					÷ x 100 = % REC. SEAM	
						÷ x 100 = % TOTAL REC. SEAM(S)	

COAL SAMPLE ①

COAL SAMPLE ①A (dilution)

COAL SAMPLE ② (continued)

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COREHOLE LOG

HOLE NUMBER: QU-85-06
PAGE 2 OF 3

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE
1				.080		Mudstone: Medium brown to black; carbonaceous; soft; fissile;	
				1.40c		COAL: No. 1 Seam: clean; hard; bright and blocky; uniform; abundant calcite; some minor pyrite visible especially near top; unbroken;	
				.050		BONE COAL: Dull; fine sandy texture; hard; bright vitrinite laminae in middle 2mm thick	
				.425	2.86	COAL: Same as above; clean; hard; bright and blocky;	
2	35.0	38.0	3.0				
				.550		COAL: Same as above	
				.340	.340	LOST CORE	
				.070		COAL: Completely crushed milled; mixed with mudstone; slickensided surfaces	
				.050		Mudstone: Medium brown; competent but pitted and washed out on outside	
				.070		Mudstone: Greyish brown; harder; silty; some slickensided fracture planes	
				.050		Mudstone: Same as above but major fracture plane at high angle to core axis	
				.200	.20	Lost core?	
				.130		Mudstone: Greyish brown; harder; silty; some thin coal laminae	
	TOTALS		1			.34 ÷ 3.00 x 100 = 95.3 % REC. SEAM	
						÷ - x 100 = % TOTAL REC. SEAM(S)	

Coal Sample (2)

Coal Sample (3)

Coal Sample 3A (dilution)

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COAL LIMITED

COREHOLE LOG

HOLE NUMBER: QU-95-06C
PAGE 3 OF 3

CORE No.	CORE FOOTAGES DRILLED FROM	TO	TOTAL	RECOVERED SECTION	TOTAL	GEOLOGICAL DESCRIPTION (LITHOLOGY, COLOR, SIZE, TEXTURE, HARDNESS, SHEARING, CONTACTS, BEDDING ANGLE, ALTERATION, WETNESS, CONTAMINATION.)	TRUE DEPTH
				.010		COAL: Thin band of bright coal with abundant calcite veining.	
				.075		Mudstone: Same as above	
				.015		COAL: Same as above	
				.460		Mudstone: Same as above.	
				.140		Siltstone: Lighter brownish grey; moderately arenaceous; fairly hard.	
				.710		Sandstone: Medium grey; medium grained but extremely variable texture with abundant silty layers up to .03 m thick; some thin coaly laminae.	
				.080		COAL: Dull, dirty, some thin bright bands.	
				.130		COAL: Cleaner, bright and blocky; hard.	
				.050		Mudstone: Dark brown to black; carbonaceous with abundant bright coaly laminae throughout	
				.290	2.38	Siltstone: Medium grey; fairly soft; muddy; some coaly impurities;	
	TOTALS		0			2.33 ÷ 3.00 x 100 = 79.5 % REC. SEAM	
						÷ _ x 100 = % TOTAL REC. SEAM(S)	

QUINSAM
COAL LIMITED

Hole Number: QU-85-06c Pit Number: PIT 2N

Location: Line 90+00 Elevation:

Page 1 of 1

DESCRIPTION	SAMPLE INTERVAL

CORE COLUMN Scale: 1:20

CORE RECOVERED	DEPTH (m)	LITHOLOGY	THICKNESS (m)	% REC
	32.0		.11	
			.20	
			.10 LOST CORE	
			.035	
			.025	
			.33	
	33.0		.225	
			1.40	
	34.0		.05 BONE	
	35.0		1.035	
			.34 LOST CORE	
	36.0		.07	
			.17	
			.20	
			.69	
	37.0		.14	
			.21	
			.21	
			.34	
	38.0			
	39.0			

MUDSTONE: Med. grey; soft; minor coaly imprints
MUDSTONE: Soft; broken; abundant coaly laminae
BONE COAL: V. hard; dull with thin bright bands
COAL: No. 1 RIDER: Hard; clean; blocky;
MUDSTONE: Soft, fissile sections; carbonaceous

COAL: No. 1 SEAM; Clean; hard; Bright & blocky; uniform; some minor pyrite visible near top.

COAL: Same as above.

COAL: Crushed; milled; mixed with mudstone
MUDSTONE: Soft sections; some slickensided fractures

MUDSTONE: Thin coal laminae; soft sections;

SILTSTONE: Light brownish grey; v. hard; moderately effervescent
SANDSTONE: Med. grey; med. grained; variable texture; silty layers
COAL: Clean near base; blocky
SILTSTONE: Medium grey; fairly soft; muddy Some coaly imprints

APPENDIX D

PHOTOGRAPHIC PLATES

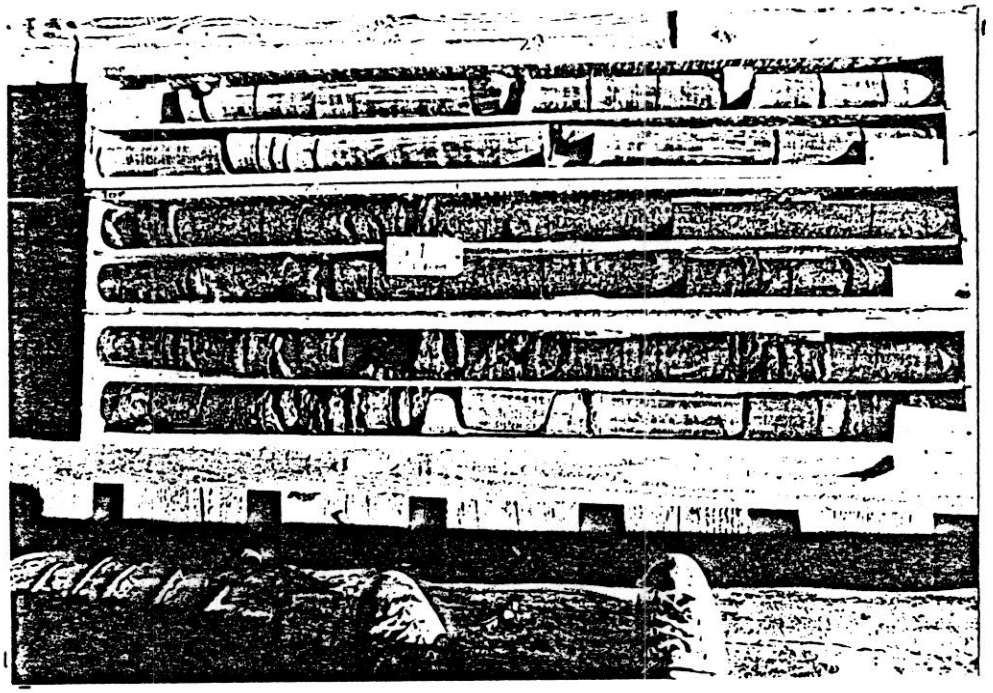


Plate I: Hole QU-85-01C Depth 2m. to 11m. (No. 1 Seam)
Note: Hard siltstone roof.

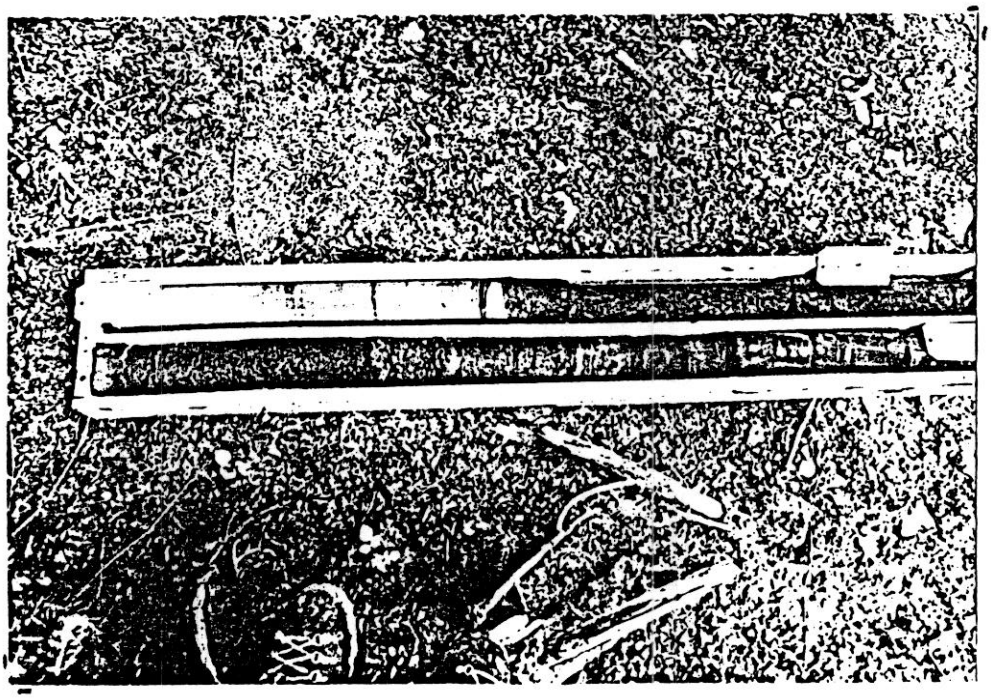


Plate II: Hole QU-85-02C Depth 11 to 14m. (No. 2 Seam)
Note: Hard Sandstone roof.

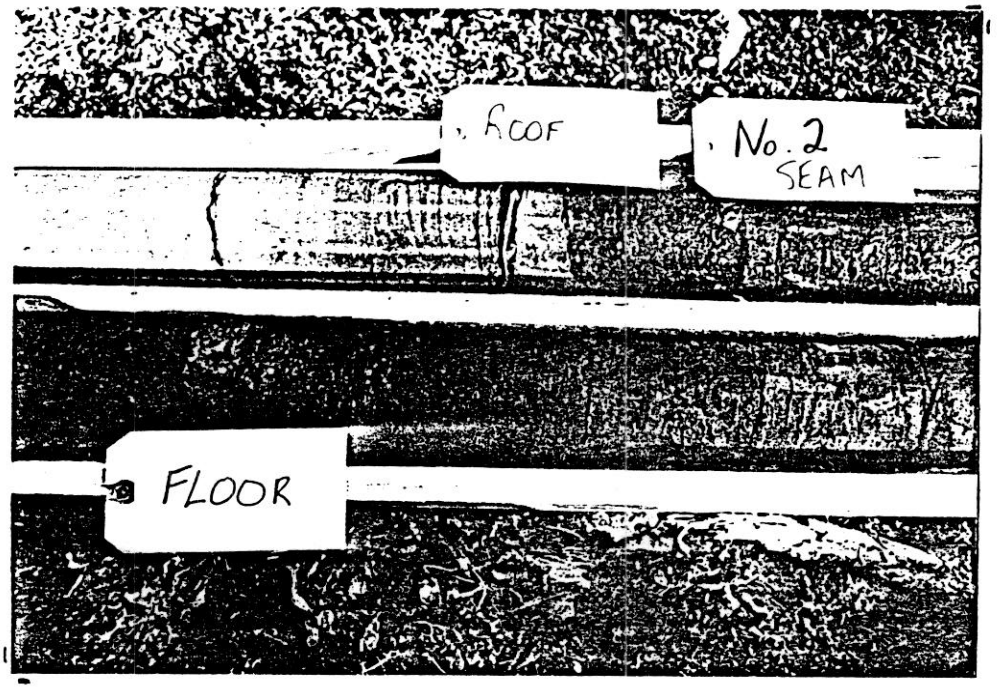


Plate III: Close-up of roof contact, No. 2 Seam, Hole QU-85-02C

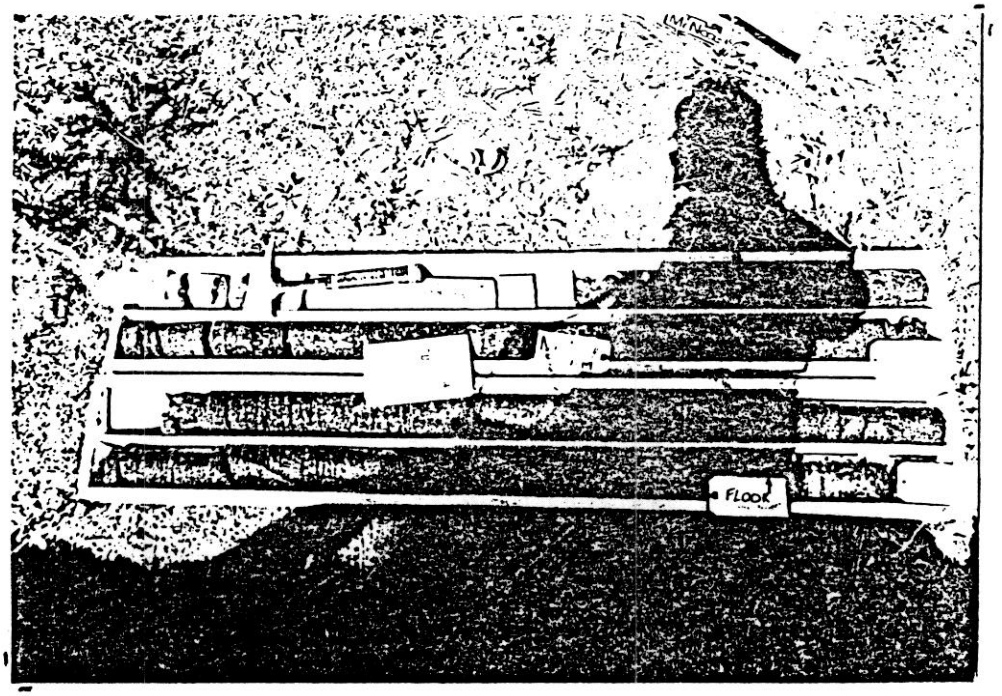


Plate IV: Hole QU-85-02C, Depth 33 to 39 m. (No. 1 Seam).

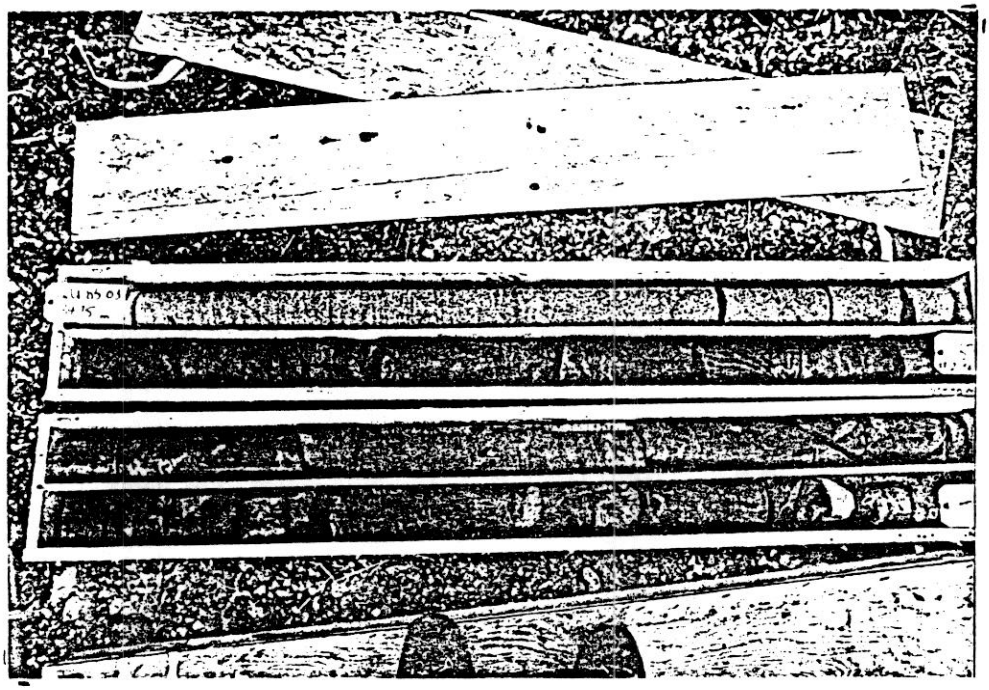


Plate V: Hole QU-85-03C, Depth 34.75 to 40.75 m.
(No. 2 Seam Horizon, seam pinched out).

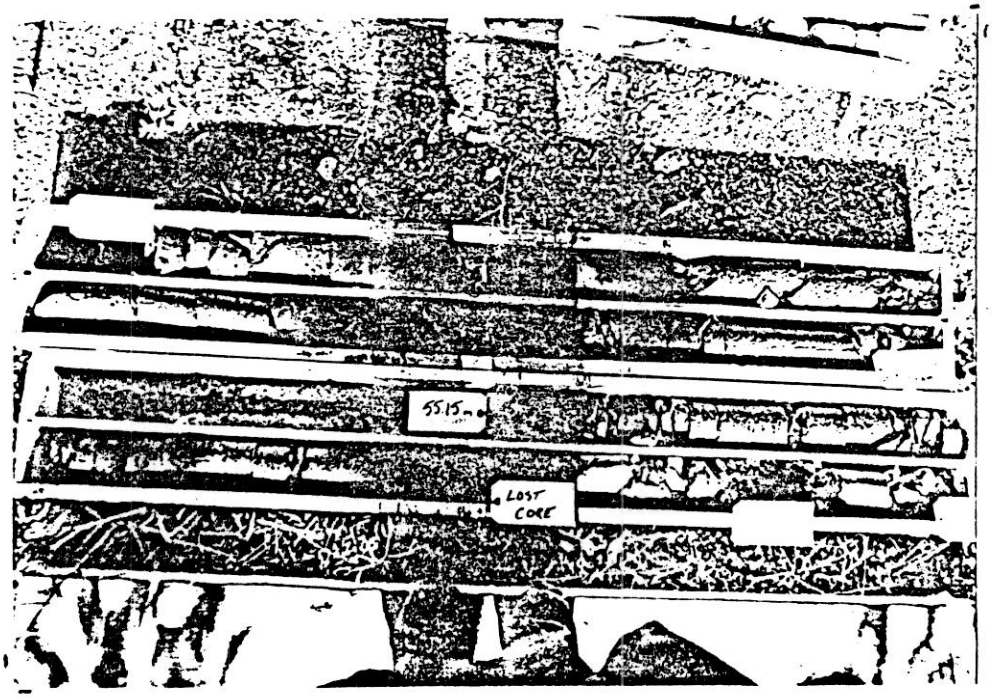


Plate VI: Hole QU-85-03C, Depth 52.15 - 58.15m. (No. 1 Seam)

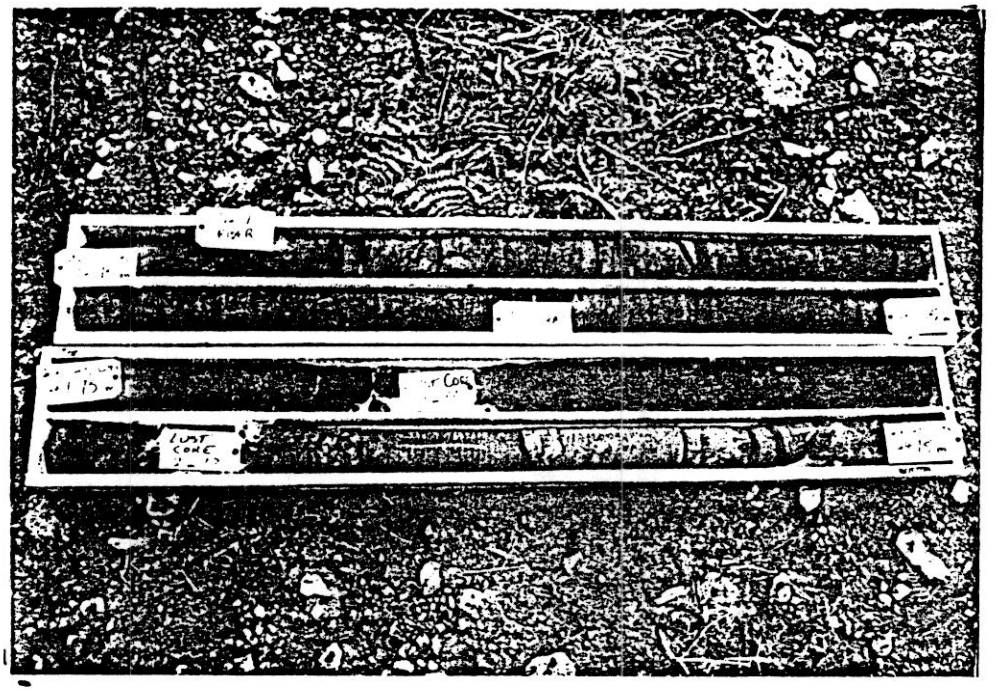


Plate VII: Hole QU-85-04C, Depth 38.75 - 44.75m. (No. 1 Seam)

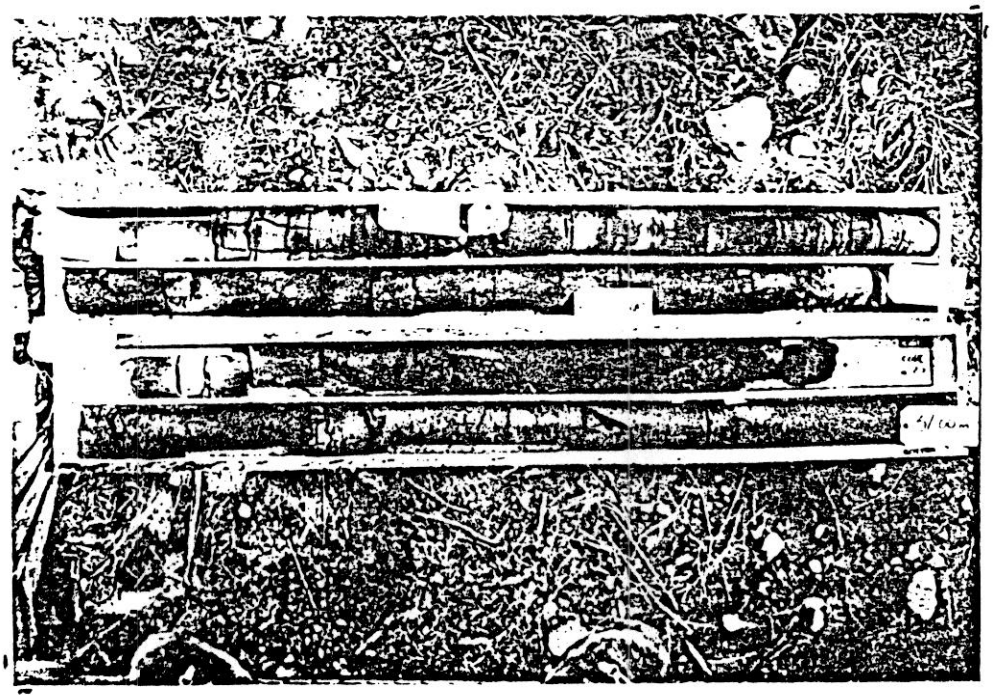


Plate VIII: Hole QU-85-05C, Depth 45 to 51m.
(No. 1 Seam & Rider).

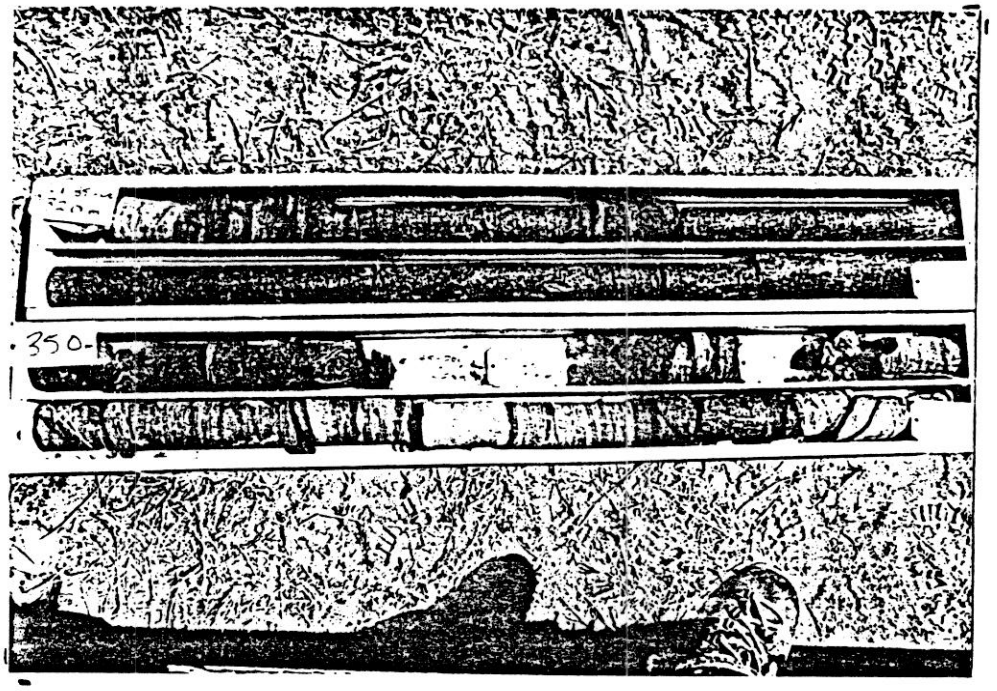


Plate IX: Hole QU-85-06C, Depth 32 to 38m.
(No. 1 Seam & Rider)

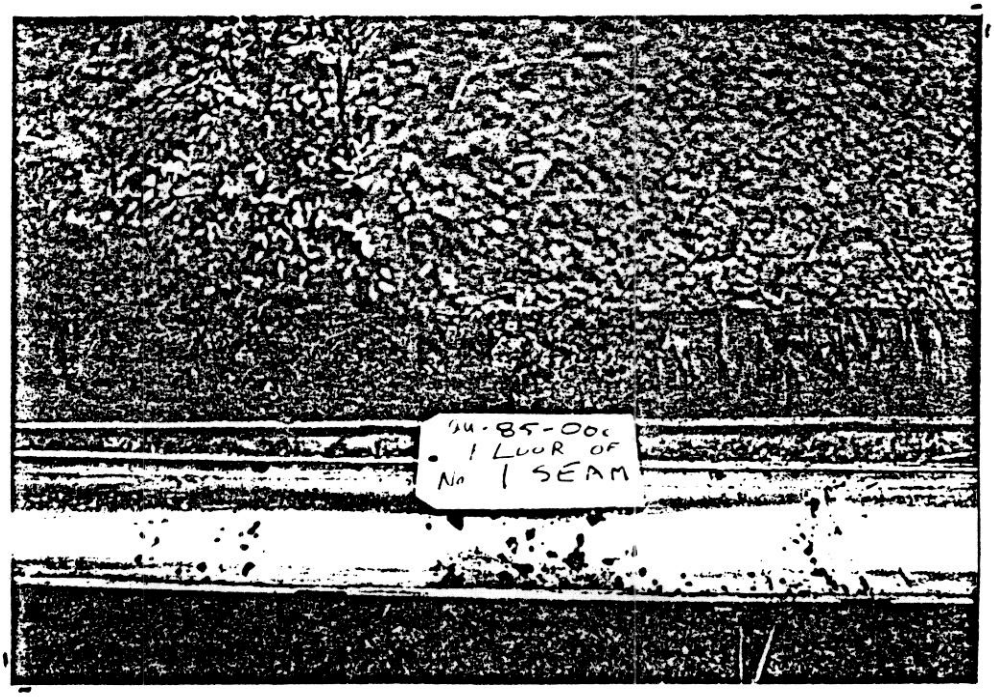
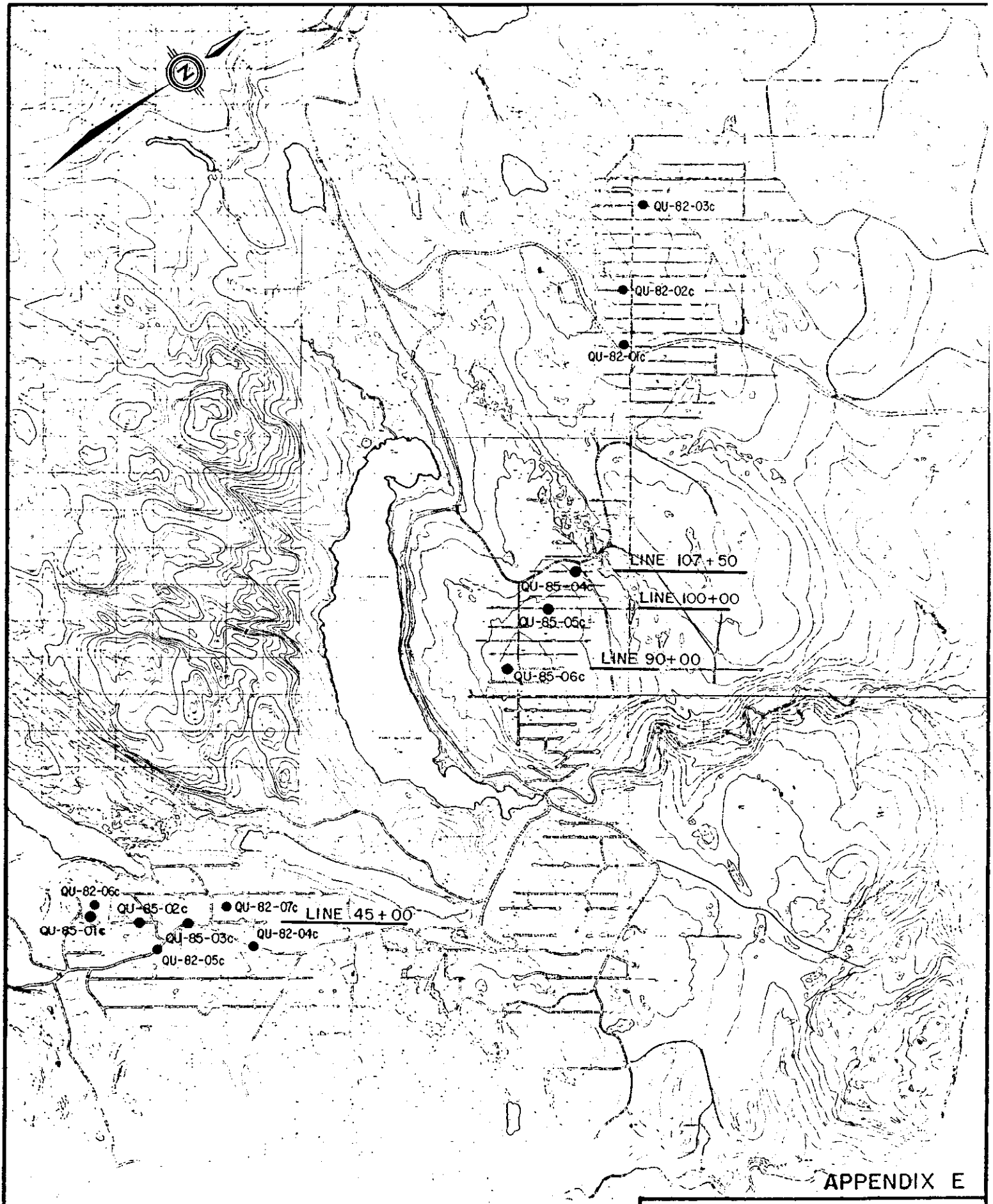


Plate X: Hole QU-85-06C, Depth 36m. Note: soft, badly crushed zone at base of No. 1 Seam.

APPENDIX E

- Cross-Sections, With Updated 1985 Information



APPENDIX E

QUINSAM COAL LIMITED

1982 & 1985 DRILL & TEST PROGRAM

COREHOLE LOCATIONS

LOCATION OF CROSS - SECTIONS

PIT 2-3S

DATE: AUG.1985	DRAWN BY: SG/IK	DWG. NO. 0519-006

APPENDIX F

TEST AND ANALYTICAL PROGRAM FOR 1985 DRILL CORE SAMPLES

APPENDIX F

TEST AND ANALYTICAL PROGRAM FOR 1985 DRILL CORE SAMPLES

Sample Test and Analytical Procedures

The procedure to be adopted for preparing, testing and analysing of samples from the 75 mm drill cores will be the same as used previously in 1982 and 1983. This is summarized in the chart shown in **Figure 4.01.** Data emanating from test and analytical work will be added to the coal quality data base. These data are planned to provide better resolution in areas where coal quality information is at present limited for which reliable iso contour mapping has, therefore, not been practicable.

Emphasis will also be placed upon identifying, as far as possible, boundaries or limits of oxidation in the shallow area of each pit. This will assist in the formulation of raw and cleaned coal blending requirements especially during the initial mining preparations. Ongoing adjustment becomes possible, once mining has been commenced, by drilling in advance of mining operations or other sampling methods.

The procedure for on site sampling and preparing of bulk samples will be similar to that used for the 1978 Seam 1N bulk sample described by Luscar in the Report entitled **"Report on Bulk Sampling Procedures for the Extraction of Four Bulk Coal Samples - Quinsam Project, Vancouver Island".** Once received by the coal testing authority, these samples will be tested and analysed in the manner described in **Figure 4.02.** Basic size distribution, washability and coal quality data will be added to the total coal data base.

It is at present proposed to submit the bulk sample obtained from Seam 1N in Pit 2N to Coal Combustion Laboratory for combustion testing in its raw state. This is because, during the initial period of production, this coal will be sold in the "as-mined" state. When the washing plant becomes operational,

this source of coal will be augmented by coal from 1, 2, and 3S Pits containing Seam 1S and Seam 2 raw coals which require cleaning. All future sources of coal will also require cleaning.

For both the drill core samples and the bulk samples, roof, floor and parting material, in excess of a defined thickness, will be isolated from the main seam sample components, and a separate procedure will be used. This procedure is shown in **Figure 4.03.** The purpose of isolating such sample components is to permit assessment of out-of-seam and in-seam dilution by noncoal or poor quality coal components. Variation in incremental amounts added to the main seam sample components then becomes possible. In the case of Seam 1N in Pit 2N and Pit 3N and Seam 3 in Pit 7S, separation of the overlying rider seam component is also proposed for the same purpose.

Other Test and Analytical Work

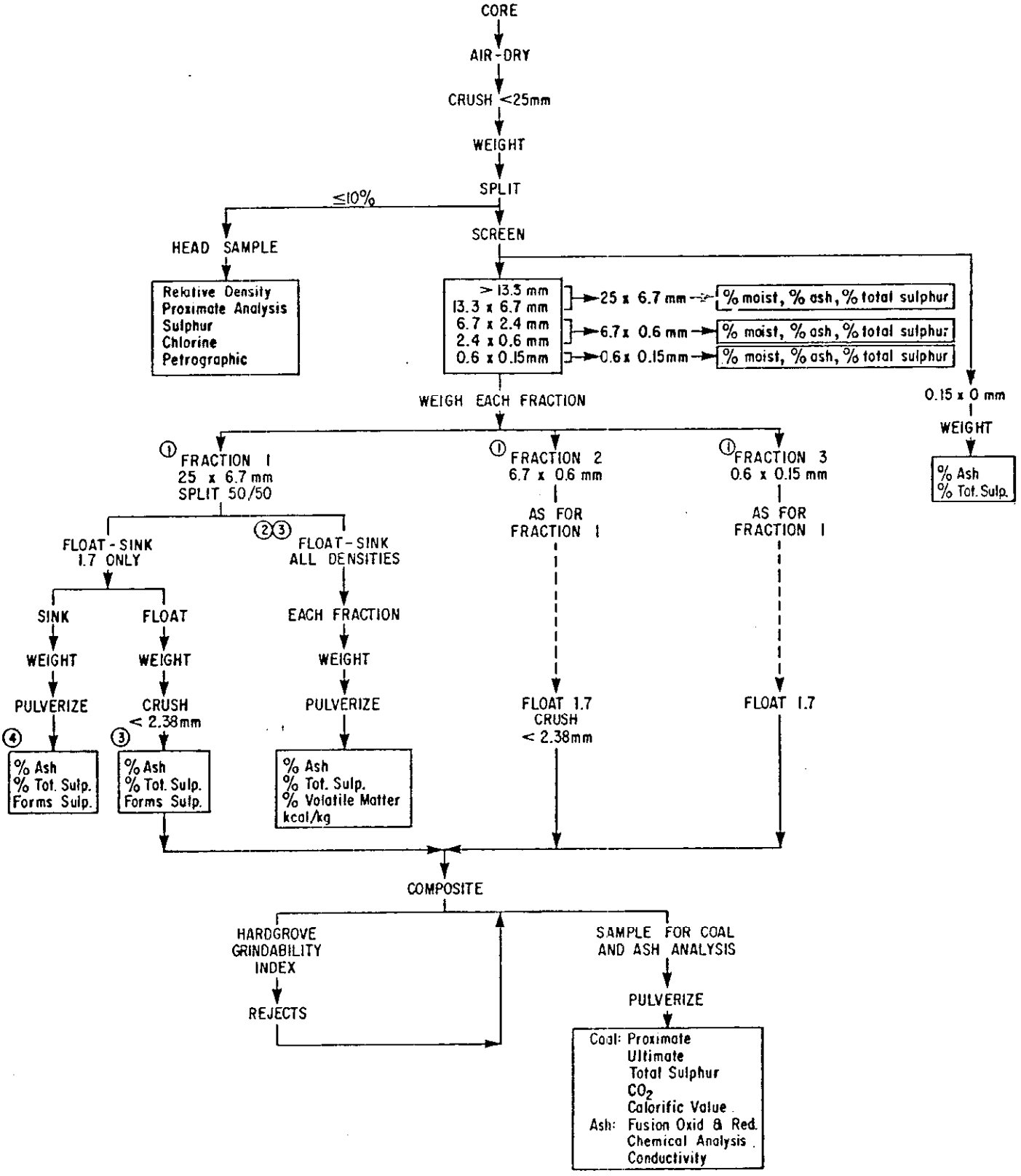
In addition to the work described in the preceding section, it is also proposed to carry out some specific test and analytical work. Requirements which have been identified at the present time include the following, but the need for other forms of specialized testing could arise later:

- Petrographic analyses (D.E. Pearson and Associates)
- Safranin-O oxidation tests (D.E. Pearson and Associates)
- CANMET P index tests (Coal Research Laboratory)
- Ash resistivity (Coal Combustion Research Laboratory)
- Abrasiveness tests (Babcock and Wilcox)
- Ash sticking tests

Allowance has been made for carrying out a limited amount of specialized testing in addition to the test and analytical work planned for the cleaned coal bulk samples. Some of the above tests will also form part of the analytical program as proposed for the bulk sample.

FIGURE 4.01

TEST AND ANALYTICAL PROCEDURES FOR DRILL CORE SAMPLES OF 75mm AND 150mm DIAMETER



NOTE 1: For samples too small, the split may be omitted and the separation made at 1.7 only (75mm core samples only).

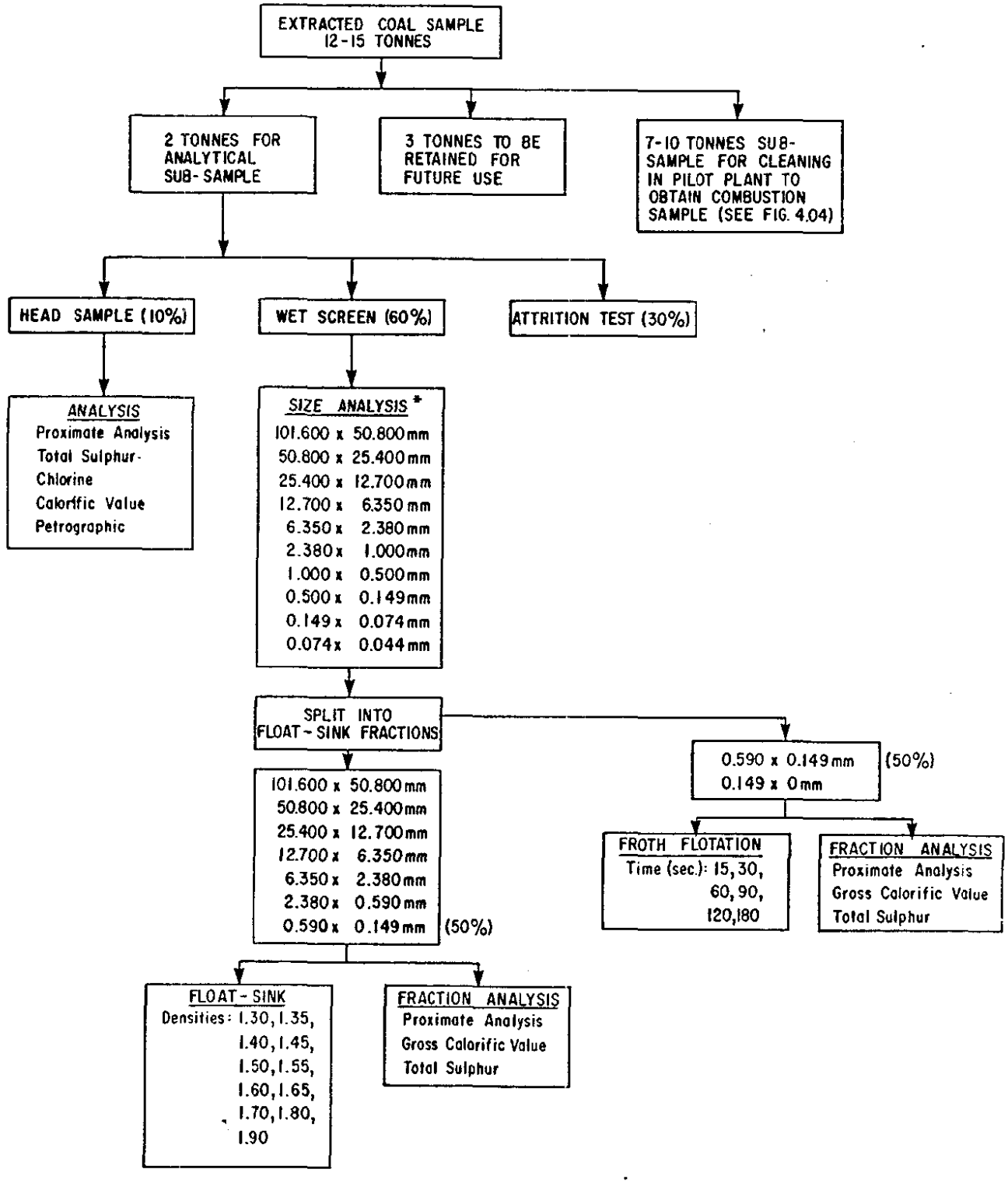
NOTE 2: 75mm core diameter, Float-Sink densities 1.3, 1.5, 1.7 and 1.9

NOTE 3: 150mm core diameter, Float-Sink densities 1.30, 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.65, 1.70, 1.90

NOTE 4: These analyses may be delayed until after the composites and final detailed analyses for clean coal and ash have been completed.

FIGURE 4.02

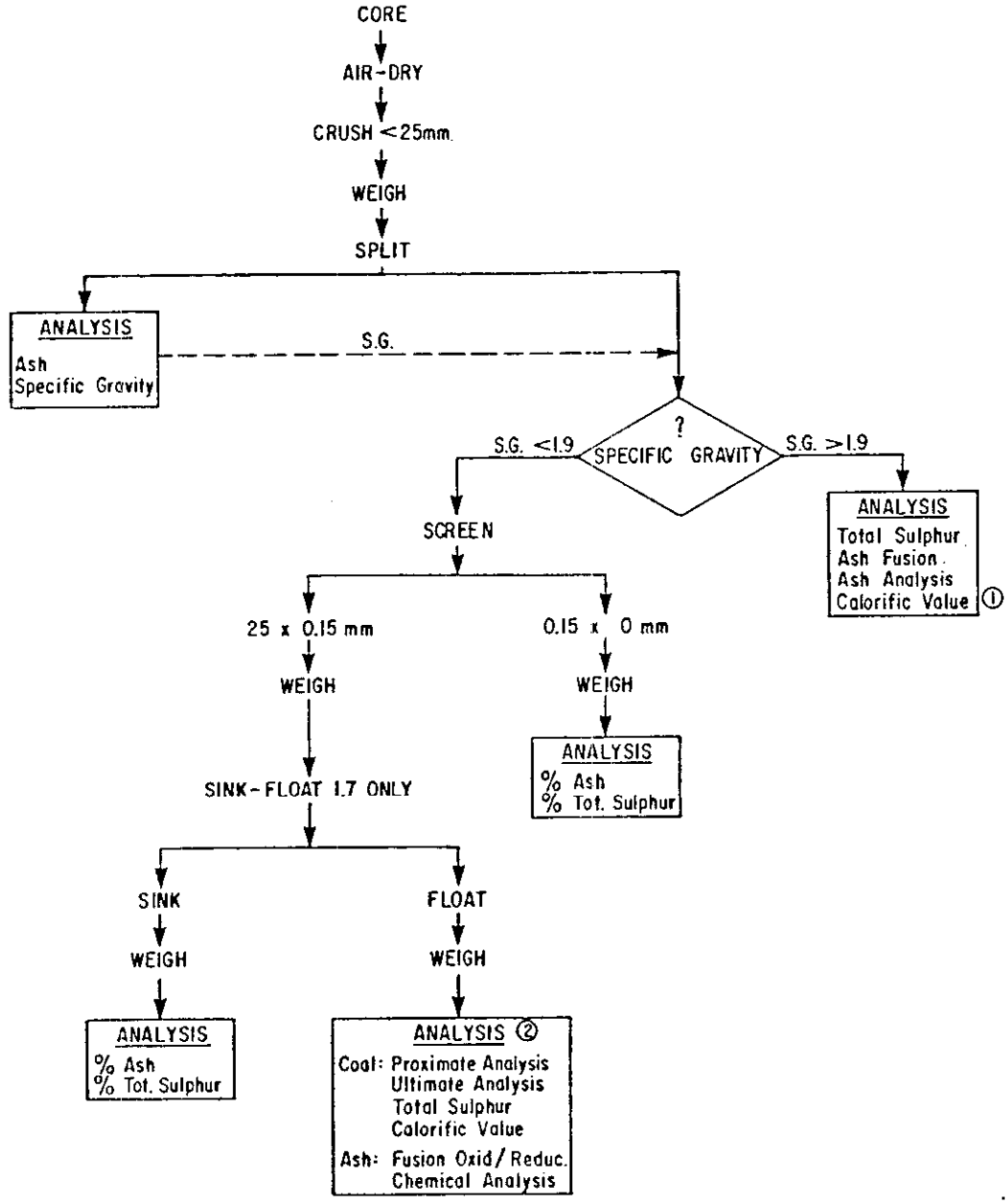
TEST AND ANALYTICAL PROCEDURES FOR BULK SAMPLES



*PLUS 101.6mm MATERIAL SHOULD BE HAND KNAPPED TO PASS 101.6mm WOVEN WIRE SCREEN AND REMIXED WITH SUB-SAMPLE

FIGURE 4.03

TEST AND ANALYTICAL PROCEDURES FOR DRILL CORE AND BULK SAMPLE ROOF, FLOOR AND IN-SEAM PARTING COMPONENTS AND RIDER SEAM COMPONENTS



NOTE: Moisture determination of all samples will be required to express results on a dry basis.

① Calorific Value, only if Ash is <60%

② Sample permitting, if not do as if specific gravity >1.9

APPENDIX G

ANALYTICAL INSTRUCTIONS AND RESULTS

ANALYTICAL RESULTS AND CORRESPONDENCE

- SAMPLE DESCRIPTION AND MASSES

- RAW COAL HEAD SAMPLE ANALYTICAL RESULTS

- KILBORN ENGINEERING (B.C.) LTD. LETTER DATED JUNE 20, 1985, ACCEPTING CHEMEX LABS LTD. QUOTATION FOR ANALYTICAL WORK

- KILBORN ENGINEERING (B.C.) LTD. LETTER DATED JUNE 26, 1985, GIVING ANALYTICAL WORK INSTRUCTIONS TO CHEMEX LABS LTD.

SAMPLE DESCRIPTION AND MASSES

HOLE NUMBER	BRINCO SAMPLE NUMBER	CHEMEX SAMPLE QU NO.	DESCRIPTION SEAM/PIT	MASS SAMPLE kg	S.G.	THICKNESS SECTION m
QU-85-01C	1	11	No. 1 Seam: Pit 1S	20.00	1.37	3.175
QU-85-01C	2	12	No. 1 Seam Basal: Pit 1S	11.80	1.58	1.590
QU-85-01C	2A	12A	No. 1 Floor Dilution: Pit 1S	0.68		0.760
QU-85-02C	1	21	No. 2 Seam: Pit 2-3S	9.60	1.47	1.410
QU-85-02C	1A	21A	No. 2 Floor Dilution: Pit 2-3S	0.50		0.076
QU-85-02C	2	22	No. 1 Seam: Pit 2-3S	19.20	1.37	3.250
QU-85-02C	3	23	No. 1 Seam Basal: Pit 2-3S	12.20	1.67	1.595
QU-85-02C	3A	23A	No. 1 Floor Dilution: Pit 2-3S	0.55		0.076
QU-85-03C	1	31	No. 1 Seam: Pit 2-3S	19.40	1.40	3.225
QU-85-03C	2	32	No. 1 Seam Basal: Pit 2-3S	9.40	1.67	1.245
QU-85-03C	2A	32A	No. 1 Floor Dilution: Pit 2-3S	0.75		0.080
QU-85-04C	1	41	No. 1 Rider Seam: Pit 2N	2.15	1.38	0.390
QU-85-04C	1A	41A	No. 1 Rider Floor Dilution: Pit 2N	0.60		0.080
QU-85-04C	2	42	No. 1 Seam: Pit 2N	18.60	1.34	3.430
QU-85-04C	2A	42A	No. 1 Floor Dilution: Pit 2N	0.60		0.080
QU-85-05C	1	51	No. 1 Rider Seam: Pit 2N	1.98	1.53	0.380
QU-85-05C	1A	51A	No. 1 Rider Floor Dilution: Pit 2N	0.72		0.076
QU-85-05C	2	52	No. 1 Seam: Pit 2N	19.40	1.38	3.475
QU-85-05C	2A	52A	No. Floor Dilution: Pit 2N	0.50		0.076
QU-85-06C	1	61	No. 1 Rider Seam: Pit 2N	2.44	1.41	0.390
QU-85-06C	1A	61A	No. 1 Rider Floor Dilution:	0.50		0.075
QU-85-06C	2	62	Interburden: Pit 2N	1.40	2.14	0.150
QU-85-06C	3	63	No. 1 Seam: Pit 2N	15.60	1.36	2.895
QU-85-06C	3A	63A	No. Floor Dilution: Pit 2N	0.76		0.08

RAW COAL HEAD ANALYTICAL RESULTS

The raw coal head analytical results are as stated in the following pages of Chemex Labs Ltd. Certificates:

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 043-52597

TO : QUINSAM COAL LIMITED
2000-1055 W. HASTINGS ST.
VANCOUVER, BC - V6E 2V3
ATTN: T.E. MILNER, P. ENG.

CERTIFICATE NO : A8513592
DATE : July 17th, 1985

QUINSAM RAW COAL
QU-85-010

SAMPLE NO	BASIS	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	Cl %	G.V. CAL/G	S.G.
1 QU-11	A.D.	3.11	13.78	35.57	47.56	0.83	0.02	6519	1.37
	DRY		14.20	36.71	49.09	0.85	0.02	6729	
2 QU-12	A.D.	2.67	31.99	29.21	36.14	0.49	< 0.01	4375	1.66
	DRY		32.86	30.01	37.13	0.50	< 0.01	5008	

CERTIFIED BY.....

Clamex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 043-52597

TO : QUINSAM COAL LIMITED
2001-1055 W. HASTINGS ST.
VANCOUVER, BC - V6E 3V3
ATTN: T.E. MILNER, P. ENG.

CERTIFICATE NO : A9513598
DATE : July 17th, 1995

QUINSAM RAW COAL
QU-95-02C

SAMPLE NO	BASIS	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	Cl %	C.V. CAL/G	S.G.
1	A.D.	7.06	16.75	35.99	42.16	2.80	0.01	6741	1.47
QU-21	DRY		18.35	37.18	43.52	2.98	0.01	6239	
2	A.D.	3.82	12.99	35.81	47.68	1.57	0.01	6596	1.57
QU-22	DRY		13.44	37.04	49.52	1.62	0.01	6823	
3	A.D.	2.59	40.20	26.32	30.89	0.70	< 0.01	4100	1.67
QU-23	DRY		41.26	27.02	31.72	0.72	< 0.01	4209	

CERTIFIED BY.....

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 043-52597

TO : QUINSAM COAL LIMITED
2000-1055 W. HASTINGS ST.
VANCOUVER, BC - V6E 2W3
ATTN: T.E. MILNER, P. ENG.

CERTIFICATE NO : A8513582
DATE : July 17th, 1985

QUINSAM RAW COAL
QU-85-030

SAMPLE NO.	BASIS	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	Cl %	G.V. CAL/G	S.G.
1	A.D.	2.97	16.99	35.22	44.81	1.21	0.01	6212	1.40
QU-81	DRY		17.51	36.31	46.18	1.24	0.01	6402	
2	A.D.	2.57	39.58	26.38	31.47	0.46	< 0.01	4171	1.67
QU-82	DRY		40.62	27.07	32.31	0.47	< 0.01	4281	

CERTIFIED BY.....

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 043-52597

TO : QUINSAM COAL LIMITED
2000-1055 W. HASTINGS ST.
VANCOUVER, BC - V6E 3V3
ATTN: T.E. MILNER, P. ENG.

CERTIFICATE NO : A8513592
DATE : Jul. 17th, 1985

QUINSAM RAW COAL
QU-85-040

SAMPLE NO	BASIS	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	CL %	G.V. CAL/G	S.G.
1	A.D.	3.63	12.27	38.20	45.90	2.00	< 0.01	6605	1.38
QU-41	DRY		12.74	39.64	47.62	2.07	< 0.01	6854	
2	A.D.	3.95	10.18	37.05	48.82	0.56	0.02	6710	1.34
QU-42	DRY		10.60	38.57	50.83	0.58	0.02	6986	

CERTIFIED BY.....

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 043-52597

TO : QUINSAM COAL LIMITED
2000-1055 W. HASTINGS ST.
VANCOUVER, BC - V6E 2H9
ATTN: T.E. MILNER, P. ENG.

CERTIFICATE NO : A8518598
DATE : July 17th, 1985

CORRECTED COPY

QUINSAM Raw COAL
QU-85-05

SAMPLE NO	BASIS	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	Cl %	G.V. CAL/G	S.G.
1	A.D.	2.39	25.53	31.68	37.64	5.30	< 0.01	5899	1.53
QU-51	DRY		26.35	34.89	38.77	5.46	< 0.01	5560	
2	A.D.	4.11	13.39	35.83	46.65	0.36	0.01	6447	1.39
QU-52	DRY		13.96	37.39	48.65	0.37	0.01	6729	

RECEIVED
JUL 25, 85
BRINCO ENGINEERING

CERTIFIED BY ..... B. Gwarte .....

Cl.emex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1
Phone: (604) 984-0221
Telex: 043-52597

TO : QUINSAM COAL LIMITED
2000-1055 W. HASTINGS ST.
VANCOUVER, BC - V6E 3V3
ATTN: T.E. MILNER, P. ENG.

CERTIFICATE NO : 48513592
DATE : July 17-5, 1985

QUINSAM RAW COAL
QU-85-06C

SAMPLE NO	BASIS	M.M. %	ASH %	V.M. %	F.C. %	SULFUR %	CI %	C.V. CAL/G	S.I.
1	A.D.	3.09	15.93	36.62	44.36	2.12	0.02	6877	1.41
QU-61	DRY		16.44	37.79	45.77	2.19	0.02	6580	
2	A.D.	2.38	68.73	18.37	10.52	1.38	< 0.01	-	2.14
QU-62	DRY		70.40	18.82	10.78	1.42	< 0.01	-	
3	A.D.	2.97	11.40	37.27	47.46	0.76	0.02	6542	1.36
QU-63	DRY		11.86	38.78	49.36	0.79	0.02	6806	

CERTIFIED BY..... B. Twaites .....

KILBORN

Kilborn Engineering (B.C.) Ltd. / 1380 Burrard St., Vancouver, Canada V6Z 2B7
Telex: 04-507734, Tel: (604) 669-8811

June 20, 1985

Chemex Labs Ltd.
212 Brooksbank Avenue
North Vancouver, B. C.
V7J 2C1

Attention: Ms. Liba Lakosil

Dear Sirs:

Re: Quinsam 1985 Drilling Program

Further to our telephone conversation of June 19, 1985, we confirm that, subject to receiving an acceptable quotation from your firm, Brinco Mining Limited will be arranging for Chemex to receive drill core samples from Quinsam on Monday, June 24, 1985.

The drilling work is currently in progress and will probably be completed by June 21st. A probable total of twelve core samples of coal will be obtained from seven drill holes. All of these holes will penetrate the No. 1 seam, three will penetrate the No. 1 rider seam, and one will penetrate the No. 2 seam in addition to the No. 1 seam. This No. 1 seam section core will be sub-divided into an upper and lower zone which will require individual test and analytical work. In addition, floor samples will be taken from each core for which a separate test and analytical procedure will apply.

The required test/analysis program for the coal samples is similar to the 1982 program with which your firm is familiar. The required flow-sheet is attached for reference purposes together with the flowsheet for dilution, roof or floor sample material. More detailed instructions will be sent to you when you are ready to commence the work.

You will receive copies of the core sample description as prepared by Steve Gardner together with the samples. These will include the sample numbers which you should use in reporting the results.

.../2

KILBORN

We will await receiving from you, the quotation for the work as described and also your estimated schedule for:

(a) Notifying the test and analytical results in letter form, and, at a later date,

(b) providing a final report containing these results together with all supporting information.

Yours very truly,

KILBORN ENGINEERING (B.C.) LTD.

D. G. Osborne, P. Eng.
Senior Coal Preparation Engineer

DGO:jmi

Attachments

cc: Mr. T. E. Milner, Brinco (with attachments)

KILBORN

Kilborn Engineering (B.C.) Ltd. / 1380 Burrard St., Vancouver, Canada V6Z 2B7
Telex: 04-507734, Tel: (604) 669-8811

June 26, 1985

CHEMEX LABS LTD.
212 Brooksbank Avenue
North Vancouver, B.C.
V7J 2C1

Attention: Ms. Liba Lakosil

Dear Sir/Madam:

Re: Quinsam 1985 Drilling Program

Brinco Mining Ltd. has issued the following instructions regarding the recently obtained core samples from Quinsam.

Please proceed with the flowsheet 4.01 as attached only as far as the analysis of a head sample. These analytical data are required before a final decision can be made regarding the more detailed test and analytical work.

For the time being, please assume that only the analyses shown in the box plus calorific value determination will be required. Later, additional analyses will probably be necessary and appropriate instructions will be issued following discussions into Brinco.

The samples for petrographic analyses should be sent to David Pearson and Associates in Victoria from whom details can be obtained regarding preparation and quantity of sample required.

If you have any queries or problems regarding this work, please contact the writer. Copies of the core sample descriptions are included for your reference. Please verbally confirm acceptance of appropriately marked core samples and notify the writer if any discrepancy appears to have occured.

.../2

KILBORN

Please would you invoice Brinco directly for all of your services regarding the 1985 Exploration Program. Any queries which you encounter concerning invoicing should therefore be addressed to Ian McLean of Brinco at 688-2511.

Yours truly,

KILBORN ENGINEERING (B.C.) LTD.

D.G. Osborne, P.Eng.
Senior Coal Preparation Engineer

DGO:jht

Enclosures

QUINSAM
COAL LIMITED

CORPORATE OFFICE: # 2000 - 1055 WEST HASTINGS STREET
VANCOUVER, B.C. V6E 3V3

TELEPHONE: (604) 688-2511
TELEX: 04-508664

August 30, 1985 rec'd Sept 3

Coal Laboratory
Chemex Labs Ltd.
212 Brooksbank Avenue
North Vancouver, B.C.
V7J 2C1

Attention: Liba Lakosil

Dear Liba:

Re: QUINSAM 1985 DRILL CORE SAMPLES

Please proceed to carry out the float-sink program as set out in Flowsheet 1 for sample QU-85-01 only. You will note that there are two coal samples (i.e. No. 1 and No. 2). One is from the Main Seam 1S and the other is from the Basal Seam 1S. Please treat these samples separately.

Once the float-sink results are obtained, please refer them to the writer before proceeding with preparing the clean coal analytical composite samples. Brinco may wish to combine the Main and Basal samples prior to carrying out the analytical work on the clean coal. Please would you also analyze sample No. 2 A (Dilution Sample) in accordance with Flowsheet 3.

We are at present planning to commence the extraction of the bulk samples from Quinsam in about two weeks times. The drill hole from which samples QU-85-01C were obtained is adjacent to one of the bulk sample sites and we are anxious to study the above results prior to finalizing the bulk sample coal quality program. It would therefore be much appreciated if you could complete the work by September 27, 1985.

Please advise if you envisage any problems with this. For the time being, please store the remaining samples and await further instructions. It is now doubtful that any more float-sink test work will be carried out on these samples until the bulk sample program has been completed.

Invoices for the above test and analytical work should be sent to Mr. Ian McLean as previously.

Yours very truly,

QUINSAM COAL LIMITED

D. G. Osborne /pw

cc: T.E. Milner
I.A. McLean

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

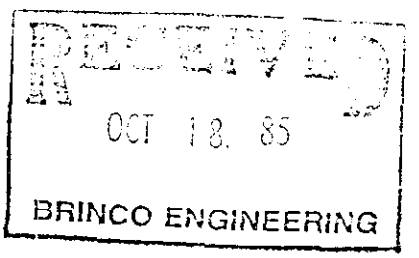
Phone: (604) 984-0221
Telex: 043-52597

CERTIFICATE # : A8517281

DATE : October 17th, 1985

Q U I N S A M C O A L 1 9 8 5

A N A L Y T I C A L W O R K



2000-1055 W. HASTINGS ST.
VANCOUVER, B.C. - V6E 3V3

MGR. ENG. : T.E. MILNER, P. ENG.

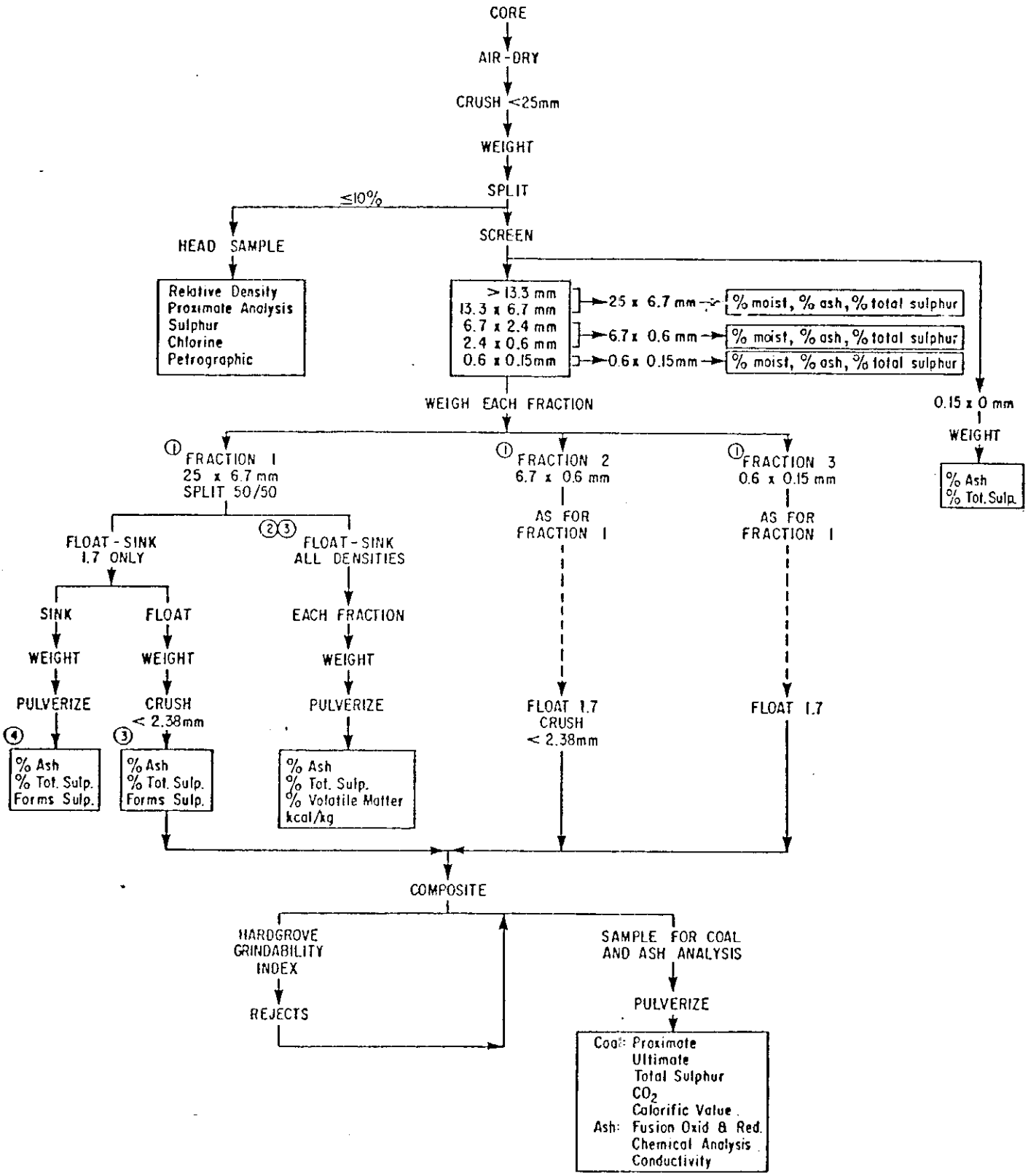
CC. KILBORN ENGINEERING (B.C.) LTD.
VANCOUVER, B.C. - V6Z 2B7

ATTN. DR. D.G. OSBORNE, P. ENG.

CERTIFIED BY .....B.L. Thwaites.....

FIGURE 4.01

TEST AND ANALYTICAL PROCEDURES FOR DRILL CORE SAMPLES OF 75mm AND 150mm DIAMETER



NOTE 1: For samples too small, the split may be omitted and the separation made at 1.7 only (75mm core samples only).

NOTE 2: 75mm core diameter, Float-Sink densities 1.3, 1.5, 1.7 and 1.9

NOTE 3: 150mm core diameter, Float-Sink densities 1.30, 1.35, 1.40, 1.45, 1.50, 1.55, 1.60, 1.65, 1.70, 1.90

NOTE 4: These analyses may be delayed until after the composites and final detailed analyses for clean coal and ash have been completed.

QUINSAM RAW COAL
QU-85-01C

SAMPLE NO	BASIS	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	Cl %	C.V. CAL/G	S.G.
01	A.D.	3.11	13.76	35.57	47.56	0.83	0.02	6519	1.37
11	DRY		14.20	36.71	49.09	0.85	0.02	6729	
02	A.D.	2.67	31.98	29.21	36.14	0.49	< 0.01	4875	1.58
12	DRY		32.86	30.01	37.13	0.50	< 0.01	5008	

Chemex Labs Ltd.

Analytical Chemists *Geochemists* *Registered Assayers*

212 Brooksbank Ave.
North Vancouver, B.C.
Canada V7J 2C1

Phone: (604) 984-0221
Telex: 043-52597

CERTIFICATE OF ANALYSIS

TO : QUINSAM COAL LTD.
2000 - 1055 W. HASTINGS ST.
VANCOUVER, B. C.
B6E 3V3

CERT. # : A8517231
INVOICE # : I8517231
DATE : 17-OCT-85
P.O. # :

BULK SAMPLE

ATTN:

PROXIMATE ANALYSIS (Wt.%)	AS RECEIVED (CALCULATED)	AS DETERMINED (AIR DRIED)	DRY BASIS (CALCULATED)
Moisture		1.95	
Ash		58.58	59.74
Volatile Matter			
Fixed Carbon			
CALORIFIC VALUE: BTU/lb			
: cal/gm		2440	2489
SULPHUR (WT.%)		0.30	0.31
EQUILIBRIUM MOISTURE (Wt.%)			
FREE SWELLING INDEX			
HARDGROVE GRINDABILITY INDEX			
SPECIFIC GRAVITY (g/cm3)		1.91	
BULK DENSITY (lbs/cu.ft. as received)			
ULTIMATE ANALYSIS (Wt.%)			
Moisture			
Ash			
Carbon			
Nitrogen			
Sulphur			
Hydrogen			
Oxygen (I) (by difference)			
FORMS OF SULPHUR (WT.%)			
Total			
Sulphate			
Pyritic			
Organic			

ASH ANALYSIS (Wt.%)		ASH ANALYSIS (WT.%)	
SiO2	60.65	Na2O	0.11
Al2O3	30.70	K2O	0.10
Fe2O3	1.79	P2O5	0.10
CaO	0.73	SO3	0.21
MgO	0.34	LOI	0.74
TiO2	1.68		

ASH FUSION TEMPERATURES (Deg.C)	OXIDIZING	REDUCING
Initial Deformation	1450+	1450+
Softening (H=W)	1450+	1450+
Softening (H=1/2W)	1450+	1450+
Fluid	1450+	1450+

VOI rev. 4/85

Certified by:

APPENDIX H

RESULTS OF PETROGRAPHIC EXAMINATION

Petrographic Examination

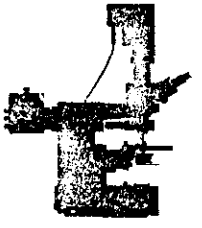
Of Quinsam Coal

For Oxidation.

July 1985.

Prepared for

Quinsam Coal Limited.



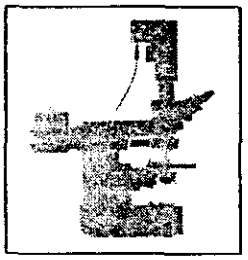
David E. Pearson & Associates Ltd.

Consulting Coal Geologists & Petrographers,

804 Leota Place,

Victoria,

British Columbia, V8Y 1H2, Canada.



David E. Pearson & Associates Ltd.

Consulting Coal Geologists & Petrographers

804 Leota Place, Victoria, B.C. V8Y 1H2 (604) 658-5963

July 27, 1985.

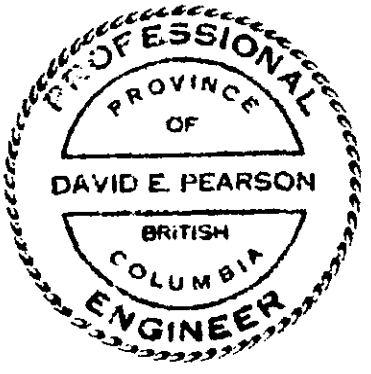
Dr. D.G. Osborne
Kilborn Engineering (B.C.) Ltd,
1380 Burrard Street,
Vancouver,
British Columbia,
V6Z 2B7.

Dear Dave:

Re: Oxidation of Quinsam Coal.

We are pleased to provide you with our report on the oxidation level of the Quinsam Coal samples that we have recently examined. We trust that you will find the information to be most useful.

Once again, we thank you for the opportunity to have been of assistance to you.



Yours very truly,
David E. Pearson & Associates Ltd.,

David E. Pearson, Ph.D., P.Eng.

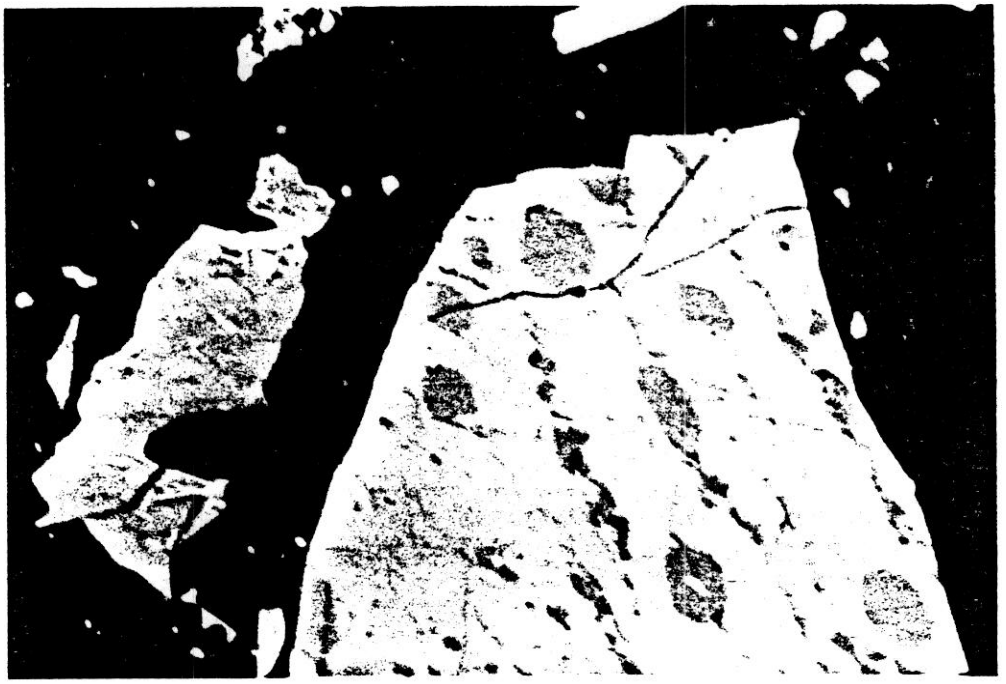


Photo 1. Sample QU-32. Two mineral-free grains of unoxidized, unstained, coal.

Photo 2. Sample QU-62. Large yellow-green-stained, oxidized coal grain,surrounded by mineral matter.

Photo 1. Sample QU-52. Small stained grain adjacent to unoxidized coal.

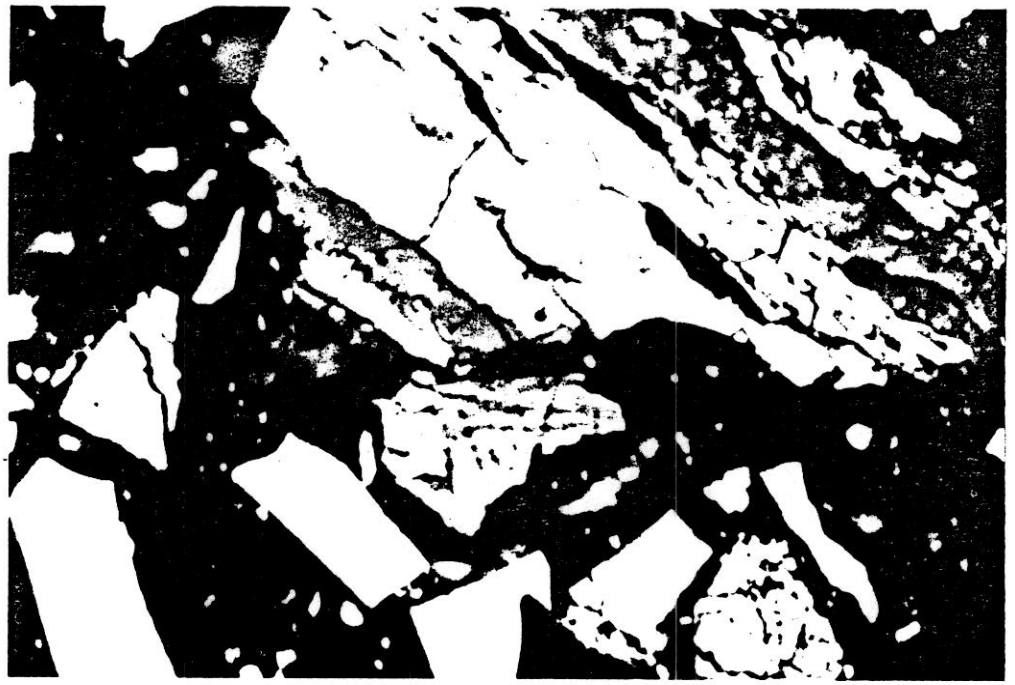


Photo 2. Sample QU-52. Large yellow-green-stained, oxidized coal grain,surrounded by unoxidized grains. The sensitivity of the method is evident in this photo.

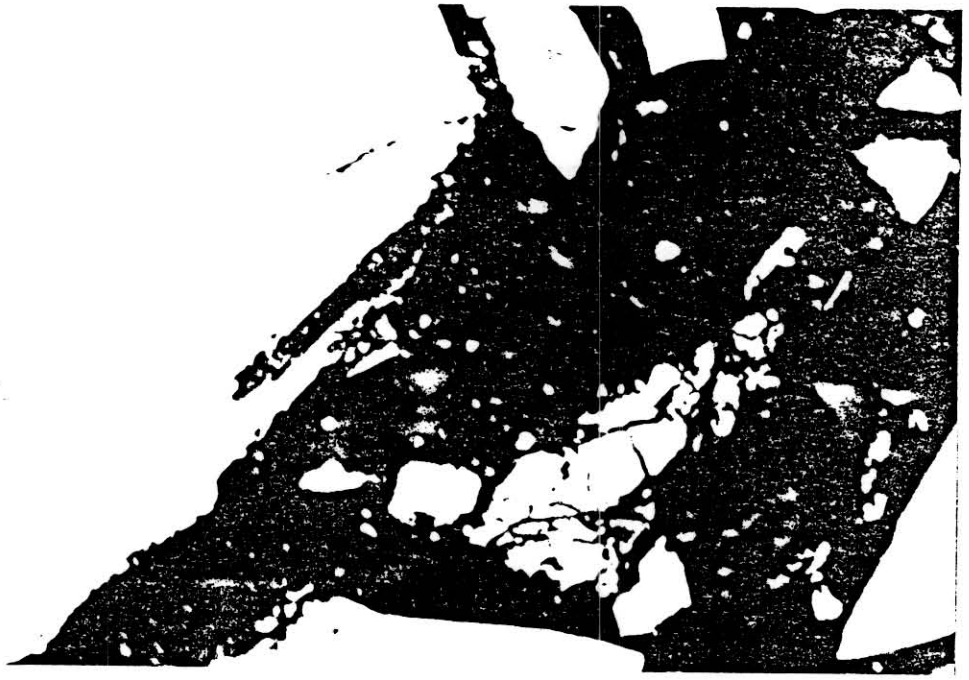


Photo 1. Sample QU-31. Marginally- stained grain.

Photo 2. Sample QU-31 Large marginally-stained grain.

TABLE 4.03

MAIN SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 25 x 6.7mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	11.13	5.05	0.79	7593	11.13	5.05	0.79	7593
1.30-1.40	63.78	7.48	0.75	7374	74.91	7.12	0.76	7374
1.40-1.50	13.35	18.63	0.77	6812	88.26	8.86	0.76	7186
1.50-1.70	8.45	28.26	0.67	5054	96.71	10.55	0.75	7000
1.70-1.90	1.84	44.23	0.88	3518	98.55	11.18	0.75	6935
Sinks-1.90	1.45	61.64	2.03	2100*	100.00	11.91	0.77	6865
	100.00							

* Calculated Value

Fractional Mass % of Main Seam Section = 52.53

Analysed Ash Content, % = 13.43

Analysed Sulphur Content, % = 1.05

TABLE 4.04

MAIN SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 6.7 x 0.6 mm

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	21.22	3.15	0.69	7784	21.22	3.15	0.69	7784
1.30-1.40	58.08	6.61	0.69	7426	79.30	5.68	0.69	7522
1.40-1.50	7.87	18.80	0.85	6231	87.17	6.87	0.71	7405
1.50-1.70	7.04	30.33	0.97	5021	94.21	8.62	0.73	7227
1.70-1.90	2.06	44.86	1.16	3522	96.27	9.40	0.73	7148
Sinks-1.90	3.73	62.34	2.71	2033*	100.00	11.37	0.81	6957
	100.00							

* Calculated Value

Fractional Mass % of Main Seam Section = 39.40

Analysed Ash Content, % = 11.89

Analysed Sulphur Content, % = 0.87

TABLE 4.05

MAIN SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 0.6 x 0.15 mm

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	18.49	2.78	0.66	7732	18.49	2.78	0.66	7732
1.30-1.40	56.84	4.71	0.67	7577	75.33	4.23	0.67	7615
1.40-1.50	5.46	17.20	1.09	6542	80.79	5.11	0.69	7543
1.50-1.70	4.88	35.87	1.26	5041	85.67	6.86	0.73	7400
1.70-1.90	3.12	52.75	1.28	2931	88.79	8.47	0.75	7243
Sinks-1.90	11.21	60.03	1.25	2255*	100.00	14.28	0.80	6680
	100.00							

* Calculated Value

Fractional Mass % of Main Seam Section = 5.62

Analysed Ash Content, % = 13.99

Analysed Sulphur Content, % = 0.82

TABLE 4.06

BASAL SEAM 1S (QU-85-01): FLOAT-SINK RESULTS FOR 25 x 6.7 mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	-	-	-	-	-	-	-	-
1.30-1.40	7.57	12.24	0.71	6833	7.52	12.24	0.71	6833
1.40-1.50	24.66	20.80	0.62	6047	32.10	18.79	0.64	6232
1.50-1.70	48.80	35.43	0.52	4701	80.94	28.81	0.57	5310
1.70-1.90	13.15	50.13	0.39	3388	94.15	31.79	0.54	5041
Sinks-1.90	5.82	64.63	0.23	1811*	100.00	33.70	0.52	4852
	100.00							

* Calculated Value

Fractional Mass % of Basal Seam Section = 50.22

Analysed Ash Content, % = 34.25

Analysed Sulphur Content, % = 0.53

TABLE 4.07

BASAL SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 6.7 x 0.6mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	5.45	4.22	0.76	7590	5.45	4.22	0.76	7590
1.30-1.40	16.54	10.54	0.74	7015	21.99	8.98	0.75	7158
1.40-1.50	17.58	21.65	0.61	5981	39.57	14.62	0.69	6635
1.50-1.70	32.18	35.88	0.48	4728	71.75	24.15	0.59	5780
1.70-1.90	18.74	50.21	0.36	3172	90.49	29.54	0.55	5239
Sinks-1.90	9.51	65.47	0.22	1731*	100.00	32.96	0.51	4905
	100.00							

* Calculated Value

Fractional Mass % of Basal Seam Section = 40.25

Analysed Ash Content, % = 34.32

Analysed Sulphur Content, % = 0.53

TABLE 4.08

BASAL SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 0.6 x 0.15 mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	1.22	2.44	0.75	7758	1.22	2.44	0.75	7758
1.30-1.40	36.79	5.44	0.73	7479	38.01	5.34	0.74	7488
1.40-1.50	13.04	20.96	0.70	6062	51.05	9.33	0.73	7123
1.50-1.70	15.39	36.91	0.48	4439	66.44	15.72	0.67	6502
1.70-1.90	15.54	50.23	0.44	3137	81.98	22.26	0.62	5864
Sinks-1.90	18.02	63.52	0.50	1919*	100.00	29.69	0.60	5153

* Calculated Value

Fractional Mass % of Basal Seam Section = 6.92

Analysed Ash Content, % = 27.53

Analysed Sulphur Content, % = 0.66

TABLE 4.09

**COMBINED SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 25 x 6.7 mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	7.53	5.05	0.79	5793	7.53	5.05	0.79	5793
1.30-1.40	45.58	7.74	0.75	7309	53.11	7.36	0.75	7349
1.40-1.50	17.01	19.65	0.70	6093	70.12	10.34	0.74	7045
1.50-1.70	21.52	33.53	0.56	4795	91.63	15.78	0.70	6516
1.70-1.90	5.50	48.80	0.50	3417	97.13	17.65	0.69	6341
Sinks-1.90	2.87	63.61	0.85	1910*	100.00	18.97	0.69	6188

* Calculated Value

Fractional Mass % of Total Seam Section = 51.75 (53.10% of 25 x 0.15 mm)

Analysed Ash Content, % = N/A

** Combined Seam is 3.175 m Main + 1.590 m Basal = 4.765 m Total

TABLE 4.10

**COMBINED SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 6.7 x 0.6 mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	15.88	3.27	0.70	7762	15.88	3.27	0.70	7762
1.30-1.40	44.02	7.11	0.70	7374	59.91	6.09	0.70	7477
1.40-1.50	11.16	20.32	0.72	6098	71.06	8.33	0.70	7260
1.50-1.70	15.55	34.22	0.63	4816	86.61	12.97	0.69	6821
1.70-1.90	7.70	49.26	0.50	3234	94.31	15.94	0.67	6528
Sinks-1.90	5.69	64.11	1.30	1862*	100.00	18.68	0.71	6214

* Calculated Value

Fractional Mass % of Total Seam Section = 39.68 (40.70% of 25 x 0.15 mm)

Analysed Ash Content, % = N/A

** Combined Seam is 3.175 m Main + 1.590 m Basal = 4.765 m Total

TABLE 4.11

**COMBINED SEAM 1S (QU-85-01C): FLOAT-SINK RESULTS FOR 0.6 x 0.15 mm FRACTION

Relative Density	Direct Values				Cumulative Values			
	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg	Mass %	Ash %	Sulphur %	Cal. Val. kCal/kg
Floats-1.30	11.90	2.77	0.66	7733	11.90	2.77	0.66	7733
1.30-1.40	49.19	4.92	0.68	7549	61.10	4.50	0.68	7585
1.40-1.50	8.35	19.44	0.70	6256	69.45	6.30	0.70	7425
1.50-1.70	8.89	36.56	0.71	4644	78.34	9.73	0.71	7110
1.70-1.90	7.86	50.85	0.70	3086	86.19	13.48	0.70	6743
Sinks-1.90	13.81	61.77	0.73	2088*	100.00	20.15	0.73	4950

* Calculated Value

Fractional Mass % of Total Seam Section = 6.05 (6.21% of 25 x 0.15 mm)

Analysed Ash Content, % = N/A

** Combined Seam is 3.175 m Main + 1.590 m Basal = 4.765 m Total

TABLE 4.12

SIZE DISTRIBUTION RESULTS FOR MAIN, BASAL AND COMBINED SEAM 1S: QU-85-01C

Size Range	Main Seam 1S Mass %	Ash %	Sulphur %	Basal Seam 1S Mass %	Ash %	Sulphur %	Combined Seam 1S Mass %	Ash %	Sulphur %
Over 13.3 mm	15.87			21.26			17.67		
13.3 + 6.7 mm	36.66	12.26	0.84	28.96	34.25	0.53	34.10	19.60	0.74
6.7 + 2.4 mm	21.47			20.75			21.23		
2.4 + 0.6 mm	17.93	11.89	0.87	19.50	37.25	0.53	18.45	20.41	0.76
0.6 + 0.15 mm	5.62	13.99	0.82	6.92	27.53	0.61	6.05	19.17	0.74
Under 0.15 mm	2.45	22.55	1.07	2.61	31.77	0.66	2.50	25.79	0.93
Total		12.46	0.86		34.92	0.54		19.96	0.75
Analysed Ash %		14.200			32.860			-	
Seam Thickness m		3.175			1.590			4.765	

HOLE NO :QU-85-01
SAMPLE NO :01
CHEMEX NO :11

SIZE ANALYSIS

FRACTION	YIELD %
> 13.3 MM	15.87
13.3 X 6.7 MM	36.66
6.7 X 2.4 MM	21.47
2.4 X 0.6 MM	17.93
0.6 X 0.15 MM	5.62
0.15 X 0 MM	2.45

FRACTION	BASIS	YIELD %	R.M. %	ASH %	SULFUR %
25 X 6.7 MM	A.D.		3.13	11.87	0.81
	DRY	52.53		12.26	0.84
6.7 X 0.6 MM	A.D.		3.34	11.49	0.84
	DRY	39.40		11.89	0.87
0.6 X 0.15 MM	A.D.		3.17	13.54	0.79
	DRY	5.62		13.99	0.82
0.15 X 0 MM	A.D.		2.73	21.93	1.04
	DRY	2.45		22.55	1.07

HOLE NO : OU-85-01
SAMPLE NO : 01
CHEMEX NO : 11

SIZE FRACTION : +1/4 INCH

FRACTIONAL

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	A.D.		2.69	4.92	39.34	53.05	0.77	7388
	DRY	11.13		5.05	40.43	54.52	0.79	7593
1.40	A.D.		2.58	7.28	37.39	52.75	0.73	7147
	DRY	63.78		7.48	38.38	54.14	0.75	7336
1.50	A.D.		2.37	18.19	34.72	44.72	0.75	5988
	DRY	13.35		18.63	35.56	45.81	0.77	6134
1.70	A.D.		2.11	27.66	33.35	36.88	0.66	4948
	DRY	8.45		28.26	34.07	37.67	0.67	5054
1.90	A.D.		1.61	43.52	30.29	24.58	0.87	3461
	DRY	1.84		44.23	30.78	24.99	0.88	3518
****	A.D.		1.18	60.92			2.00	
	DRY	1.45		61.64			2.03	

CUMULATIVE

S.G.	YIELD %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	11.13	5.05	40.43	54.52	0.79	7593
1.40	74.91	7.12	38.68	54.20	0.76	7374
1.50	88.26	8.86	38.21	52.93	0.76	7186
1.70	96.71	10.55	37.85	51.60	0.75	7000
1.90	98.55	11.18	37.71	51.11	0.75	6935
****	100.00	11.91			0.77	

HOLE NO : QU-85-01
SAMPLE NO : 01
CHEMEX NO : 11

SIZE FRACTION : +28 MESH

FRACTIONAL

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	A.D.		2.80	3.06	39.09	55.05	0.67	7566
	DRY	21.22		3.15	40.22	56.63	0.69	7784
1.40	A.D.		2.84	6.42	36.67	54.07	0.67	7216
	DRY	58.08		6.61	37.74	55.65	0.69	7426
1.50	A.D.		2.26	18.38	33.63	45.73	0.83	6090
	DRY	7.87		18.80	34.40	46.80	0.85	6231
1.70	A.D.		1.96	29.74	31.93	36.37	0.96	4922
	DRY	7.04		30.33	32.57	37.10	0.97	5021
1.90	A.D.		1.60	44.14	29.30	24.96	1.14	3466
	DRY	2.06		44.86	29.78	25.36	1.16	3522
****	A.D.		1.52	61.39			2.67	
	DRY	3.73		62.34			2.71	

UMULATIVE

G.	YIELD %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	21.22	3.15	40.22	56.63	0.69	7784
1.40	79.30	5.68	38.40	55.92	0.69	7522
1.50	87.17	6.87	38.04	55.09	0.71	7405
1.70	94.21	8.62	37.63	53.75	0.73	7227
1.90	96.27	9.40	37.47	53.13	0.73	7148
****	100.00	11.37			0.81	

HOLE NO : OU-85-01
SAMPLE NO : 01
CHEMEX NO : 11

FRACTION : +100 MESH

FRACTIONAL

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	DRY	18.49		2.78	41.08	56.14	0.66	7732
1.40	DRY	56.84		4.71	36.43	58.86	0.67	7577
1.50	DRY	5.46		17.20	35.24	47.56	1.09	6542
1.70	DRY	4.88		35.87	28.64	35.49	1.26	5041
1.90	DRY	3.12		52.75	26.60	20.65	1.28	2931
****	A.D.		1.15	59.34			1.22	
	DRY	11.21		60.03			1.25	

CUMULATIVE

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	A.D.		3.16	2.69	39.78	54.37	0.64	7488
	DRY	18.49		2.78	41.08	56.14	0.66	7732
1.40	A.D.		3.20	4.10	36.37	56.33	0.64	7371
	DRY	75.33		4.23	37.57	58.20	0.67	7615
1.50	A.D.		3.12	4.95	36.24	55.69	0.67	7306
	DRY	80.79		5.11	37.41	57.48	0.69	7543
1.70	A.D.		3.37	6.63	35.67	54.33	0.70	7150
	DRY	85.67		6.86	36.91	56.23	0.73	7400
1.90	A.D.		3.34	8.19	35.33	53.14	0.72	7001
	DRY	88.79		8.47	36.55	54.98	0.75	7243
****	DRY	100.00		14.25			0.80	

HOLE NO :QU-85-01
SAMPLE NO :02
CHEMEX NO :12

SIZE ANALYSIS

FRACTION	YIELD %
> 13.3 MM	21.26
13.3 X 6.7 MM	28.96
6.7 X 2.4 MM	20.75
2.4 X 0.6 MM	19.50
0.6 X 0.15 MM	6.92
0.15 X 0 MM	2.61

FRACTION	BASIS	YIELD %	R.M. %	ASH %	SULFUR %
25 X 6.7 MM	A.D.		2.81	33.28	0.51
	DRY	50.22		34.25	0.53
6.7 X 0.6 MM	A.D.		2.76	33.37	0.51
	DRY	40.25		34.32	0.53
0.6 X 0.15 MM	A.D.		3.00	26.71	0.59
	DRY	6.92		27.53	0.61
0.15 X 0 MM	A.D.		2.64	30.94	0.65
	DRY	2.61		31.77	0.66

HOLE NO : QU-85-01
SAMPLE NO : 02
CHEMEX NO : 12

SIZE FRACTION : +1/4 INCH

FRACTIONAL

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	A.D.							
	DRY	0.00						
1.40	A.D.		2.90	11.89	33.81	51.40	0.69	6634
	DRY	7.57		12.24	34.82	52.94	0.71	6833
1.50	A.D.		2.56	20.26	32.39	44.79	0.60	5892
	DRY	24.66		20.80	33.24	45.96	0.62	6047
1.70	A.D.		2.17	34.66	28.78	34.39	0.50	4599
	DRY	48.80		35.43	29.41	35.16	0.52	4701
1.90	A.D.		1.83	49.21	24.93	24.03	0.38	3326
	DRY	13.15		50.13	25.40	24.47	0.39	3388
****	A.D.		1.56	63.62			0.22	
	DRY	5.82		64.63			0.23	

CUMULATIVE

S.G.	YIELD %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	0.00					
1.40	7.57	12.24	34.82	52.94	0.71	6833
1.50	32.23	18.79	33.61	47.60	0.64	6232
1.70	81.03	28.81	31.09	40.10	0.57	5310
1.90	94.18	31.79	30.29	37.92	0.54	5041
****	100.00	33.70			0.52	

HOLE NO : QU-85-01
SAMPLE NO : 02
CHEMEX NO : 12

SIZE FRACTION : +28 MESH

FRACTIONAL

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	A.D.		3.18	4.09	34.39	58.34	0.73	7348
	DRY	5.45		4.22	35.52	60.26	0.76	7590
1.40	A.D.		2.89	10.24	33.60	53.27	0.72	6813
	DRY	16.54		10.54	34.60	54.86	0.74	7015
1.50	A.D.		2.45	21.12	31.70	44.73	0.60	5835
	DRY	17.58		21.65	32.49	45.86	0.61	5981
1.70	A.D.		2.37	35.02	28.31	34.30	0.47	4616
	DRY	32.18		35.88	29.00	35.12	0.48	4728
1.90	A.D.		2.01	49.20	24.71	24.08	0.35	3108
	DRY	18.74		50.21	25.22	24.57	0.36	3172
****	A.D.		1.74	64.33			0.22	
	DRY	9.51		65.47			0.22	

CUMULATIVE

S.G.	YIELD %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	5.45	4.22	35.52	60.26	0.76	7590
1.40	21.99	8.98	34.83	56.19	0.75	7158
1.50	39.57	14.61	33.79	51.60	0.69	6635
1.70	71.75	24.15	31.64	44.21	0.59	5780
1.90	90.49	29.54	30.31	40.15	0.55	5239
****	100.00	32.96			0.51	

HOLE NO : OU-85-01
SAMPLE NO : 02
CHEMEX NO : 12

FRACTION : +100 MESH

FRACTIONAL

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	DRY	1.22		2.44	40.69	56.87	0.75	7758
1.40	DRY	36.79		5.44	35.45	59.11	0.73	7479
1.50	DRY	13.04		20.96	32.40	46.64	0.70	6062
1.70	DRY	15.39		36.91	28.08	35.01	0.48	4439
1.90	DRY	15.54		50.23	25.88	23.89	0.44	3137
****	A.D.		2.42	61.98			0.48	
	DRY	18.02		63.52			0.50	

CUMULATIVE

S.G.	BASIS	YIELD %	R.M. %	ASH %	V.M. %	F.C. %	SULFUR %	C.V. CAL/G
1.30	A.D..		2.94	2.37	39.49	55.20	0.73	7530
	DRY	1.22		2.44	40.69	56.87	0.75	7758
1.40	A.D.		3.91	5.13	34.22	56.74	0.71	7195
	DRY	38.01		5.34	35.62	59.04	0.74	7488
1.50	A.D.		3.52	9.01	33.57	53.90	0.70	6873
	DRY	51.05		9.33	34.80	55.87	0.73	7123
1.70	A.D.		2.76	15.28	32.32	49.64	0.65	6322
	DRY	66.44		15.72	33.24	51.04	0.67	6502
1.90	A.D.		3.44	21.50	30.75	44.31	0.60	5662
	DRY	81.98		22.26	31.84	45.90	0.62	5864
****	DRY	100.00		29.69			0.60	

INTRODUCTION

The fourteen samples of Quinsam coal listed below were received at the Coal Laboratory on July 8, 1985. The samples were identified as follows:-

Tag #	Sample #	Lab #
QU-85-01C	**1**	**QU-11**
QU-85-01C	**2**	**QU-12**
QU-85-02C	**1**	**QU-21**
QU-85-02C	**2**	**QU-22**
QU-85-02C	**3**	**QU-23**
QU-85-03C	**1**	**QU-31**
QU-85-03C	**2**	**QU-32**
QU-85-04C	**1**	**QU-41**
QU-85-04C	**2**	**QU-42**
QU-85-05C	**1**	**QU-51**
QU-85-05C	**2**	**QU-52**
QU-85-06C	**1**	**QU-61**
QU-85-06C	**2**	**QU-62**
QU-85-06C	**3**	**QU-63**

SAMPLE PREPARATION

Each coal sample was coned and quartered and reduced to provide sufficient material for one pellet. This coal was then placed in 25mm plastic mould and mixed with cold-set epoxy resin, to which had been added a portion of hardener. The coal-mixture was gently pressure-compacted to concentrate coal grains and allowed to set. This is the preferred method of sample preparation for all ranks of coal, as it does not affect the reflectance of vitrinites nor the fluorescence of exinites. The pellets were subsequently ground and polished on Beuhler equipment.

PETROGRAPHIC EXAMINATION

The polished samples were examined under an oil-immersion lens using a Leitz Orthoplan MPV Compact microscope-photometer.

The polished coal pellets were immersed in a bath containing a solution of the organic dye "Safranin O" and potassium hydroxide. Oxidized coal becomes stained an olive-green, whereas unoxidized coal does not.

One thousand grains were examined in the oxidation analysis, and were classified according to whether they were stained or not, corresponding to oxidized and unoxidized coal. This technique of the quantitative recognition of oxidized coal grains was developed by R.J. Gray at United States Steel, in the 1970's.

RESULTS

The following table shows the numbers of stained grains located in the 1000 counts of each sample. In the appendix, photomicrographs show some representative stained and unstained grains.

Tag #	Sample #	Lab #	Oxidized Grains per 1000
QU-85-01C	1	QU-11	6
QU-85-01C	2	QU-12	4
QU-85-02C	1	QU-21	7
QU-85-02C	2	QU-22	2
QU-85-02C	3	QU-23	5
QU-85-03C	1	QU-31	23
QU-85-03C	2	QU-32	13
QU-85-04C	1	QU-41	1
QU-85-04C	2	QU-42	2
QU-85-05C	1	QU-51	0
QU-85-05C	2	QU-52	17
QU-85-06C	1	QU-61	0
QU-85-06C	2	QU-62	17
QU-85-06C	3	QU-63	0

For all practical purposes, the samples are unoxidized.