876

QUINSAM COAL MINE

CAMPBELL RIVER

BRITISH COLUMBIA

1876

REPORT ON 2001 EXPLORATION

AND

DEVELOPMENT DRILLING PROGRAM

QUINSAM COAL MINE

CAMPBELL RIVER

BRITISH COLUMBIA

Prepared For:
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Campbell River, B. C.

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Gardner Exploration Consultants Ltd.
Campbell River, British Columbia

November, 2001

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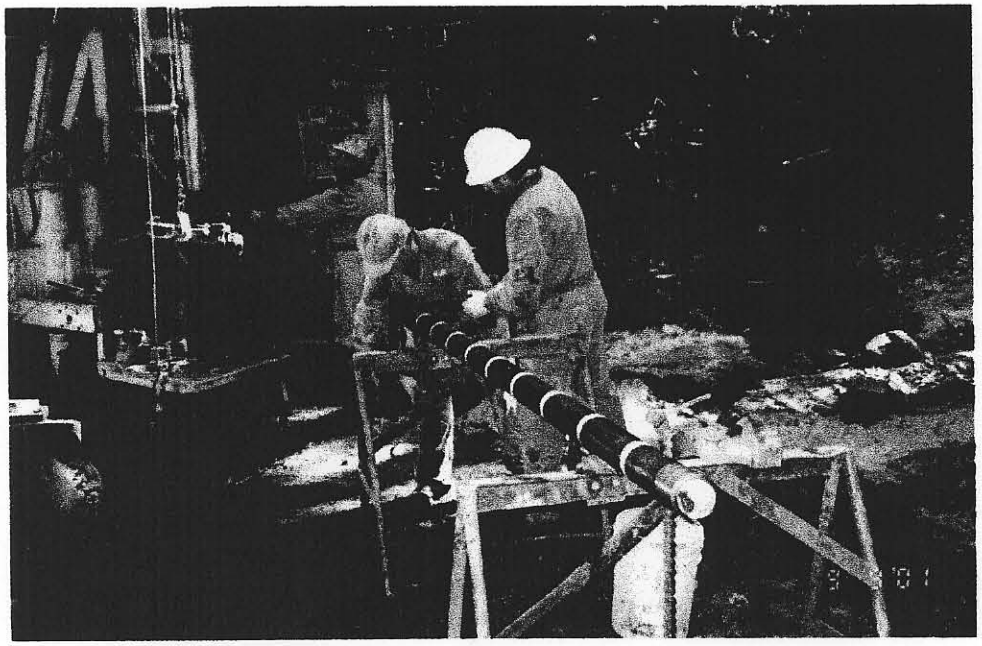
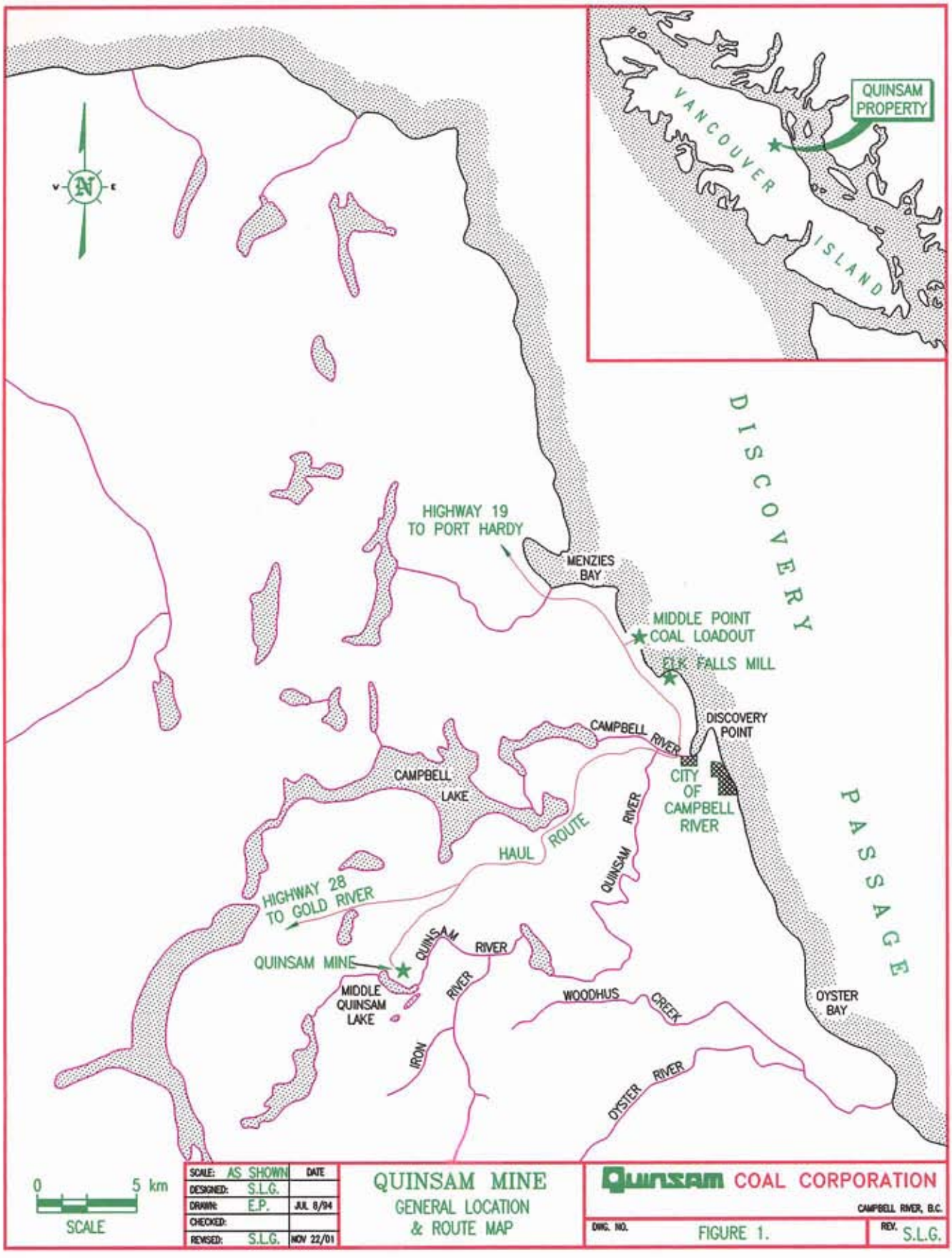
QUINSAM 2001 EXPLORATION PROGRAM




QUINSAM PROPERTY
VANCOUVER ISLAND
DISCOVERY PASSAGE
HIGHWAY 19 TO PORT HARDY
MENZIES BAY
MIDDLE POINT COAL LOADOUT
ELK FALLS MILL
DISCOVERY POINT
CAMPBELL RIVER
CITY OF CAMPBELL RIVER
CAMPBELL LAKE
HAUL ROUTE
QUINSAM RIVER
HIGHWAY 28 TO GOLD RIVER
QUINSAM MINE
QUINSAM RIVER
MIDDLE QUINSAM LAKE
IRON RIVER
WOODHUS CREEK
OYSTER BAY
OYSTER RIVER
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QUINSAM MINE
GENERAL LOCATION & ROUTE MAP
Quinsam COAL CORPORATION
CAMPBELL RIVER, B.C.
DWG. NO.
FIGURE 1.
REV. S.L.G.

1.0 SUMMARY

A total of 18 testholes were installed at the Quinsam Coal Mine in 2001. Of these 18 holes, 5 were drilled in and around the 3 North Mining Area to re-define the boundary of the No. 1 Seam Reserve. The balance of 13 holes were installed in the 7 South and 5 - 6 South Mining Areas, to expand the No. 1 Seam mining resource and confirm coal quality and structure for the No. 4 Seam existing mine layout in the area.

Drill access roads and drill pads were installed between Aug. 10 to Sept. 7, 2001.

The drilling equipment was mobilized to the site on Aug. 27, 2001 and drilling operations were completed on Oct. 13, 2001.

A total of 2,345 metres was completed during this program, consisting of 371 metres of coring, 186 metres of cased hole drilling and 1,788 metres of open hole drilling.

All holes were geophysically logged using a standard gamma-density-resistance-caliper coal logging suite, plus downhole deviation surveys.

All holes were surveyed in from known survey control points at the Quinsam Minesite, using the existing Mine Survey Grid Co-Ordinate system.

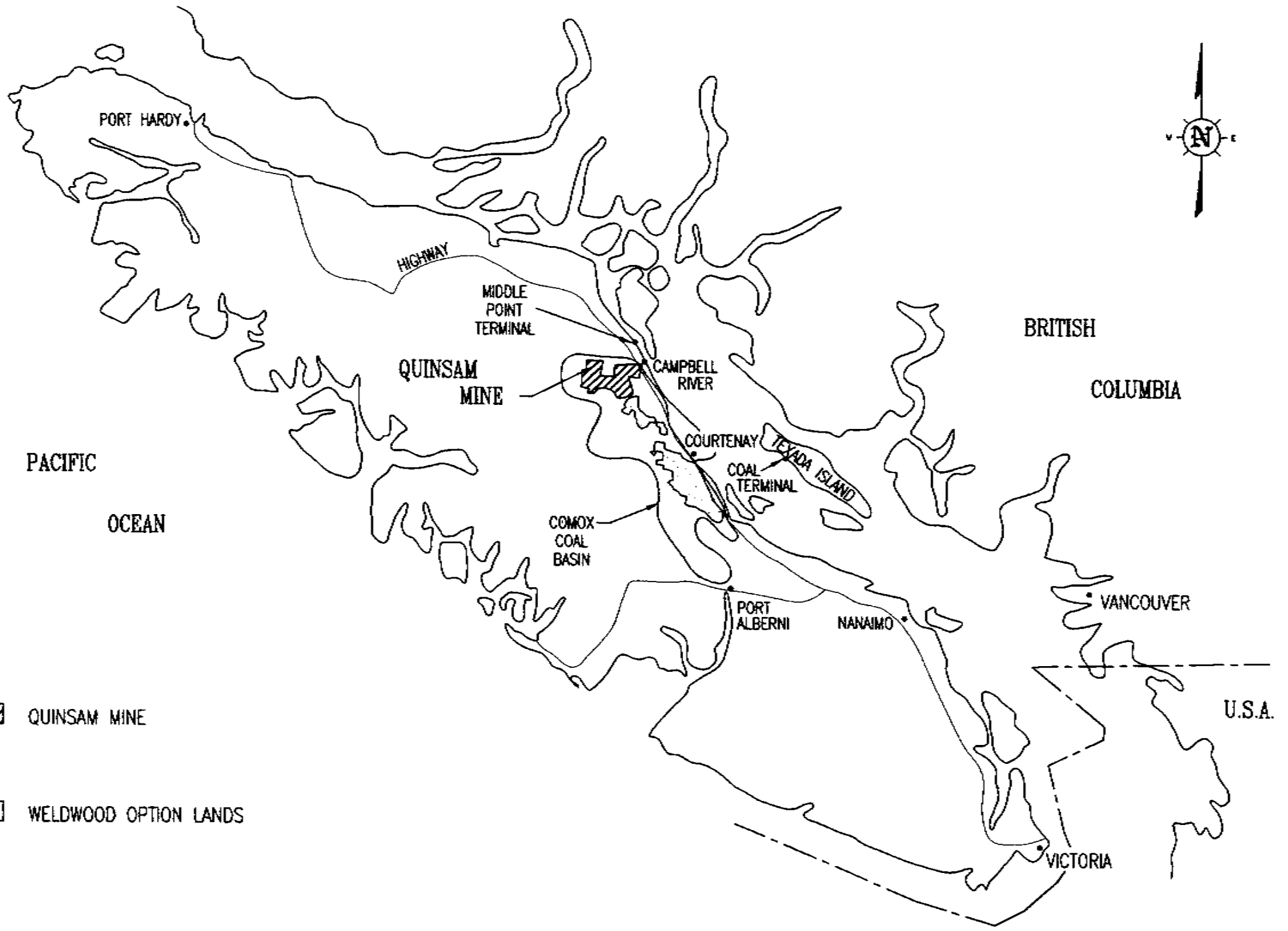
Selected cores of the coal seams were sent to Loring Labs Ltd. (Calgary, Alberta) for analytical testwork.

Upon completion of downhole operations, the drillsites and some of the roads were

reclaimed (with the exception of QU-01-17 site and access).

All holes were cemented full-length upon completion of geophysical logging, with the exception of hole QU-01-17 at 7 South, which is left open as a groundwater monitoring well.

Approximately $305,000.00 was spent on the exploration work, for an overall per metre cost of $130 per metre. This compares favourably with past drilling programs on the Quinsam Property.



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QUINSAM COAL CORPORATION
QUINSAM MINE
VANCOUVER ISLAND LAND HOLDINGS

HILLSBOROUGH RESOURCES LTD.
VANCOUVER, B. C. CANADA

DWG. NO. FIGURE 2. REV.

2.0 INTRODUCTION AND TERMS OF REFERENCE

Hillsborough Resources Ltd. and its subsidiary company Quinsam Coal Corporation, which operates the Quinsam Coal Mine, engaged Gardner Exploration Consultants Ltd. (Gardex) to plan and execute the 2001 drilling program and prepare this technical report on the findings of the program. No exploration or development drilling has been undertaken at the Quinsam Mine since 1997. The program was planned and executed to provide additional information on mining limit boundaries in the 3N area and expand the No. 1 Seam In-situ resource in the 7 South to 5 South area. At the same time, additional data would be collected for coal seams above the No. 1 Seam in the 7 South area.

This report, together with the plan maps and sections generated as a result of the field program, provides enough information to allow preliminary mine plans to be drawn up for the No. 1 Seam and potential No. 3 Seam development. The additional data collected in the No. 4 Seam interval, coupled with the existing database from the 1979 - 1980 work, provides adequate base plans from which detailed mine development plans can be generated.

This report is prepared within the context of National Policy Instrument 43-101.

3.0 DISCLAIMER

The author has used mining reserve data from previous mining studies, in particular the Norwest Mine Services 1995 Report and an internal company report dated December, 2000. While the total resource base at the Quinsam Mine was not examined, mining reserve areas adjacent to the 2001 drill target areas were reviewed for consistency of resource calculations and to integrate these new areas within the previously identified long term mining development plan.

3.1 Acknowledgments

The author wishes to thank Mr. Jim McMillan, Quinsam Staff Geologist, for his valuable assistance in all aspects of the program, including field layout, core logging, drawing preparation and drafting.

The Quinsam Mine Exploration Database was made available to the author for background studies and review. Office facilities and computer equipment was made available to the author and the author wishes to thank Mr. Kresho Galovich, Quinsam Staff Mine Engineer for the use of these facilities.

4.0 PROPERTY DESCRIPTION AND LOCATION

The Quinsam Coal Mine ("the Mine") is located near Middle Quinsam Lake, some 20 km west of the City of Campbell River, British Columbia, at Latitude 49 degrees, 55 minutes North, Longitude 125 degrees, 27 minutes West. Campbell River is located about mid-way up the east coast of Vancouver Island. Campbell River and Middle Quinsam Lake can be found on National Topographic Series 1 - 50,000 Scale Map 92F14 (Oyster River).

The Quinsam Coal Property ("the Property") consists of a block of Fee Simple Coal Rights and Crown Coal Exploration Licences owned by Hillsborough Resources Ltd. ("HRL") and purchased from Weldwood of Canada Limited ("Weldwood") in 1987. The Property consists of approximately 16,000 hectares of coal rights, including 2800 ha of Coal Exploration Licences, and the balance in Fee Simple. In addition, HRL applied for 6,900 ha of Coal Exploration Licences in 1997. These licence applications cover an area immediately south and east of the Campbell River Airport.

Figure 2 illustrates the area covering coal rights owned or controlled by HRL.

In addition to this area, HRL acquired an option to purchase addtional coal lands from Weldwood south of the Oyster River, as far south as the Tsable River-Wilfred Creek area. These lands are not discussed in this report.

Surface ownership for the immediate Mine Property where exploration drilling was conducted includes:

- The Province of British Columbia, which owns the surface rights on Block 148 and Block 26, where exploration work was conducted in the 3N Mining Area and environs.
- TimberWest Forest III Ltd., which owns the surface rights on Block 120 and Block 98, where exploration work was conducted in the 7 South and 5 - 6 South areas.

5.0 ACCESSIBILITY, LOCAL RESOURCES, AND INFRASTRUCTURE

The Mine is accessible via paved Highway 28 west from Campbell River to within 7.5 km of the Mine Offices and Coal Preparation Plant. The remaining 7.5 km consists of 7.0 km of upgraded all-weather industrial road, called the Argonaut Main, plus 0.5 km of paved Mine Access road within the confines of the mine infrastructure area. *Figure 2.* illustrates the access to the property from the City of Campbell River, some 20 km to the east of the minesite.

Secondary roads and exploration trails cover a wide network on the Mine Property, as the area has been extensively drilled since 1976. Some of the older roads are completely grown in with alders and willows, necessitating the employment of brush-cutting machinery to re-establish truck and vehicle access.

There are no logging or other industrial operations being undertaken at the present time in the exploration areas, except for underground coal mining and coal processing operations at the Quinsam Mine.

Timber resources cover the majority of the mining areas at Middle Quinsam Lake consist primarily of Douglas fir, with Western hemlock and Western red cedar as secondary conifer species.[1] The age of the timber stands averages 45 years.

During the course of the exploration work, approximately 1.5 km of new road access was constructed by Quinsam contractors and crews on Timberwest and Provincial Crown land (see Section 4). Quinsam pays damages and compensation to the surface owners for timber cut and removed. As a result, salvaged timber is available for use in the mine under

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[1]Forest Stand Attributes of Access Corridors; August, 2001; Econ Consulting Ltd., Merville, B. C.

a Free Use Permit issued by the Provincial Government for timber recovered from the Crown areas. For the area owned by Timberwest, all salvaged timber is owned by Quinsam under a damage assessment agreement. The timber is utilized for mine support posts and the larger sizes are sold.

6.0 CLIMATE AND PHYSIOGRAPHY

The climate of the Middle Quinsam Lake area is described as Marine West Coast, according to International Environmental Consultants Ltd.[2] The climate is moderate, with maximum summer temperatures of 37 degrees Celsius and minimum winter temperatures of -18 degrees Celsius. Using Campbell River climate data (Campbell River Airport) mean annual precipitation is approximately 1538 mm (60.6 in.). Most of the precipitation occurs as rain between the months of November and April. The minesite experiences occasional snow falls during the winter months. At approximately 300 metres above sea level, the minesite experiences periods of frost but these are generally shortlived.

The topography of the area is that of rolling hills and uplands that are incised with narrow, elongate low areas containing small lakes and swamps. The major topographic feature is the valley of Middle Quinsam Lake, and its drainage to the northeast of the Quinsam River. L. A. Bayrock characterizes the Middle Quinsam Valley as of preglacial origin that has been widened and subsequently deepened by glaciation[3]. Glaciation scoured the hill tops and upland areas, exposing the bedrock in many places, and deposited till in the valleys and depressions. The steep-sided valley of the Quinsam River is till-covered, with thick till deposits of 60 metres on the eastern side as compared to a relatively thin mantle on the western flank. The river has cut through the till cover to expose the Cretaceous bedrock a short distance downstream of the lake.

In the 7 South area, the land surface is relatively flat, except where secondary drainages that feed into the Quinsam River have formed shallow gulleys. These drainages are fed

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[2]Preliminary Environmental Impact Assessment of the Quinsam Coal Project, 1978, International Environmental Consultants Ltd., Vancouver, B.C.

[3]Surficial Geology of the Middle Quinsam Lake Area, 1977; Bayrock and Reimchen Surficial Geology Limited; North Vancouver, B. C.

by small, swampy areas that dry up in the summer season. The drainages therefore can be characterized as intermittent and only carry runoff during the rainy season. The north extremity of 7 South is bounded by the steep-sided of the Quinsam River. The eastern boundary is an incised secondary valley of an intermittent drainage which feeds in to the Quinsam. This valley is structurally controlled and is the expression of a high angle fault of considerable displacement *(see Section 8.2: Structure)*.

In the 3 North area, the land surface dips gently away to the northeast. A prominent, elongate, low-lying swampy area aligned southwest to northeast bisects the mining area. The swamp collects run-off from the adjacent uplands during the winter months and drains through small intermittent streams which eventually feed into the Quinsam River.

7.0 HISTORY

Exposed coal seams were identified in the valley of the Quinsam and Iron Rivers as early as 1910 by local prospectors and geologists employed by Canadian Collieries (Dunsmuir) Ltd. and the Geological Survey of Canada. Exploration drilling, however, was confined to the Campbell River Lowlands area in the early part of the 1900's because of the proximity to tidewater and easy road access.

It was not until 1975 when Weldwood drilled several exploration holes in the vicinity of Middle Quinsam Lake that the true potential of the coalfield was realized. Weldwood's regional exploration program of 1975 identified Middle Quinsam as the most likely area for shallow coal deposits. In early 1976, Weldwood brought Luscar Ltd. of Edmonton, Alberta in to operate the property and determine its potential. Luscar, as an open pit coal mining company, embarked on a detailed program of grid pattern drilling and coring that lasted more than 2 years. During this time more than 450 holes were drilled and open pit mineable coal resources of more than 15 million tonnes were identified. Luscar advanced the project through Stages I and II of the Mine Permitting Review Process by 1981. When the Provincial Government requested additional information prior to granting the permit to mine, Luscar decided to abandon the project. Brinco Mining Ltd. took over Luscar's interest and subsequently committed substantial capital to obtain the Mine Permits. During 1982 and 1983, Brinco completed significant additional studies which were primarily directed towards satisfying the requests for information on A.R.D. (Acid Rock Drainage) potential and issues related to groundwater migration and its effect on surface water quality. After an exhaustive Public Inquiry process in 1982-83, Brinco successfully obtained the permits to operate an open pit mine.

By the time permits to operate were received, the international coal market was in serious decline and Brinco decided to delay construction of the mine and related facilities. In 1985 and 1986, small scale bulk samples were obtained for customer testing. Finally in 1987,

limited open pit production was initiated to provide additional test shipments to prospective customers. By 1989 a small open pit operation in the 2 North Mining Area was producing about 200,000 tonnes per year. A one-section underground test mine was installed at the south end of the 2N open pit to examine the possibilities of large scale underground mining. In 1991, a new open pit operation was started at 2 South across the Quinsam River.

Hillsborough Resources Ltd.(a division of Canadian Mine Development of Brampton, Ontario) acquired the Quinsam Mine from Brinco in early 1992. Hillsborough committed substantial capital investment to develop the mine into a large underground producer. The open pit operation was phased out in 1994 after exhausting most of the shallow coal deposits and the underground operation was expanded significantly. The 2 South and 4 South coal reserves were developed with small satellite underground mines and a test underground mine was developed at Lot 242 on the Iron River. A new Coal Preparation Plant was built beside the existing plant. Other mine infrastructure, including the main access road and the coal loadout facility at Middle Point, was upgraded to accomodate production of up to 1.1 million clean tonnes annually.

Production peaked in 1997 at just over one million clean tonnes. Declining coal markets since 1997 caused a significant curtailment in production at Quinsam, to the current level of approximately 350,000 tonnes per annum. 1997 was the last year exploration or development drilling was conducted on the Mine Property until the current 2001 program which is the subject of this report.

8.0 GEOLOGICAL SETTING

The Middle Quinsam Mining Area forms the extreme northwesterly extension of the Comox Coal Basin. The Comox Basin is a large sedimentary area extending from Mud Bay in the south, north as far as Campbell River and the 50th Parallel, a distance of some 80 kilometres. The basin extends westward from as little as 3 km to as much as 20 km inland from the present-day Vancouver Island shoreline, wedging out against the foot of the Beaufort Mountains which form the backbone of Vancouver Island. The basinal trough extends out under the Strait of Georgia to the east for an undetermined distance. The total sedimentary package of the Nanaimo Group is estimated at more than 2,400 stratigraphic metres[4]. On the landward portions of the Comox Basin (i.e. the Comox Valley - Campbell River areas), over 500 metres of sediment are preserved.

The Middle Quinsam mining area is a semi-confined embayment separated from the main pro-grading eastern shoreline by a bedrock hill that created a natural barrier. This bedrock feature is evident today as the low ridge running from south of the Iron River, north to Lower Campbell Lake.

Figure 3 illustrates the relationship of the Nanaimo Group Late Cretaceous sediments[5]:

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[4] "Geology, History and Potential of Vancouver Island Coal Deposits"; Paper 70-53, 1970; J. E. Muller and M. E. Achison, Geological Survey of Canada.

[5] "Ward, P. D., 1978, "Revisions to the Stratigraphy and Biochronology of the Upper Cretaceous Nanaimo Group, British Columbia and Washington State" (Canadian Journal of Earth Sciences, Volume 15)

Figure 3: Stratigraphic Units of The Nanaimo Group, (after Ward, 1978)

MAESTRICHTIAN	SPRAY FM	Dark Shale; COAL
LATE CAMPANIAN	(Boundary within Spray)	Classic turbidites, mostly shales
	GEOFFREY FM	Conglomerate and sandstone
	NORTHUMBER-LAND FM	Classic turbidites, mostly shales
	DE COURCY FM	Sandstone and Conglomerate
	CEDAR DISTRICT FM	Classic turbidites, mostly shales
EARLY CAMPANIAN	PROTECTION FM McMillan Mmbr Reserve Mmbr Cassidy Mmbr	(Sub-divided in Nanaimo field) Sandstone and Siltstone Siltstone and Sandstone; COAL Sandstone and Conglomerate
	PENDER FM Newcastle Mmbr Cranberry Mmbr	(Sub-divided in Nanaimo field) Shale and Congl.; COAL Sandstone and Siltstone
	EXTENSION FM Millstream Mmbr Northfield Mmbr	(Sub-divided in Nanaimo field) Conglomerate; COAL Siltstone & Sandstone; COAL
	EAST WELLINGTON FM	Sandstone (Nanaimo sub-basin only)
	HASLAM FM	Classic turbidites,mostly shales
SANTONIAN	COMOX FM Dunsmuir Mmbr Cumberland Mmbr Benson Mmbr	(Subdivided in Comox sub-basin) Sandstone; COAL Siltstone & Sandstone; COAL Conglomerate and red beds
	UNCONFORMITY	Older basement rocks (volcanics)

8.1 Stratigraphy

The Nanaimo Group sediments are of Late Cretaceous Age. The coal-bearing Comox Formation of the Nanaimo Group represents the first cycle of deposition upon an erosional, unconformable surface of Triassic and Jurassic volcanic rocks. These rocks consist of basaltic lava of the Triassic Karmutsen Formation and granitic intrusions of the Jurassic Bonanza Group and Island Intrusions. The Comox Formation is made up of three units:[6]

- Benson Member (oldest): Coarse beach-facies and near-shore conglomerates, with localized red beds and oxidized silts.
- Cumberland Member: Siltstone and Shale, with COAL
- Dunsmuir Member: Sandstone, with COAL

As many as 5 coal seams have been identified in the Comox Formation in the Comox Basin. All five seams are present in the Middle Quinsam area. The seams are numbered in ascending order, the lowest being the No. 1 Seam. The No. 1 Seam is the main economic target, and averages between 1.6 m and 3 m in thickness.

The No. 1 and No. 2 Seams are both contained within the Cumberland Member, with the No. 2 Seam occurring at the upper contact between the Cumberland and Dunsmuir Members. The upper three seams all occur within the Dunsmuir sandstones. Figure 4 represents the stratigraphic column in the Middle Quinsam area. All five seam intersections are found within a 100 metre stratigraphic sequence containing all of the Cumberland Member and the lower part of the Dunsmuir Member. The Cumberland Member represents a period of quiescence, when large accumulations of coal-forming vegetation were laid down in a lagoonal environment relatively free of flood events. At the

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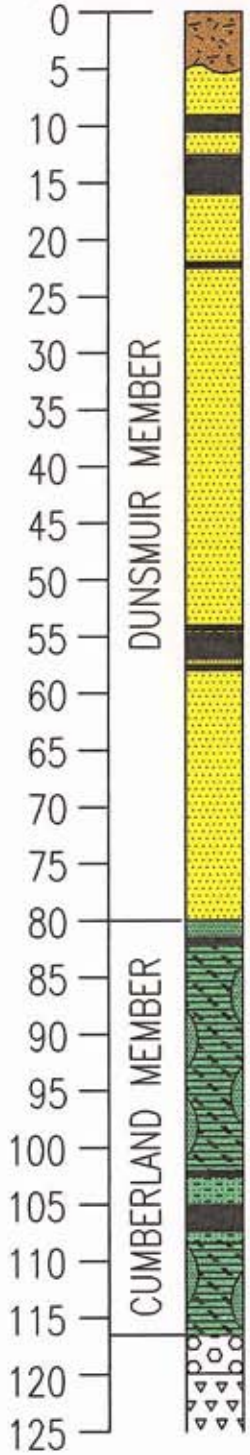
[6]"Revisions to the Stratigraphy and Biochronology of the Upper Cretaceous Nanaimo Group, British Columbia and Washington State"; 1978; P. D. Ward; Canadian Journal of Earth Sciences, Volume 15.

time of No. 2 Seam deposition, an abrupt sea-level transgression occurred, resulting in a higher-energy environment of deposition, such as might be found on a pro-grading deltaic plain, where seasonally cyclic flood events created significant influxes of sea-water into the backwater swamps, with attendant accumulations of fine to medium sands of the Dunsmuir Member. This changeable nature of environment was not as conducive to thick, clean intervals of coal-forming vegetation. In some areas, such as the lee side of low bedrock shoreline hills and headlands, significant thicknesses of vegetation did occur, but these are quite localized and the margins are quickly eroded and replaced by pro-grading channel sands.



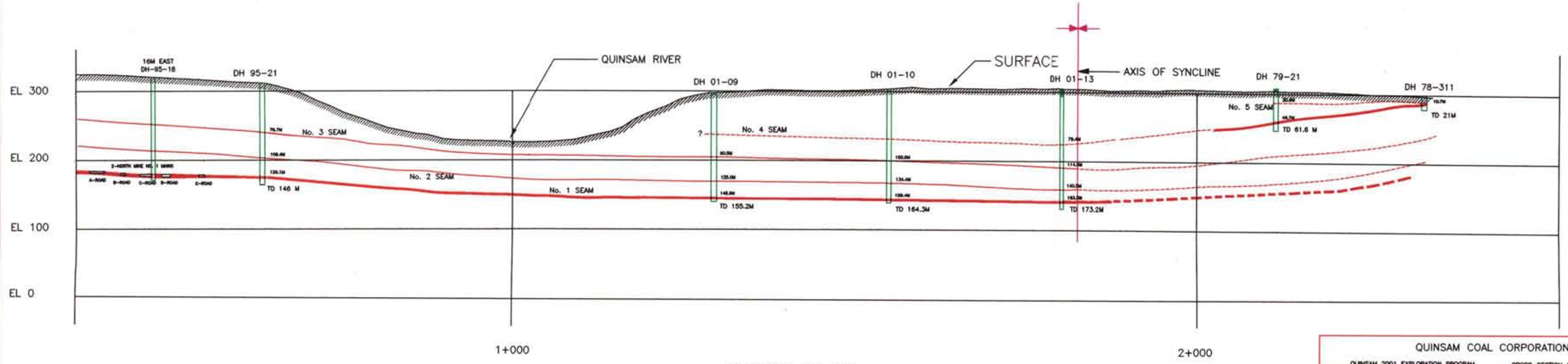
UNIT	THICKNESS	LITHOLOGY
Glacial Till	0–5m	Sandy clay w/boulders
Sandstone	5–40+m.	Med–Coarse Grained Lithic SS
No.5 Seam	0–1.5m variable split	Coal
No. 4 Seam	0–4.0m.	Coal
Sandstone	1–6.0m	Med–Coarse Grained Lithic SS
Un–named Seam	0–0.7m.	Coal
Sandstone	18–51m.	Med–Coarse Grained Lithic Sandstone
Minor Siltstone		Muddy Siltstones (Localized)
No.3 Seam	1.6–2.2m	Coal
No.3 Rider	0–.6m.	
Sandstone	25–35m.	Fine to Med Grained Lithic Sandstone
BASE of DUNSMUIR MEMBER		
		Fine Sandstone to Siltstone
No. 2 Seam	0–1m.	Coal
Siltstone	5–26m	Fine Sandstone to Siltstone
No. 1 Rider Seam	0–0.6m	Coal
Mudstone Siltstone	0.3–6.0m	Siltstone/Mudstone (varies)
No. 1Seam	1.0–2.4m	Coal
Siltstone	3–10m	Siltstone (some redbeds)
BASE of CUMBERLAND MEMBER		
Conglomerate	0–10m	Coarse Boulder Conglomerate
Late Cretaceous Unconformity		
Triassic–Jurassic Vancouver Group		Volcanics

SCALE: NTS	DATE	QUINSAM MINE	Quinsam COAL CORPORATION
DESIGNED: S. Gardner	NOV. 2001	GENERALIZED STRATIGRAPHIC SECTION	CAMPBELL RIVER, B.C.
DRAWN: J. McMillan	DEC. 2001	COMOX FORMATION	
CHECKED:		5–6 South to 7 South Area	
APPROVED:		MIDDLE QUINSAM MINING BLOCK	
NO. DESCRIPTION OF REVISION DATE BY		DWG. NO. Figure 4	REV.

8.2 Structure

The main structural feature in the Middle Quinsam Area is a shallow synclinal trough, the axis of which plunges gently to the north. Most of the mining areas lie on the western limb of the syncline. The 7 South and Lot 242 areas are found on the eastern limb. The west limb dips uniformly to the northeast at angles of 6 degrees. The No. 1 Seam subcrops along the north side of the Middle Quinsam Lake valley, where the Comox has been eroded by glaciation. The syncline is acted on at its southern extremity by a younger Tertiary stock which is exposed on the north side of the Iron River valley, a short distance east of the 242 mine opening. Dips on the east limb of the syncline near the Tertiary intrusion are relatively steep at 23 degrees. The syncline opens more broadly to the north and dips on the east limb become much shallower. The Quinsam syncline is truncated by at least two fault features which are in line with the long, narrow lake known as Long Lake, immediately south of Middle Quinsam Lake. These faults separate the 242 deposit from the 7 South deposit. They originate in the basement and are associated with a pre-existing basement high which results in an area of non-deposition and pinching out of the No. 1 Seam. *Figure 6.* is a typical section perpendicular to the plunge of the Quinsam Syncline, showing the general attitude of the coal seams across the fold. *Figure 7.* is a longitudinal section parallel to the synclinal structure. It illustrates the nature of the faulting which dislocates the coal seams and truncates the synclinal axis.

Another major fault feature which has been intersected by the 2001 drilling *(Hole QU-01-08)* runs along the eastern limb of the syncline and forms the eastern boundary of the planned layout for the No. 4 Seam mine plan. Displacement on this fault is indicated to be at least 20 metres (downthrown to the east) and it may be hinged, with the hingeline in the proximity of the planned portal development at 7 South. Displacement on this fault probably increases to the northeast. Additional drilling would be required to define this structure, and investigate the extent of the coal measures on the eastern side of it.



SECTION 2N-7S

QUINSAM COAL CORPORATION

QUINSAM 2001 EXPLORATION PROGRAM	CROSS-SECTION A-A'	FIGURE 6
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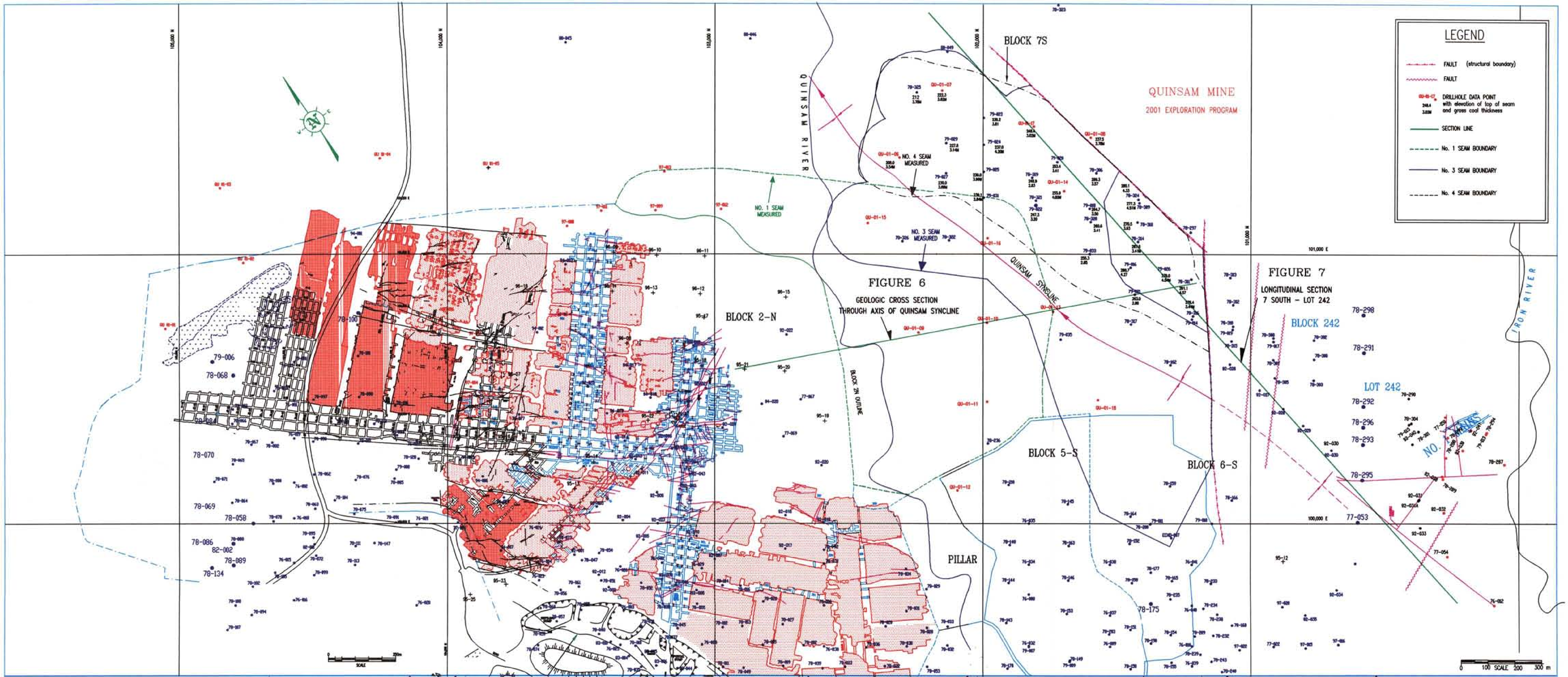
DRAFTED BY: J. McMILLAN		DATE: NOV.20, 2001



SCALE: 1:10,000	DATE	QUINSAM MINE 2001 EXPLORATION DRILLING PROGRAM KEY PLAN MAJOR STRUCTURES, CROSS SECTIONS	Quinsam COAL CORPORATION CAMPBELL RIVER, B.C.
DESIGNED: S. GARDNER	NOV/01		
DRAWN: J. McMILLAN	NOV/01		
CHECKED:			FIGURE 5
APPROVED:			1

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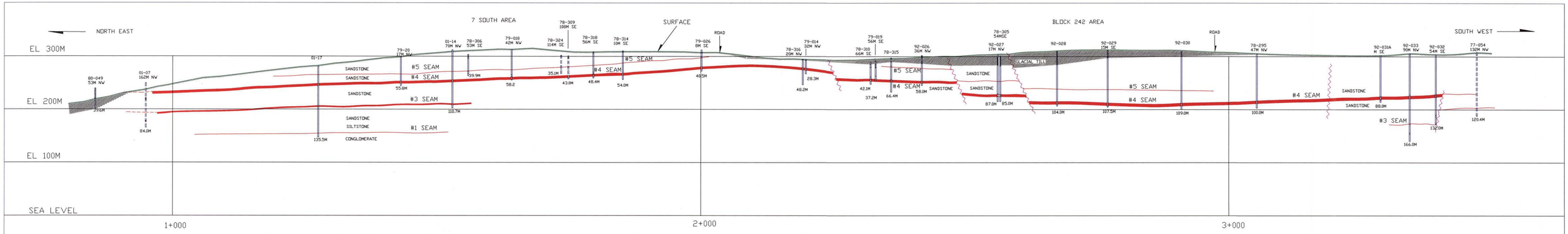

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APPROVED		

QUINSAM MINE
LONGITUDINAL SECTION
7 SOUTH- LOT 242

QUINSAM COAL CORPORATION
CAMPBELL RIVER, B.C.

DRG. NO. FIGURE 7 REV.

8.3 Coal Seam Correlations

Until the completion of the 2001 Exploration Program, the Mine Layout for 7 South and the test mine at Lot 242 near the Iron River were thought to be located in the No. 3 Seam, which is mined at 4 South. It was postulated that the No. 1 Seam deposition was affected by elevated basement topography in the core of the synclinal axis between 7 South and the 2 North Mining area. The No. 1 Seam re-appeared on the east limb of the syncline. The evidence for this included 3 drillholes installed by Luscar in 1979, which drilled past the No. 3 Seam and intersected what was thought to be the No. 1 Seam. Additional holes to the west intersected a hard, green rock which resembled basement rock or a basal conglomerate section at elevations above the projected No. 1 Seam elevations. This formed the basis of the hypothesis. Between 242 and 4 South, the No. 3 Seam was indicated to cross a fault of major displacement of as much as 30 metres, downthrown to the southwest.

Results of the current program provides a much clearer picture of the structure and coal seam correlations. It is now certain that the coal seam mined at Lot 242 and the mine plan layout for 7 South is actually in the No. 4 Seam, as Figures 4 and 5 show. The evidence for this is borne out by drillhole QU-01-17 which has intersected the entire suite of coal seams, including the No. 3 Seam which is about 40 metres below the No. 4 Seam. Instead of a major displacement fault of 30 to 40 metres between 242 and 4 South, the No. 4 Seam abruptly pinches out and is replaced by sandstone. This rapid facies change appears all along the proposed mining limit in the 7 South area as well and it supports the theory of backshore embayments protected by low bedrock hills paralleling the old shoreline, as described in *Section 8.1.*

9.0 DEPOSIT TYPE

Coal seams in the Middle Quinsam area are classified according to the A. S. T. M. (American Society of Testing Materials) Standard as Medium to High Volatile Bituminous 'A' coal. Unlike coal seams found in the southern part of the Comox Coal Basin (i.e. Courtenay to Tsable River), the Quinsam coals have poor metallurgical properties, with Free Swelling Indices normally less than 2.5. With a Hardgrove Index of 48, Quinsam coals are quite hard with very well-developed cleats perpendicular to bedding. They are well suited to stoker products, with a low percentage of -60 M fines, and can withstand a lot of handling without seriously degrading. Generally, the heating content of Quinsam coal product at 13 % Ash is 6,200 Kcal/kg (air-dried basis).

10.0 MINERALIZATION

All of the coals at Quinsam contain abundant calcite material, as sheeting on cleat surfaces, and in some cases thin stockwork and veinlets within the coal matrix.

The sulphur content of the No. 1 Seam ranges from 0.3% to 0.8 %. In some areas, such as 2 North and 5 South, the No. 1 Seam is overlain by a thin Rider seam of 0.6 m thickness. This Rider seam contains from 2.5% to 5% sulphur. It is separated from the No. 1 Seam by a mudstone/siltstone parting. In some areas, this parting is only 0.4 metres thick. The Rider Seam splits away from the No. 1 Seam in a northerly and westerly direction and in some areas, such as the 3N area, it is separated from the No. 1 Seam by 5 to 10 meters or more of interbedded silts and fine sands.

All of the other seams are much higher in sulphur, ranging from 1.5% to as much as 6% and 7%. This is due to the higher energy environment prevalent during the time of coal formation in the Dunsmuir Member, when frequent sea-water invasions washed in on the

flood plain, precipitating out sulphur when in contact with the coals. The sulphur occurs as organic and in-organic sulphur, in ratios of between 20% organic to 80% inorganic for the higher sulphur areas, and 40% organic to 60% inorganic for the lower sulphur areas. The in-organic sulphur occurs in three forms:

- As nodular or lensoid pyrite, along bedding plane contacts, with some lenses reaching thicknesses of 5 to 6 mm.
- As finely disseminated pyrite throughout the coal matrix or finely disseminated pyrite within thin silty partings,
- As pyrite sheeting on cleat surfaces.

11.0 EXPLORATION

Over 25 years of exploration and development work on the Quinsam Property has resulted in the drilling of over 600 holes and a number of test pits:

- Weldwood installed 7 drillholes and 2 test adits in 1975 near Middle Quinsam Lake to investigate coal outcrops in the immediate area.
- Luscar Ltd. installed 454 holes in the Middle Quinsam Lake area between the years 1976 to 1980. These holes were spaced on a grid pattern measuring 75 m X 150 m. Most of the holes were limited to investigating the top 60 metres of cover and were placed to prove out near-surface, open pit mineable coal resources. A few holes were scattered downdip to investigate the more deeply buried coal seams. In 1977, Luscar removed four 20 tonne coal samples for laboratory burn testing.
- Brinco Mining Ltd. installed 17 holes in 1982-83 as coal quality confirmation holes and to examine the overburden column for A.R.D. potential.
- Brinco Mining Ltd. removed a 2,000 tonne bulk sample from the No. 1 Seam in the 2 North Mining Area in 1986 for customer burn trials.
- Brinco Mining Ltd. removed 50,000 thousand tonnes in 1987-88 for overseas customer burn trials.
- Hillsborough Resources Ltd. installed 19 coreholes in 1992 as infill drilling and blocking out coal reserves in the 2N Underground Mining Area, and 17 coreholes in the Lot 242 Area to investigate the mining potential of the upper seam.
- Hillsborough Resources Ltd. installed 84 drillholes and coreholes between the years 1994 - 1997 to further identify mineable coal resources in the 2 North, 3 North and 4 South Mining Areas. 2 line kilometres of shallow reflection seismic work was also undertaken in 1996 to confirm structure in the 2 North and 4 South Underground Mining Areas.

The current program of exploration drilling and coring, the first since 1997, was undertaken to confirm the extent of No. 1 Seam deposition to the east of the Quinsam River and northwest of the current 3 North Mining Area; and to provide additional quality and structural information on the 7 South Mine Layout in the upper seam which was proposed by Hillsborough in 1992.

12.0 DRILLING

12.1 Equipment Used and Method of Operation

Re-establishment of the old drill roads built in 1979 - 80 was undertaken with a hydraulic brushcutting head mounted on a small excavator. This equipment was contracted from Bell Bulldozing (Courtenay, B.C.). Approximately 5 kilometres of existing old road was re-activated with this machine.

Construction of approximately 1.5 kilometres of new road grade was completed. This new road, plus the eighteen drill sites, were built with a Komatsu PC-150 tracked excavator equipped with a hydraulic thumb. A faller/bucker was assigned to work with the excavator to cut to length any salvageable timber. This labour and equipment was contracted from Uplands Excavating Ltd. of Campbell River, B.C. A self-loading logging truck supplied by Tom Rainaldi Contracting of Campbell River was brought in to remove timber from the roads and drill pads and stockpile it at the minesite.

Drilling operations were conducted with a Drilltech DK25 tophead rotary rig mounted on a tandem carrier. The rig is equipped with an 850 CFM - 350 PSI compressor and Ingersoll-Rand downhole percussion hammer for open hole drilling and a Bucyrus drill-thru casing hammer for setting casing through unconsolidated material. For coring operations, a set of Christensen wireline coring tools was used. This includes a 3 metre long core barrel assembly which catches 7.6 cm diameter (PQ size) core. The total hole diameter is 15 cm. The rig comes supplied with two pipe carrier trucks, and a crew service truck with fuel and water tanks. All of this equipment was supplied by Drillwell Enterprises Ltd. of Duncan, B. C.

Drilling operations are started with the setting of heavy-wall water well casing through the unconsolidated till. This casing is set by drilling the hole through the casing with a slightly

undersize bit. The casing is then driven in by the casing hammer assembly. The casing bottom is equipped with a heavy drive shoe in order to protect the casing from collapse as a result of the heavy force applied by the hammer. The 6 metre casing joints are welded together as the hole is advanced through the till. Once bedrock is reached, open hole drilling commences using the downhole percussion hammer equipment. The hole is rapidly advanced through the overburden rock to a pre-selected corepoint a short distance above the target coal seam. The drilling tools are then retrieved out of the hole and the core string is tripped in. Each 3 metre core run is recovered using the wireline equipment. In holes where more than one coal seam is targetted, the coring tools are removed from the hole and the hole is deepened to the next corepoint by drilling.

Downhole geophysical operations were completed with a Comprobe unit mounted in a 4 X 4 suburban truck. All holes were geophysically logged using a standard coal-logging package including gamma, density, resistance and caliper curves. The Comprobe tool is a multi-component tool that produces these curves with a single pass up the drillhole. The tool comes equipped with a mechanical de-centralizer which ensures good wall contact as the tool is retrieved up-hole. A separate Sperry-Sun tool is run as a second pass to determine hole deviation and azimuth. Usually the holes are within one or two degrees of vertical. Following the downhole geophysical operation, the unit installs 1.5 inch light wall PVC using the wireline equipment. The PVC pipe is run in to one or two metres above total depth for hole cementing and abandonment operations. The geophysical unit and logging engineer was contracted from Electrolog Services of Calgary, Alberta.

Following the completion of downhole operations, the holes are cemented in using a neat cement slurry delivered to the site by a tandem mixer truck. This unit was supplied by Uplands ReadyMix of Campbell River. The slurry is a Portland Normal mix of 1895 kg/cu. m. with a water ratio of 0.44 cu. m. per tonne and an MPa of 10. The slurry is funneled in to the top of the hole around the PVC pipe. As the heavier slurry displaces the water, it is forced up the PVC and directed out into the drill sump by an elbow with a short attachment.

Due to the U-tube effect, cement returns up the PVC to surface, thus indicating the hole has accepted a full column of cement. All holes were abandoned in this fashion, except for QU-01-17 which is being left open as a groundwater observation well.

All drillsites were reclaimed by the hydraulic excavator following hole abandonment operations. Reclamation included filling in of the drill sump and recontouring of the sites to original ground using the original stockpiled soil material. Scarifiying of the top .15 metres of ground surface and scattering clearing debris completes the work. Road access corridors were reclaimed in the same manner. In areas of potential erosion, cross-ditches were installed with the excavator. Fall rye was used as a natural rooting agent in steep areas.

All drillhole collars were surveyed in from known control points at the Mine Site. A two-man contract survey crew was used for this work. The holes were tied in to the existing Mine Grid Co-Ordinate System. Permanent survey points were installed in the field at selected locations, to facilitate work in future years. The survey control and drillhole tie-in was conducted by Mr. Tim Klukewich of Campbell River.

12.2 Scope of Work

A total of 18 drillholes were completed between Aug. 27 and Oct. 13, 2001. Of these 18 holes, 5 were drilled in and around the 3 North Mining Area. The balance of 13 holes were installed in the 7 South to 5 - 6 South Mining Areas.

A total of 2,345 metres was completed during this program, consisting of 371 metres of coring, 186 metres of cased hole drilling and 1,788 metres of open hole drilling. The deepest hole was drilled to 180 metres, with the average hole depth at 130 metres. *Figure 7.* is a tabulated summary of drillholes, with depths and thicknesses of each coal intersection shown.

QUINSAM COAL PROJECT

ALL HOLES (Consecutive Numbering)

HOLE NUMBER	CORED	AREA	NORTHING (m)	EASTING (m)	COLLAR (m)	TILL (m)	No. 5 SEAM DEPTH	No. 5 SEAM THICK	No. 4 SEAM DEPTH	No. 4 SEAM THICK	No. 3 SEAM DEPTH	No. 3 SEAM THICK	No. 3 RIDER DEPTH	No. 3 RIDER THICK	No. 2 SEAM DEPTH	No. 2 SEAM THICK	No. 2 RIDER DEPTH	No. 2 RIDER THICK	No. 1 RIDER DEPTH	No. 1 RIDER THICK	PARTING DEPTH	PARTING THICK	No. 1 SEAM DEPTH	No. 1 SEAM THICK	No. 1 BASAL DEPTH	No. 1 BASAL THICK	BASEMENT DEPTH	TOTAL DEPTH
QU-01-01	Y	3N	101051.79	100723.19	308.9	2.7									42.85	0.95							57.76	3.10				66.6
QU-01-02	Y	3N	104759.40	100966.78	319.2	1.2									89.50	0.60							86.16	2.02	89.20	1.43		121.3
QU-01-03	Y	3N	104846.57	101246.98	316.5	4.3									90.46	1.10			93.73	0.36	94.09	11.37	105.46	0.33	107.25	0.75		113.3
QU-01-04	Y	3N	104250.73	101355.40	288.2	16.5					60.70	0.50											118.60	0.60				153.9
QU-01-05	Y	3N	103846.15	101320.13	272.3	6.4									120.50	1.10							133.58	0.50	139.20	0.30		145.3
QU-01-06	Y	7S	102311.24	101358.54	252.5	13.7	17.27	0.50	44.14	3.54	104.62	1.75																114.0
QU-01-07	Y	7S	102153.27	101606.53	250.3	7.6	7.60	1.50	28.00	3.62	72.39	2.16																84.0
QU-01-08	Y	7S	101598.01	101432.68	278.7	8.2			41.22	3.78	69.40																	75.5
QU-01-09	Y	7S	102240.41	100707.84	296.7	0.6			57.90	0.60	90.69	1.69			125.00	0.39			147.29	0.59	147.88	1.02	148.90	1.92				155.2
QU-01-10	Y	7S	101984.74	100744.97	304.3	5.2			70.10	0.40	100.42	0.63			134.43	0.39			154.47	0.53	155.00	0.60	155.91	2.17				164.3
QU-01-11	Y	5S	101964.89	100451.30	294.2	0.6					59.72	0.76			96.50	0.90			114.38	0.62	115.00	0.60	115.60	2.22				124.9
QU-01-12	Y	7S	102093.77	100122.37	303.7	62.3									72.66	0.34			94.45	0.58	95.03	0.31	95.34	2.37				102.2
QU-01-13	Y	7S	101737.35	100785.37	306.1	12.5			79.37	0.63	114.60	1.69			140.70	0.40	143.00	0.50					163.50	1.60				173.2
QU-01-14	Y	7S	101896.74	101233.22	313.1	4.3	36.50	0.85	57.19	4.00	102.58	2.14											-	-				110.7
QU-01-15	Y	7S	102428.30	101114.04	272.9	8.8	30.48	0.53	57.70	0.30	110.13	1.77			142.90	0.30			169.20	0.62	169.82	1.93	171.75	1.80				180.0
QU-01-16	N	7S	101982.26	101057.97	292.4	17.9	27.50	0.30	50.60	2.80	122.00	1.92			149.27	0.73			168.50	0.72	169.22	1.21	170.43	1.84				178.3
QU-01-17	Y	7S	101811.00	101473.14	282.2	1.2	31.61	1.47	33.85	3.02	76.07	2.06			104.00	0.50			121.30	0.70	122.00	4.80	126.80	1.00				135.5
QU-01-18	Y	7S	101568.38	100459.68	304.7	2.5					81.13	2.01	86.20	0.70	114.30	0.45			119.57	0.61			134.18	0.50				147.0

12.3 Program Costs

The following summarizes Program Costs for the 2001 Exploration Program:

			Cost per Meter
•	Permitting and Site Access Agreements	$ 8,000.00	3.41
•	Road Access and Drill Site Construction	$ 35,550.00	15.16
•	Drilling and Coring	$ 149,100.00	63.58
•	Downhole Geophysics	$ 17,300.00	7.38
•	Hole Cementing and Abandonment	$ 14,450.00	6.16
•	Core Logging and Field Supervision	$ 41,000.00	17.48
•	Surveying	$ 2,500.00	1.07
•	Laboratory and Analytical	$ 12,130.00	5.17
•	Final Reporting	$ 18,000.00	7.68
•	Reclamation	$ 6,185.00	2.64
•	Freight and Miscellaneous	$ 1,000.00	0.43
	TOTAL :	$ 305,200.00	$ 130.16

The all-inclusive cost of $ 130.16 per metre drilled compares favourably to previous drilling programs at Quinsam and on Vancouver Island.

13.0 SAMPLING METHOD AND APPROACH

This section describes the method of recovering core from the drillholes, core handling procedures and sampling methods. Coring operations are directly supervised in the field by the geologist. Prior to commencement of coring, the driller marks a 2.97 metre interval on the pulldown chain and he measures total depth of hole with a sounder. The driller's measured depths are always used for marking the core boxes, and logging and describing the core samples. The core column is retrieved out of the drillhole by means of a wireline winch drum which hoists the inner core barrel through the inside of the core pipe to surface, where it is laid out on a rack and opened up. The core hand then measures the length of core recovered, before removing it from the barrel, under supervision of the field geologist. The core is then transferred into specially built wooden core boxes by the core hand. Prior to the placement of the core in the box, the box has been labelled for "Top" and "Btm", with the driller's depth measurements of the interval cored. The driller keeps a written tally of each core run, with the total cored metreage and the amount of core recovered. From this tally, the geologist calculates the overall recovery. In most instances, the core recoveries are close to 100%. In some very soft zones, core recovery may be reduced to 80%. If core recovery is below 80% and it is due to mechanical malfunction or driller error, the geologist may elect to order the contractor to re-drill the hole or deduct a penalty from the billed amount. Larger diameter coring (PQ size) improves the chances of recovery in the softer coals. In extremely faulted sections, it may not be possible to recover an adequate amount of core for representative sampling. The decision to identify a non-representative sample due to poor recoveries is determined by the geologist on site.

The boxes of core are transported to the field office for detailed logging and describing, followed by sampling of the coal sections. If lost core sections are present, the geologist tries to identify what type of material was lost and the relative depth the core losses occurred. The geophysical logs are particularly useful for determining the lost core zones.

After describing the core in detail for physical properties, the core boxes are laid out in groups of four, properly labelled and photographed. Prior to the sampling of the coal intervals, 10% Hydrochloric acid is applied to each successive unit as a field test for determining the A.R.D. potential of the material. The results of the acid test is noted in the corelog description.

Sampling of the coal intervals is generally done to conform to the actual mining unit. If the geologist notices a specific change in the coal section, for example if a rock parting is present within the seam, he may elect to sample incrementally. A head analysis of each individual sample is then requested, prior to compositing the samples to represent the mining unit. This method is particularly useful to identify which parts of the seam contain higher sulphur values or ash values, even though conventional underground mining methods are not very selective in how they can separately cut such materials.

14.0 SAMPLE PREPARATION AND SECURITY

Coring operations were performed by a qualified drilling contractor under the direct supervision of professional geologists. The core recovery and handling in the field was directly supervised by the geologist, who ensured that the core samples were properly placed into correctly labelled wooden core boxes. A careful approach to core measuring and labelling is critical in order to establish overall recovery and thus confirm that coal seam thickness and quality information is representative of the in-situ resource. The geophysical logs are an essential tool in determining how much core is lost and the interval in which the losses occurred.

The step by step process by which the coal samples arrive at the laboratory is summarized below:

- The core column is secured in plywood boxes and labelled by the drilling crew. The geologist inspects the core prior to and during transfer from the core barrel to the boxes.
- At the core shack, the geologist immediately arranges the core boxes in numerical order, and begins the detailed lithological description and correlation work.
- The coal seams, including adjacent roof and floor material, are identified in the core and correlated with the geophysical logs.
- The core is photographed.
- Core recoveries as reported by the drilling crew are confirmed by using the geophysical log picks, correlated with recognizable units in the core.
- Each individual lithologic unit is described in detail prior to removal for sample material.
- In order to provide enough sample material for detailed laboratory analytical work, the entire core of the coal seam intervals is inventoried, packaged in air-tight plastic bags, crated in a sturdy wooden crate with the lid securely nailed and shipped.

- The shipping carrier is a recognized, bonded carrier that employs covered and locked vans to prevent tampering.
- The laboratory used for the program (Loring Laboratories of Calgary, Alberta) is a recognized, certified lab facility.

15.0 DATA VERIFICATION

In producing this report, the author has assimilated all new drilling results and coal quality analytical data into the Quinsam Mine Database. The new coal quality data compares favourably with historical data. The coal quality analytical results were reviewed with respect to overall core recoveries and compared to the existing coal quality database. In all respects, the new information is consistent with the historical records and trends that were identified in previous work are corroborated.

16.0 ADJACENT PROPERTIES

All of the prospective coal land in the northern part of the Comox Basin is controlled by Hillsborough Resources Ltd. or its subsidiary companies, with the exception of a small block of ground approximately 5 km south of the Iron River. This area has been the subject of previous exploration and development work in the 1980's and contains what is called the Chute Creek Coal Deposit. A seam up to 2 metres thick exists in this area. The seam was originally identified by Luscar drilling in 1977. The ground was originally part of the Weldwood block, but after initial drilling and investigation was surrendered to the Crown. It was subsequently acquired by another operator and limited underground development was attempted, with no positive result.

17.0 MINERAL PROCESSING AND METALLURGICAL TESTING

The flowsheet for the analytical testwork is shown in *Figure 8*. The essential components of the flowsheet include:

- Crushing the sample to 13 mm, and air-drying.
- Using a small proportion (about 10%) of the total sample to identify raw coal quality parameters, including Moisture content, Ash content, Volatile Matter content, Fixed Carbon content, Sulphur content and Heating Value.
- Splitting the remaining sample material and retaining 50% of it for data verification or other additional work.
- Screening the split sample at 60 Mesh.
- Analyse the -60 Mesh fines for Sulphur % and Calorific Value.
- Float - Sink the +60 Mesh material and perform detailed analysis on the clean coal floats, including Proximate, Ultimate, Ash Fusion, Mineral Analysis of Ash (including mercury), and Calorific Value.
- On the sinks portion, do a Proximate analysis.

The laboratory work was designed to provide information on clean coal characteristics if the coal was washed. However, enough sample material was retained for additional testing of coal if other applications are contemplated, such as a mine-feed power plant application.

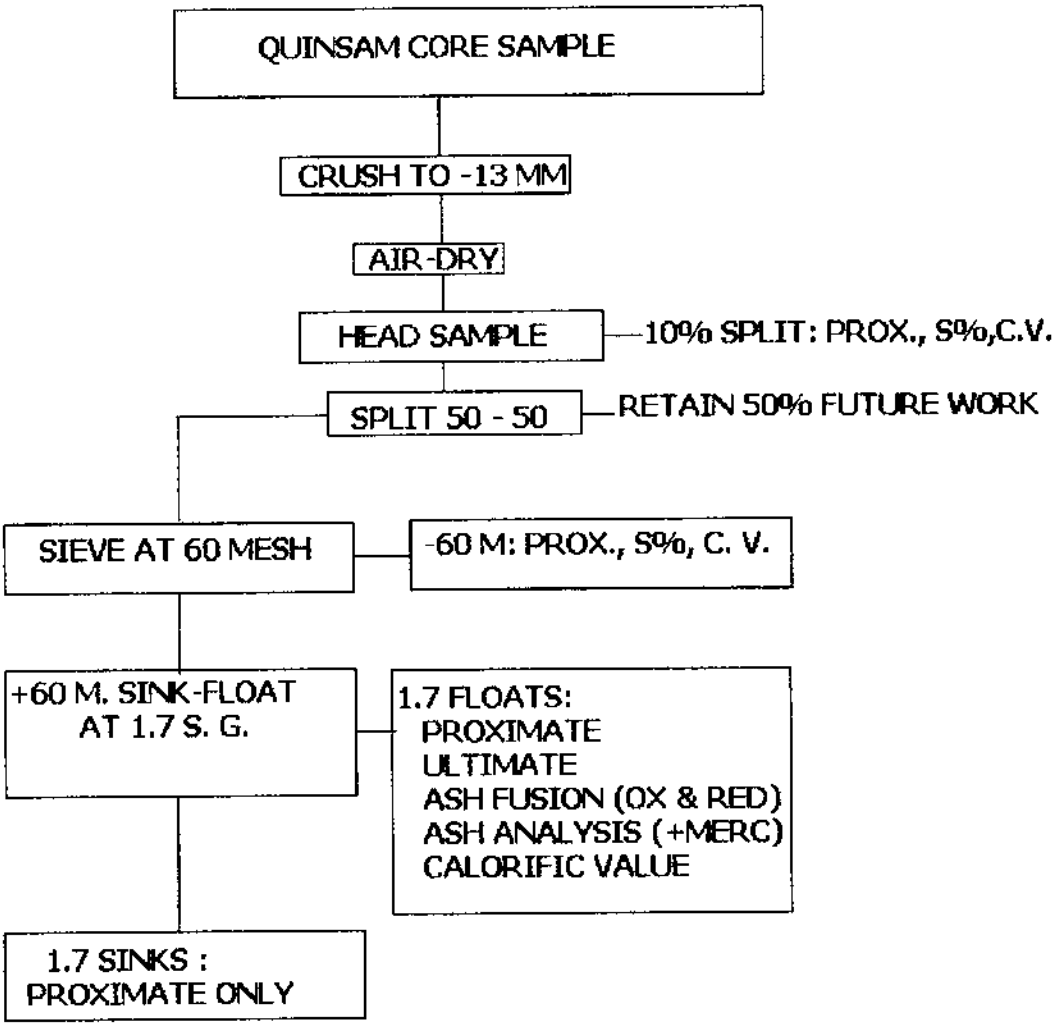


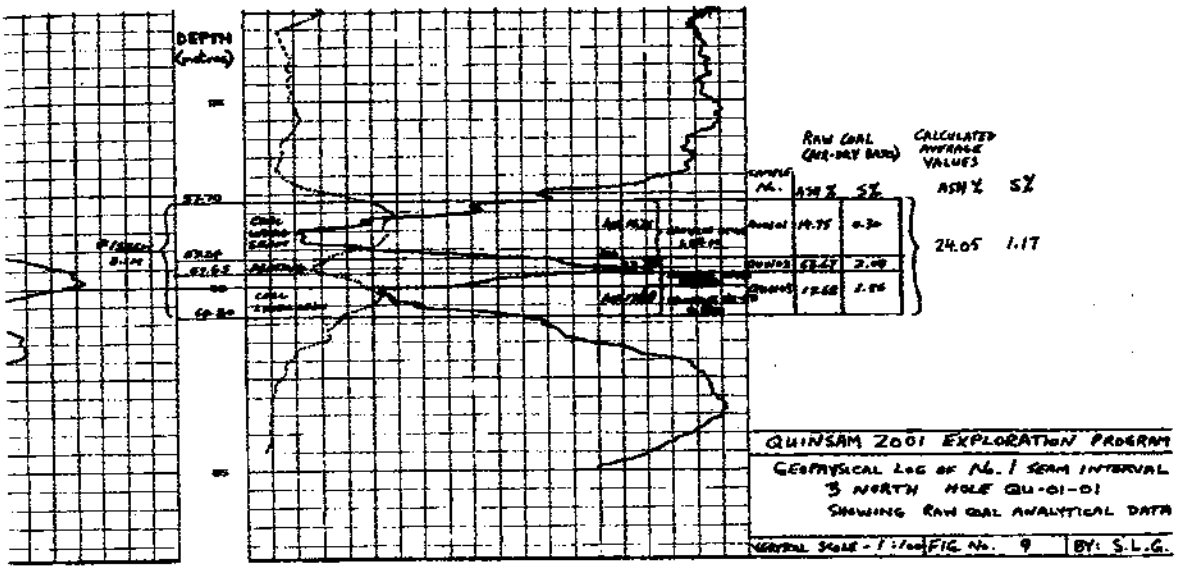
FIGURE 8 : ANALYTICAL FLOWSHEET, 2001 EXPLORATION PROGRAM, QUINSAM MINE

17.1 Analytical Results

Table 8. on *Page 53* summarizes the inventory of samples collected from the cores and illustrates some of the basic coal seam quality characteristics. A complete database of all analytical work is found in ***Appendix IV.***

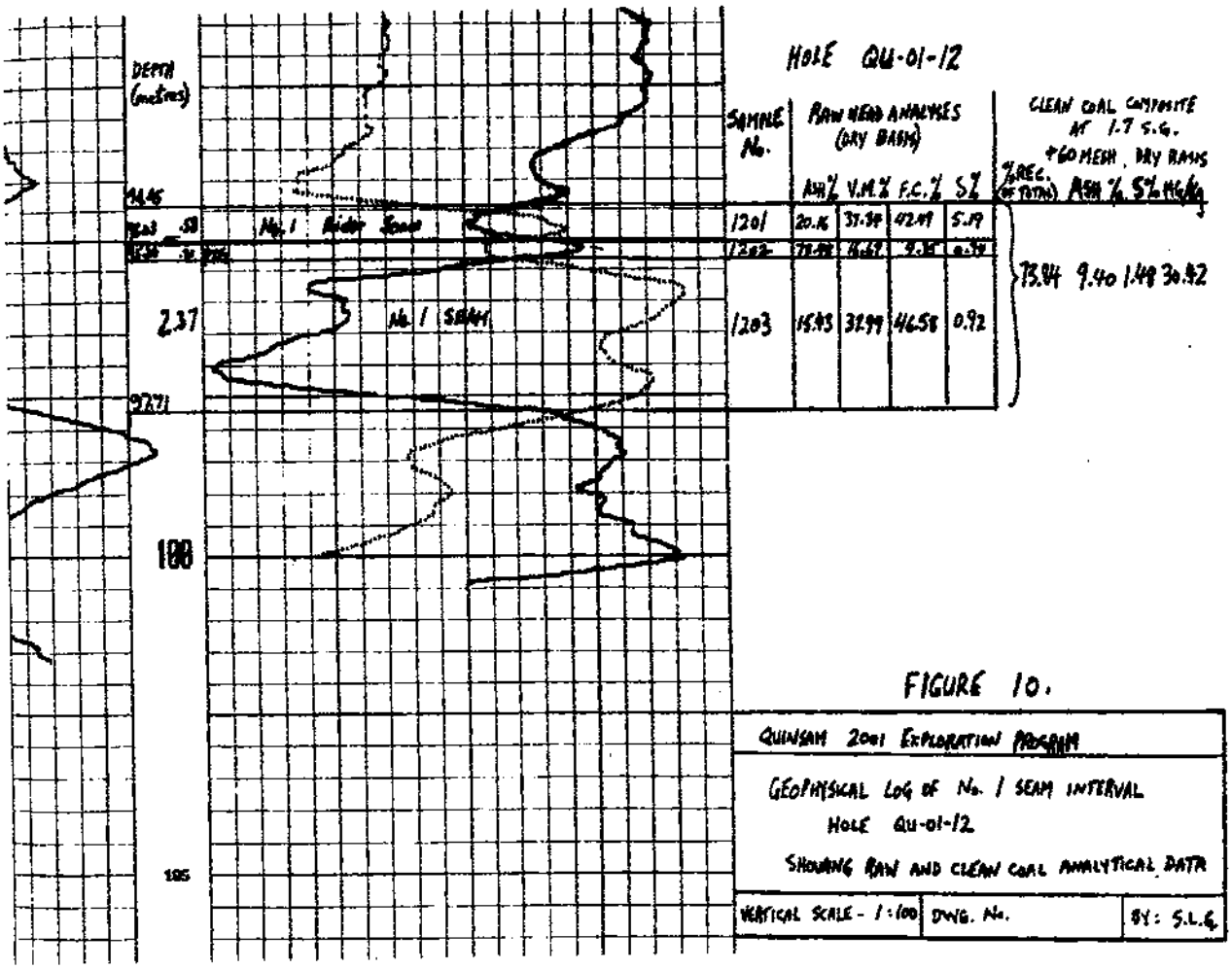
3N Area

For the 3 North Area, only hole QU-01-01 was analysed for coal quality. With the exception of QU-01-02, the 3 remaining holes in the 3 North Area did not hit a No. 1 Seam of mineable thickness (i.e. 2.0 metres utilizing the current mining equipment). *Figure 9.* illustrates the characteristics of the No. 1 Seam found in QU-01-01. Raw coal Ash % and Sulphur % (dry basis) were analysed at the Quinsam Coal Minesite Laboratory. The seam was sub-sampled into 3 separate samples, including a top coal ply (sample QU0101), a middle parting (sample QU0102) and a bottom coal ply (sample QU0103). The figure illustrates the deterioration of the bottom coal ply in terms of overall ash content, plus the dramatic increase in sulphur contained in the middle parting and bottom coal ply. The calculated raw coal ash value for the total section of 3.1 metres is 24.05% on a raw coal basis, excluding any roof or floor dilution. While this is still a mineable section, the increased sulphur content of 1.17 % (raw coal calculated value) is of concern.



7 South to 5 - 6 South, No. 1 Seam

The No. 1 Seam exhibits quality characterisitcs very similar to that found in the old 2 North underground and open pit mines. The typical seam section consists of a thin seam named the No. 1 Rider Seam, located from 0.30 m to more than 1.0 metre above the roof of the No. 1 Seam. The No. 1 Rider Seam is notably high in sulphur: raw coal sulphur levels exceed 5% in some cases. The main No. 1 Seam exhibits raw coal sulphur levels of 0.5 to 0.95 % but most typically the average is 0.5%. Combining the No. 1 Rider Seam, No. 1 Rider Parting and No. 1 Seam increases the clean coal sulphur contents to between 1 and 1.5%, as *Figure 10* shows.



For the majority of the No. 1 Seam Resource Area between 5-6 South and 7 South, the raw coal ash contents of the No. 1 Seam are less than 15% (excluding the rider and parting) and in some holes less than 10% raw coal ash. If the rider and parting are added to the overall seam section, ash contents increase dramatically to 24% or more, depending on parting thickness. However, the washed coal products still report in at less than 12%, indicating that the amount of middling material is quite low. The No. 1 Seam results for the holes downdip of 5 South (see holes 01-09, 01-10, 01-11, and 01-12) are predictable in that they compare with the 2 North area from past mining and 5 South area quality from past drilling. Near the margins of the No. 1 Seam Resource Area, the in-situ ash contents of the No. 1 Seam increase, with a corresponding decrease in overall seam thickness.

The following table provides ash analysis data for Drillholes 09, 10, 11, and 12 for which the No. 1 Seam was analysed on a clean coal basis.

TABLE 2. - No. 1 Seam Mineral Analysis of Clean Coal Ash, (+60 Mesh, 1.70 Floats)

SAMPLE	SiO2	AL2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Undet.	Base/Acid Ratio
QU0903	18.06	17.28	1.18	8.72	35.58	0.32	0.76	0.1	1.14	13.99	2.94	1.24
QU1003	22.7	19.43	1.4	9.17	32.89	0.54	0.91	0.1	0.88	9.47	2.53	1.00
QU1103	19.32	17.69	1.31	9.82	35.11	0.44	0.58	0.1	1.08	12.55	2.05	1.20
1201-03inc.	28	19.98	1.49	13.95	19.23	0.27	0.77	0.1	0.73	13.04	2.48	0.69
											AVG. -	1.03

The table indicates that the base/acid ratio for the No. 1 Seam ranges from 1.00 to 1.24 provided that the parting and No. 1 Rider Seam are not included with the sample. In the case of hole 12, where the rider seam and parting were composited with the main seam, the base/acid ratio is substantially lowered. In either case, slagging tendencies, which are expressed as the base/acid ratio multiplied by the dry sulphur content of the coal, are considered to be in the low end of the moderate[7] range. Conversely, the ability of the No.

[7]Quinsam Coal Project Technical Report, 1985

1 Seam to foul, represented by the fouling index, which is derived by multiplying the Base/Acid Ratio by the total alkali (Na2O) content, is considered high to severe. Fouling is propensity of the coal to sinter and form high temperature coatings on boiler tubes and other components.

The ash fusion temperatures of the No. 1 Seam are represented in the following table:

TABLE 3. - Ash Fusion Temperatures, No. 1 Seam

I. D.	REDUCING ATMOSPHERE (°C.)				OXIDIZING ATMOSPHERE (°C.)			
	Initial	Softening	Hemisp.	Fluid	Initial	Softening	Hemisp.	Fluid
QU0903	1227	1326	1338	1357	1289	1331	1351	1375
QU1003	1227	1318	1333	1344	1230	1328	1336	1354
QU1103	1230	1282	1328	1357	1292	1302	1338	1364
1201 - 03	1111	1199	1204	1212	1245	1297	1315	1338

The range of ash fusion temperatures indicates that the No. 1 Seam exhibits only moderate clinkering properties (1200 - 1400 degrees C. initial softening temperature) and can be readily used in most modern industrial boilers with only minor clinkering problems.

7 South to 5 - 6 South, No. 3 Seam

The No. 3 Seam typically contains 5% to 6 % Sulphur on a raw basis, of which roughly 50% sinks out during the washing process, leaving the product sulphur values for this seam ranging from 2% to 3.5%. The following table summarizes the mineral analysis of clean coal ash for the No. 3 Seam:

TABLE 4. - No. 3 Seam Mineral Analysis of Clean Coal Ash, (+60 Mesh, 1.70 Floats)

SAMPLE	SiO2	AL2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Undet.	Base/Acid Ratio
QU0602	22.32	18.12	1.41	26.62	16.14	1.3	0.89	0.18	0.29	12.08	0.64	1.08
QU0702	24.88	19.31	1.57	21.2	15.36	1.97	0.82	0.16	0.13	11.99	2.83	0.86
QU1301	38.24	22.23	1.49	15.41	10.69	0.82	0.81	0.22	0.06	7.27	2.77	0.45
QU1402	36.68	22.65	1.27	14.15	11.98	0.99	0.86	0.19	0.1	8.48	2.67	0.46
QU1706	31.72	21.99	1.48	14.93	14.5	1.08	1.15	0.22	0.07	11.02	1.85	0.58
											AVG. -	0.69

The Base/Acid ratio of the No. 3 Seam is much lower as compared to the No. 1 Seam. The Slagging Index of this seam would average approximately 1.7 to 2.0 or higher and indicates that the seam would have a tendency to generate high quantities of fused slag deposits unless it was blended off with other coals.

TABLE 5 : Ash Fusion Temperatures, No. 3 Seam

I. D.	REDUCING ATMOSPHERE (°C.)				OXIDIZING ATMOSPHERE (°C.)			
	Initial	Softening	Hemisp.	Fluid	Initial	Softening	Hemisp.	Fluid
QU0602	1070	1101	1106	1121	1173	1266	1274	1279
QU0702	1070	1106	1111	1124	1219	1261	1271	1279
QU1301	1297	1323	1331	1354	1302	1328	1338	1369
QU1402	1113	1282	1289	1294	1251	1297	1307	1331
QU1706	1173	1248	1261	1271	1287	1318	1323	1336

The No. 3 Seam exhibits a lower initial softening temperature than the No. 1 Seam and is on the low end of the range for dry ash removal systems. It would be more suited to a liquid ash removal system, unless blended off with other coals.

7 South to 5 - 6 South, No. 4 Seam

In terms in raw and clean coal sulphur contents, the No. 4 Seam displays similarities to the high sulphur No. 3 Seam. Drilling indicates that the No. 4 Seam has a much wider range of raw coal sulphur from less than 2 % to more than 6 %. The propensity of the washing process to remove the sulphur in the No. 4 Seam is better than the No. 3 Seam and in most cases, washing of the coal can reduce the sulphur to less than 2 % and in some cases down to 1.5 %. This indicates that the sulphur is more pyritic and probably of coarser grain size in the No. 4 Seam.

The following table summarizes the Mineral Analysis of clean coal ash for the drillholes that intersected the No. 4 Seam in the 2001 program:

TABLE 6. - No. 4 Seam Mineral Analysis of Clean Coal Ash, (+60 Mesh, 1.70 Floats)

SAMPLE	SiO2	AL2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Undet.	Base/Acid Ratio
QU0601	49.66	22.92	1.65	15.87	4.29	0.6	0.66	0.24	0.04	2.88	1.31	0.29
QU0701	39.66	22.82	1.21	14.21	8.26	0.74	0.64	0.26	0.04	9.64	2.52	0.38
QU0801	31.76	24.23	1.61	11.92	15.33	1.39	0.7	0.2	0.13	10.78	1.95	0.51
QU1401	48.26	28.14	1.56	8.84	6.22	0.54	0.81	0.33	0.05	3.87	1.39	0.21
1703 - 05	38.82	23.84	1.36	9.23	13.02	0.57	0.77	0.29	0.06	9.67	2.39	0.37
											AVG. -	0.35

The Base/Acid Ratio is very low for the No. 4 Seam as compared to the other seams. The Slagging Index for the No. 4 Seam is low at approximately 0.6 to 0.8. This would indicate that the No. 4 Seam would be an excellent blend coal for the No. 3 Seam.

TABLE 7 : Ash Fusion Temperatures, No. 4 Seam

I. D.	REDUCING ATMOSPHERE (°C.)				OXIDIZING ATMOSPHERE (°C.)			
	Initial	Softening	Hemisp.	Fluid	Initial	Softening	Hemisp.	Fluid
QU0601	1225	1269	1279	1294	1256	1369	1372	1377
QU0701	1126	1253	1266	1279	1287	1364	1369	1372
QU0801	1111	1289	1294	1305	1178	1292	1302	1320
QU1401	1302	1426	1426	1426	1390	1426	1426	1426
1703 - 05	1230	1318	1326	1333	1364	1406	1411	1421

The No. 4 Seam has the highest ash fusion temperatures of the seams at Quinsam and the drillhole data demonstrates a good consistency between holes.

SAMPLE INVENTORY AND RAW HEAD ANALYSES, 2001 EXPLORATION PROGRAM
QUINSAM COAL MINE

Hole No.	Sample No.	Sample Interval (From)	(To)	Sample Thick.	Missing Core	Total Thick.	No. of	REMARKS Seam Designation:	RAW HEAD ANALYSIS, DRY BASIS Ash	V. M.	F. C.	Sulphur	MJ/kg	Btu/lb
		meters		m.	m.	m.	Bags	Revised Nomenclature	%	%	%	%		
QU-01-01C	QU0101	57.39	59.34	1.95	0.29	2.24	2	Analysed at Quinsam Lab	14.75			0.30		
QU-01-01C	QU0102	59.34	60.00	0.66	0.00	0.66	1	Analysed at Quinsam Lab	63.87			2.08		
QU-01-01C	QU0103	60.00	60.96	0.95	0.00	0.95	1	Analysed at Quinsam Lab	17.68			1.66		
QU-01-02C				0.00		0.00		Not Sampled						
QU-01-03				0.00		0.00		Not Cored						
QU-01-04				0.00		0.00		Not Cored						
QU-01-05				0.00		0.00		Not Cored						
QU-01-06C	QU0601	44.55	48.09	2.89	0.65	3.54	3	No. 4 Seam	43.28	27.69	29.03	6.05	15.81	6800
QU-01-06C	QU0601- A	48.09	48.38	0.29	0.00	0.29	1	No. 4 Seam Floor Rock (Saved)						
QU-01-06C	QU0602	105.30	107.05	1.75	0.00	1.75	2	No. 3 Seam	22.92	35.54	41.53	6.14	24.03	10335
QU-01-07C	QU0701	28.00	31.62	3.61	0.01	3.62	4	No. 4 Seam	21.28	33.73	40.75	2.51	23.81	10241
QU-01-07C	QU0702	72.39	74.55	2.16	0.00	2.16	3	No. 3 Seam	16.03	36.00	45.97	5.35	27.22	11708
QU-01-07C	QU0703	74.55	75.15	0.60	0.00	0.60	1	No. 3 Seam Parting	60.97	22.88	16.15	11.43	3.54	1523
QU-01-07C	QU0704	75.15	75.40	0.25	0.00	0.25	1	No. 3 Seam Parting	89.65	9.28	1.07	3.50	0.31	133
QU-01-07C	QU0705	75.40	76.18	0.78	0.00	0.78	1	No. 3 Seam Basal	13.97	40.11	45.92	3.20	28.31	12178
QU-01-08C	QU0801	41.22	45.00	3.78	0.32	4.10	3	No. 4 Seam	29.22	33.48	37.30	4.15	21.84	9394
QU-01-08C	QU0802	70.95	71.55	0.60	0.06	0.66	1	No. 3 Seam	31.41	33.30	35.28	0.95	21.77	9363
QU-01-09C	QU0901	147.29	147.88	0.30	0.29	0.59	1	No. 1 Rider Seam	17.51	39.15	43.35	5.40	26.47	11385
QU-01-09C	QU0902	147.88	148.90	0.57	0.45	1.02	1	No. 1 Rider Parting (Saved)						
QU-01-09C	QU0903	148.90	150.82	1.10	0.82	1.92	1	No. 1 Seam	9.60	38.46	51.93	0.58	29.37	12632
QU-01-10C	QU1001	154.42	155.00	0.53	0.05	0.58	1	No. 1 Rider Seam	17.97	37.53	44.51	2.80	27.23	11712
QU-01-10C	QU1002	155.00	155.87	0.87	0.00	0.87	1	No. 1 Rider Parting (Saved)						
QU-01-10C	QU1003	155.87	158.02	2.15	0.00	2.15	3	No. 1 Seam	16.16	36.01	45.83	0.40	26.73	11497
QU-01-11C	QU1101	114.38	115.00	0.62	0.00	0.62	1	No. 1 Rider Seam	15.68	38.54	45.77	2.97	27.46	11811
QU-01-11C	QU1102	115.00	115.60	0.51	0.09	0.60	1	No. 1 Rider Parting (Saved)						
QU-01-11C	QU1103	115.60	117.82	2.24	-0.02	2.22	3	No. 1 Seam	10.25	38.91	50.84	0.53	29.41	12649
QU-01-12C	QU1201	94.45	95.03	0.53	0.05	0.58	1	No. 1 Rider Seam	20.16	37.34	42.49	5.19	26.74	11501
QU-01-12C	QU1202	95.03	95.34	0.31	0.31	0.31	1	No. 1 Rider Parting (Saved)	78.48	16.67	4.85	0.94	3.38	1454
QU-01-12C	QU1203	95.34	97.71	2.19	0.18	2.37	3	No. 1 Seam	15.43	37.99	46.58	0.92	27.85	11978
QU-01-13C	QU1301	114.55	116.24	1.51	0.18	1.69	2	No. 3 Seam	19.58	38.19	42.22	4.19	26.17	11256
QU-01-14C	QU1401	57.19	61.19	3.10	0.90	4.00	4	No. 4 Seam	34.05	32.03	33.92	1.76	20.89	8985
QU-01-14C	QU1402	102.58	105.16	2.03	0.11	2.14	3	No. 3 Seam	15.13	38.95	45.93	3.28	27.75	11935
QU-01-15C	QU1501	110.13	111.91	1.78	0.00	1.78	2	No. 3 Seam	30.92	33.61	35.46	5.55	21.02	9041
QU-01-15C	QU1502	171	173	very approximate interval			1	DRILL CUTTINGS						
QU-01-17C	QU1701	31.61	33.08	1.34	0.13	1.47	1	No.5 Seam	12.51	39.47	48.01	3.82	26.79	12383
QU-01-17C	QU1702	33.08	33.85	0.59	0.18	0.77	1	No. 4 Seam Roof (Saved)						
QU-01-17C	QU1703	33.85	36.87	3.02	0.00	3.02	4	No. 4 Seam	16.62	37.46	45.72	0.84	27.25	11720
QU-01-17C	QU1704	36.87	37.80	0.85	0.08	0.93	1	No. 4 Seam Parting	48.87	25.42	25.71	4.17	17.69	7609
QU-01-17C	QU1705	37.80	38.70	0.90	0.00	0.90	1	No. 4 Seam (Lower)	31.81	34.15	34.05	3.85	21.99	9458
QU-01-17C	QU1706	76.07	78.13	2.10	-0.04	2.06	3	No. 3 Seam	14.56	38.58	46.86	3.44	27.80	11957
QU-01-18	QU1801	170	171.5	very approximate interval			1	DRILL CUTTINGS						

NOTE 1 : Hole QU-01-16 did not recover any core samples due to bad hole conditions (bent casing).
NOTE 2 : Hole QU-01-15 did not recover any core in No. 1 Seam interval due to beyond depth of core string.
NOTE 2 : Sample interval from driller's measured depth (not corrected for E-log).

TABLE 8. : SAMPLE INVENTORY

18.0 MINERAL RESOURCE AND MINERAL RESERVE ESTIMATES

18.1 3 North Area

Drilling in the 3 North Area has not materially affected the current mining boundary as defined by the Quinsam Engineering Group as per the internal memorandum dated January 18, 2001. In-situ resources have not been re-calculated for this area: no increase in coal resources in the 3 N Area resulted from the 2001 drilling.

18.2 Previous Estimates, 7 South to 5 - 6 South Area

In 1995, Norwest Mine Services Ltd. stated In-situ Reserves for each of the 5 South, 6 South and 7 South areas these areas, as follows:[8]

TABLE 9. - PREVIOUSLY REPORTED COAL RESOURCES (NORWEST, 1995)

MINING AREA	NO. 3 SEAM	NO. 1 SEAM	TOTAL
5 - 6 SOUTH	2339000	-	2339000
7 SOUTH	4300000	580000	4880000
TOTALS :	6639000	580000	7219000

For the current study, in-situ resources have been recalculated for each seam and the Norwest figures for 5-6 South and 7 South have been superceded by the new resource calculations. It has been determined by the 2001 drilling that the No. 1 and No. 3 seams are continuous between the 5 -6 South areas and 7 South areas. The No. 4 Seam is confined to the 7 South and 242 areas. The seam originally has been identified as the No. 3 Seam in the Norwest Study (see preceding table). Due to the structural boundary separating 7 South from Lot 242, the stated resources for Lot 242 area have not been reviewed.

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[8] - Quinsam Mine Coal Resource Study, Norwest Mine Services Ltd., 1995

18.3 Method of Resource Calculations

In the case of all the seams, the following methods and criteria have been employed for the calculation of in-situ coal resources:

- The determination of coal seam thickness was performed by using the downhole geophysical logs, in conjunction with comparisons of the recovered core sections, where available.
- Polygons were constructed around each drillhole data point, using the mid-point between each drillhole as the boundary line for the polygons. The polygons were plotted on a 1 : 2,000 scale plan.
- An electronic planimeter was used to measure each polygonal area. Each polygon was measured twice: the average of the two measurements was used as the final polygonal area.
- The volume of coal was calculated for each polygonal area by multiplying the area by the coal seam thickness.
- Volume of coal was converted to mass using an average Relative Density (Specific Gravity) of 1.5 gm/cc.
- No allowance was made for roof and floor dilution.
- No allowance was made for discontinuity of the seams due to structure.
- No allowance was made for the dip of the coal measures.
- A minimum seam thickness of 1.5 metres was used as an economic cut-off in calculating coal resources for each of the coal seams.

In consideration of the spacing of the drillholes, in-situ coal resources are classified according to the Canadian Institute of Mining and Metallurgy (CIMM) classification (adopted by the CIMM Council, Aug. 20, 2000) as *measured and indicated coal resources.* Where drillholes are located at the edges of the defined areas and polygons could not be constructed due to lack of data points, a maximum of 150 metres radius of investigation was used to identify in-situ measured resources, and 150 to 300 metres radius of investigation was used to identify in-situ indicated resources. In areas of known structural

complexity (i.e. eastern limit of No. 4 Seam), only indicated resources are stated within 150 metres of a drillhole data point.

Appendix III contains the detailed coal resource calculations resulting from this study.

18.4 2001 COAL RESOURCES, *5 -6 South to 7 South Inclusive*

Figure 13. tabulates the measured and indicated coal resources as identified by the 2001 drilling program in the 5-6 South to 7 South area:

TABLE 10 : 2001 CALCULATED COAL RESOURCES, *5 - 6 South to 7 South*

SEAM DESIGNATION	MEASURED RESOURCES (tonnes)	INDICATED RESOURCES (tonnes)	TOTAL RESOURCES (tonnes)	PREVIOUSLY BOOKED (Norwest, 1995)
No. 4 Seam[1]	3327650	531519	3859169	4300000
No. 3 Seam[2]	3367901	377820	3745721	2339000
No. 1 Seam	2984647	-	2984647	580000
TOTALS :	9680198	909939	10589537	7219000
		NET INCREASE :	**3950537**	

For reference, the table includes the Norwest 1995 figures. An overall net increase of 3.95 million tonnes of in-situ resources is calculated as a result of the 2001 drilling program. The confidence level in the measured resources is very good. The confidence level in the indicated resources is somewhat questionable.

No. 1 Seam Resource Calculations

Figure 12 illustrates the boundary of the new No. 1 Seam resource and identifies the polygons used for calculations of the resource, with the drillhole data points shown. It also illustrates the top of seam elevations by means of the structure contour lines shown on 10 metre intervals.

The No. 1 Seam has been delineated through the core of the Quinsam Syncline but

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[1] - Replaces original 7 South No. 3 Seam Coal Reserves (Norwest, 1995)

[2] - Incorporates original 6 South No. 3 Seam Coal Reserves (Norwest, 1995)

drilling shows it to thin to the northeast: the economic cut-off for in-situ resources conforms closely to the synclinal axial trace. The area identified as containing No. 1 Seam Measured Resources is shown as extending to the north and west right up to the 2N Mining Boundary, and the new area is merely an extension of the 2 North No. 1 Seam Resource. The seam elevations in the new drillholes fit the model of the syncline and compare favourably with No. 1 Seam elevations in the old 2 North mine workings and in holes drilled on the northwest side of the Quinsam River valley in 1995 and 1997. The 580,000 tonnes of in-situ resources identified as No. 1 Seam by Norwest Mine Services Ltd. (see preceding table) is actually No. 3 Seam resources.

QUINSAM MINE

2001 EXPLORATION PROGRAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 150 — STRUCTURE CONTOUR (TOP OF SEAM ELEVATION)
- QU-01-17 248.4 3.02M — DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- H — POLYGONS (used for calculating insitu coal resources)
- PROPOSED LAYOUT NO. 1 SEAM (2N workings only)
- EXISTING WORKINGS NO. 1 SEAM
- SYNCLINE (showing direction of plunge)

NO. 1 SEAM MEASURED RESOURCES

QUINSAM RIVER

QUINSAM SYNCLINE

NO. 1 SEAM EXTENSION

BLOCK 5-S

BLOCK 6-S

BLOCK 242

PILLAR

NO. 3 MAINS

NO. 1 MAINS

NO. 2 MAINS

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

STRUCTURE CONTOURS
TOP OF No. 1 SEAM
5-6 SOUTH TO 7 SOUTH AREA

NO.	DESCRIPTION OF REVISION	DATE	BY

NO.		DATE	BY

SCALE:	1:10,000	DATE
DESIGNED:	S. GARDNER	NOV. 2001
DRAWN:	J. McMILLAN	NOV. 2001
CHECKED:		
APPROVED:		

QUINSAM MINE

2001 EXPLORATION DRILLING PROGRAM

STRUCTURE CONTOURS , No. 1 SEAM

QUINSAM COAL CORPORATION

CAMPBELL RIVER, B.C.

DWG. NO. FIGURE 11

REV. 1

No. 3 Seam Resource Calculations

Figure 13. illustrates the boundary of the No. 3 Seam resource and identifies the polygons used for calculations of the resource, with the drillhole data points shown. It also illustrates the top of seam elevations by means of the structure contour lines shown on 10 metre intervals. The No. 3 Seam is more extensive than the No. 1 Seam in areal distribution to the northeast, extending through the core of the Quinsam Syncline and covering the eastern limb of the structure. To the west, however, the seam does not attain mineable thickness, even though it has been identified in holes QU-01-09, QU-01-10, QU-01-11 and in a number of old holes drilled on the west side of the Quinsam River Valley. It is also identified in the 6 South area. Resources identified by Norwest Mine Services in this area were incorporated into the current coal resource calculation. A portion of the the 6 South area was discounted in the current calculations, due to the significant increase in parting material within the No. 3 Seam and corresponding decrease in coal thickness. To the east, the No. 3 Seam resource boundary has not been defined. However, a significant fault exists which complicates the structure in this area. This fault was identified in hole QU-01-08. No measured or indicated resources for the No. 3 Seam have been stated on the eastern side of the fault, however, it is very likely that additional drilling to the northeast would intersect the No. 3 Seam in this area.

QUINSAM MINE

2001 EXPLORATION PROGRAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 150 — STRUCTURE CONTOUR (TOP OF SEAM ELEVATION)
- QU-01-17 — DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- H — POLYGONS (used for calculating insitu coal resources)
- PROPOSED LAYOUT NO. 1 SEAM (2N workings only)
- EXISTING WORKINGS NO. 1 SEAM
- SYNCLINE (showing direction of plunge)

INDICATED RESOURCES No. 3 SEAM

QUINSAM RIVER

QUINSAM SYNCLINE

No.3 SEAM BOUNDARY (MEASURED RESOURCES)

BLOCK 5-S

BLOCK 6-S

BLOCK 242

PILLAR

NO. 3 MAINS

NO. 4 MAINS

NO. 1 MAINS

NO. 2 MAINS

BLOCK 2-N OWRDE

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

STRUCTURE CONTOURS TOP OF No. 3 SEAM 6 SOUTH-7 SOUTH AREA	SCALE: 1:10,000	DATE	QUINSAM MINE
	DESIGNED: S. GARDNER	NOV. 2001	2001 EXPLORATION DRILLING PROGRAM
	DRAWN: J. McMILLAN	NOV. 2001	STRUCTURE CONTOURS No. 3 SEAM
	CHECKED:		Quinsam COAL CORPORATION CAMPBELL RIVER, B.C.
NO. DESCRIPTION OF REVISION DATE BY	APPROVED:		DWG. NO. FIGURE 12 REV. 1

No. 4 Seam Resource Calculations

Figure 16. illustrates the boundary of the No. 4 Seam resource and identifies the polygons used for calculations of the resource, with the drillhole data points shown. It also illustrates the top of seam elevations by means of the structure contour lines shown on 10 metre intervals. The No. 4 Seam is quite limited in area extent, confined to the eastern limb of the Quinsam Syncline. The seam thickness exceeds over 4 metres in thickness in a number of drillholes and exhibits some of the thickest coal intersections on the Quinsam Mining Block. It pinches rapidly to the west. To the east, the boundary has not been well-defined beyond the major fault structure shown. An indicated coal resource for the No. 4 Seam has been identified around Hole QU-01-08. It is very likely that more drilling to the northeast of the fault will identify additional in-situ coal resources for the No. 4 Seam. While the No. 4 Seam is shown to extend very close to the Quinsam River north of hole QU-01-06, the poor clean coal recoveries from this hole indicate that economic recovery of the seam in this area may be questionable. If the upper part of the seam is not mined and can be supported in the roof, mining unit thickness is thus reduced to 2.2 metres with a subsequent reduction in the run-of-mine ash. Overall plant recoveries would then improve substantially.

QUINSAM MINE

2001 EXPLORATION PROGRAM

BLOCK 7S

INDICATED RESOURCES No. 4 SEAM

INDICATED RESOURCES No. 4 SEAM

QUINSAM RIVER

NO. 2 MAINS

NO. 4 SEAM BOUNDARY (MEASURED RESOURCES)

NO. 4 MAINS

BLOCK 2N OUTLINE

PILLAR

BLOCK 5-S

BLOCK 6-S

BLOCK 242

NO 3 MAINS

NO. 1 MAINS

NO. 2 MAINS

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 250 — STRUCTURE CONTOUR (TOP OF SEAM ELEVATION)
- QU-01-17 — DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness (248.4 / 3.02M)
- INDICATED RESOURCES
- PROPOSED LAYOUT NO. 1 SEAM
- EXISTING WORKINGS NO. 1 SEAM
- H — POLYGONS (used for calculating in sitsu coal resources)

0 100 SCALE 200 300 m

STRUCTURE CONTOURS
TOP OF No. 4 SEAM
5-6 SOUTH TO 7 SOUTH AREA

SCALE:	1:10,000	DATE
DESIGNED:	S. GARDNER	NOV. 2001
DRAWN:	J. McMILLAN	NOV. 2001
CHECKED:		
APPROVED:		

DESCRIPTION OF REVISION | DATE | BY

NO. | DESCRIPTION OF REVISION | DATE | BY

QUINSAM MINE

2001 EXPLORATION DRILLING PROGRAM

STRUCTURE CONTOURS, No. 4 SEAM

QUINSAM COAL CORPORATION

CAMPBELL RIVER, B.C.

DWG. NO. FIGURE 13 | REV. 1

19.0 OTHER RELEVANT DATA AND INFORMATION

Structure contours representing the elevations of the top of each coal seam are represented on the figures accompanying the previous section. The structure contour intervals are 10 metres. There is abundant evidence of good agreement between the coal seam elevation data in the area of investigation with historical data in the surrounding areas. The current program substantially contributed to the overall geologic and structural model for the Middle Quinsam mining area. Due to the wide drillhole spacing (i.e. 300 to 450 metres, small displacement fault features (i. e. equal to or less than the thickness of the coal seams) can not be identified. At the current drillhole spacing, the only significant fault features (i.e. displacements of 10 metres or more) indicated are:

- the bounding fault along the eastern limb of the Quinsam Syncline, which forms the mining limit boundary for 7 South. The displacement on this structure is indicated to be of 20 metres near hole QU-01-08, with the downthrow to the east and probably hinging to the south.
- two sub-parallel structures that separate the 7 South area from Lot 242. The indicated displacements on these structures are approximately 20 metres. They are also associated with an anticlinal fold which may extend all along the margin of the 6 South area, eventually culminating against Long Lake to the southwest.

While the presence of 10 metre high falls on the Quinsam River between the 2N and 7S areas may be the surface expression of a fault structure, it is not readily apparent with the current drillhole spacing. The current drillhole spacing does not indicate any major bounding fault structure occurring between the 2 North area and 7 South and the existing structure contours support the idea of crossing under the river from the 2 North side with main underground development.

More work on structural interpretations is required in the triangle between 6 South, 4 South and Lot 242. To adequately define the structural conditions in this area, additional drilling

weak, silty mudstone. Floor conditions can be difficult if the material becomes wet and saturated, however, the relatively shallow dip on the seam is a positive off-setting factor. The immediate roof of the No. 1 Seam consists of a silty mudstone parting which separates the main seam from the high-sulphur No. 1 Rider Seam. In some areas (i.e. QU-01-12) the parting measures about 0.31 metres in thickness.

Towards the east and north, the parting increases in thickness to more than 1 metre. In these areas, it becomes more silty and will not be as prone to failure. Figure 15. , showing thickness isopachs of the parting between the No. 1 Rider Seam and the No. 1 Main Seam, illustrates the trend towards increased parting thickness to the north.

No excessive quantities of groundwater was encountered in the 2001 drilling, except for Hole QU-01-08 which intersected at least one and possibly two significant high angle faults which produced substantial quantities of water. The remaining holes produced less than 1.5 to 2 gallons per minute.

QUINSAM MINE

2001 EXPLORATION PROGRAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 0.60 — PARTING THICKNESS ISOCON No.1 RIDER SEAM TO No.1 MAIN SEAM
- QU-01-17 DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- PROPOSED LAYOUT NO. 1 SEAM (2N workings only)
- EXISTING WORKINGS NO. 1 SEAM
- SYNCLINE (showing direction of plunge)

NO. 1 SEAM MEASURED RESOURCES

QUINSAM RIVER

QUINSAM SYNCLINE

NO. 1 SEAM EXTENSION

BLOCK 5-S

BLOCK 6-S

BLOCK 242

PILLAR

NO. 3 MAINS

NO. 2 MAINS

NO. 1 MAINS

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

PARTING THICKNESS ISOCONS BETWEEN
No. 1 RIDER SEAM AND No.1 MAIN SEAM
5-6 SOUTH TO 7 SOUTH AREA

SCALE: 1:10,000
DESIGNED: NOV. 2001
DRAWN: NOV. 2001
CHECKED:
APPROVED:

QUINSAM MINE
2001 EXPLORATION DRILLING PROGRAM
PARTING THICKNESS, No.1 RIDER-No.1 SEAM

Quinsam COAL CORPORATION
CAMPBELL RIVER, B.C.

DWG. NO. FIGURE 14 REV. 1

NO. DESCRIPTION OF REVISION DATE BY

20.0 INTERPRETATIONS AND CONCLUSIONS

3 North

Drilling in the area around and adjacent to the 3 North existing operations has confirmed that the overall mining limit boundary used by Quinsam Staff is correctly defined. In terms of higher in-situ ash and sulphur contents, however, mining operations in this area will require care and diligence in order to extend the mining panels to their currently proposed limits. The seam thickness is Hole QU-01-01 (located in proposed Panel #14) is 2.02 metres in thickness, with some high ash basal coal immediatedly below. Mining heights will necessarily have to be reduced from the current 3 metre height. Mining out to the planned limit of Panel 14 (and Panels 12 and 13) will depend on the success of blending with better quality coal from other mining areas. Cutting less floor coal will reduce the amount of sulphur, but the impact of roof dilution will be increased.

5 - 6 South to 7 South

Drilling in 2001 has confirmed the existence of 3 seams of mineable thickness:

- The No. 1 Seam (lowest in the sequence) extends south and east of the old 2N mine workings to as far as the axial trace of the Quinsam Syncline. The recent drilling has refuted previous theories that indicated the presence of a basement topographic high which interrupted seam deposition in the area between 5 - 6 South and 7 South.
- The No. 3 Seam extends from 6 South, east across the Quinsam Syncline to its eastern limb. During the 1979 and 1980 drilling campaigns, 3 holes at 7 South penetrated to depths of approximately 100 metres and intersected a seam correlated with the No. 1 Seam. Recent drilling has confirmed that this seam is in fact the No. 3 Seam. The No. 1 Seam has been identified 16 metres below the No. 3 Seam in this area.
- The No. 4 Seam, which was previously defined as the No. 3 Seam in past work at

the Quinsam Syncline. It pinches out to the west very rapidly along a fairly uniform depositional boundary probably related to a channel cut and fill or prograding barrier bar sequence. The No. 4 Seam has also been determined to be correlative to the seam mined at Lot 242 (previously thought to be the No. 3 Seam). While indicated resources are shown for the No. 4 Seam to the north near the Quinsam River, the deterioration of the seam as demonstrated in Hole QU-01-06 ***(see Appendix IV)*** may preclude economic recovery in this area.

Total in-situ resources of the three seams are summarized below:

SEAM No.	**Avg. Thickness (m)**	**TOTAL RESOURCES (tonnes)**
No. 4 Seam	3.6	3859169
No. 3 Seam	2.0	3745721
No. 1 Seam	2.0	2984647
	TOTAL :	10589537

Typical clean coal qualities of the various seams is summarized below (Dry Basis):

SEAM No.	Ash %	S %	C. V. (MJ/kg)	C. V. (Btu/lb)	Slagging Index
No. 4 Seam	14.8	2.1	28.0	12,000	0.6 - 0.8
No. 3 Seam	12.7	2.8	29.0	12,500	1.7 - 2.0
No. 1 Seam[1]	8.0	0.5	30.4	13,050	1.0 - 1.3

The following observations on probable mining conditions are noted:

Dips on the coal seams vary from 0 to 10 degrees and in most areas are 6 degrees or less.

[1] No. 1 Seam average values do not include rider seam.

Groundwater influx is projected to be very minor. Substantial influxes of groundwater will be confined to fault zones or other open fractures.

The structure of the area as interpreted from coal seam elevations in the drillholes is indicated to be relatively simple. No major displacement fault structures (i.e. greater than 10 metres) are thought to exist.

Roof and floor conditions in the No. 3 and No. 4 Seams are indicated to be relatively good, where the roof and floor in each of the seams is predominantly a strong sandstone, with only thin siltstones and minor mudstone in the No. 3 Seam interval. The ability of the roof material to cave may be of concern, as the roof section is comparable to the 4 South Underground Mine, where only partial depillaring is conducted.

Roof and floor conditions in the No. 1 Seam are indicated to be problematic, with softer muddy siltstones forming the immediate roof and floor. The No. 1 Seam roof is complicated by a softer mudstone parting of variable thickness lying between the top of the No. 1 Seam and the No. 1 Rider Seam, a 0.40 to 0.60 metre interval of very high sulphur coal. In some areas where this parting increases in thickness, it becomes more silty and competent.

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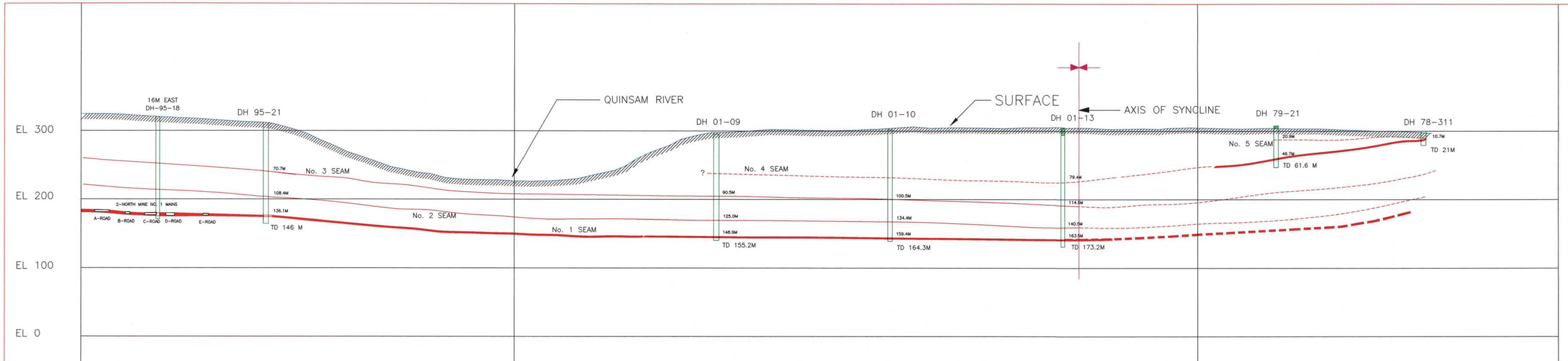

SECTION 2N-7S

#876

QUINSAM COAL CORPORATION		
QUINSAM 2001 EXPLORATION PROGRAM	CROSS-SECTION A-A'	FIGURE 6
DRAWN BY: S. GARDNER		SCALE: 1:2500
DRAFTED BY: J. McMILLAN		DATE: NOV.20, 2001

#876

QUINSAM 2001 EXPLORATION LONGITUDINAL SECTION 7 SOUTH- 242 AREA

QUINSAM MINE
LONGITUDINAL SECTION
7 SOUTH- LOT 242

QUINSAM COAL CORPORATION

FIGURE 7

QUINSAM MINE

2001 EXPLORATION PROGRAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 150 — STRUCTURE CONTOUR (TOP OF SEAM ELEVATION)
- QU-01-17 / 248.4 / 3.02M — DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- H — POLYGONS (used for calculating insitu coal resources)
- PROPOSED LAYOUT NO. 1 SEAM (2N workings only)
- EXISTING WORKINGS NO. 1 SEAM
- SYNCLINE (showing direction of plunge)

NO. 1 SEAM MEASURED RESOURCES

QUINSAM RIVER

QUINSAM SYNCLINE

NO. 1 SEAM EXTENSION

BLOCK 2-N OUTLINE

BLOCK 5-S

BLOCK 6-S

BLOCK 242

PILLAR

50 m. BARRIER PILLAR

NO. 3 MAINS

NO. 1 MAINS

NO. 2 MAINS

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

STRUCTURE CONTOURS
TOP OF No. 1 SEAM
5-6 SOUTH TO 7 SOUTH AREA

SCALE:	1:5,000	DATE
DESIGNED:	S. GARDNER	NOV. 2001
DRAWN:	J. McMILLAN	NOV. 2001
CHECKED:		
APPROVED:		

QUINSAM MINE

2001 EXPLORATION DRILLING PROGRAM
STRUCTURE CONTOURS , No. 1 SEAM

QUINSAM COAL CORPORATION
CAMPBELL RIVER, B.C.

DWG. NO. FIGURE 11 REV. 1

NO. | DESCRIPTION OF REVISION | DATE | BY

NO. | DATE | BY

928#

QUINSAM MINE

2001 EXPLORATION PROGRAM

INDICATED RESOURCES No. 3 SEAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 150 — STRUCTURE CONTOUR (TOP OF SEAM ELEVATION)
- QU-01-17 / 248.4 / 3.02M — DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- H — POLYGONS (used for calculating insitu coal resources)
- PROPOSED LAYOUT NO. 1 SEAM (2N workings only)
- EXISTING WORKINGS NO. 1 SEAM
- SYNCLINE (showing direction of plunge)

QUINSAM RIVER

QUINSAM SYNCLINE

No.3 SEAM BOUNDARY (MEASURED RESOURCES)

BLOCK 2-N OUTLINE

PILLAR

BLOCK 5-S

BLOCK 6-S

BLOCK 242

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

STRUCTURE CONTOURS TOP OF No. 3 SEAM 6 SOUTH-7 SOUTH AREA	SCALE: 1:5,000	DATE	QUINSAM MINE
	DESIGNED: S. GARDNER	NOV. 2001	2001 EXPLORATION DRILLING PROGRAM
	DRAWN: J. McMILLAN	NOV. 2001	STRUCTURE CONTOURS No. 3 SEAM
	CHECKED:		QUINSAM COAL CORPORATION — CAMPBELL RIVER, B.C.
NO. DESCRIPTION OF REVISION DATE BY	NO. DATE BY	APPROVED:	DWG. NO. FIGURE 12 — REV. 1

QUINSAM MINE

2001 EXPLORATION PROGRAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- 250 — STRUCTURE CONTOUR (TOP OF SEAM ELEVATION)
- QU-01-17 / 248.4 / 3.02M — DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- INDICATED RESOURCES
- PROPOSED LAYOUT NO. 1 SEAM
- EXISTING WORKINGS NO. 1 SEAM
- H — POLYGONS (used for calculating in sitsu coal resources)

BLOCK 7S

INDICATED RESOURCES No. 4 SEAM

INDICATED RESOURCES No. 4 SEAM

No. 4 SEAM BOUNDARY (MEASURED RESOURCES)

NO. 2 MAINS

NO. 2 MAINS

NO. 3 MAINS

NO. 1 MAINS

NO. 2 MAINS

QUINSAM RIVER

BLOCK 2N OUTLINE

PILLAR

BLOCK 5-S

BLOCK 6-S

BLOCK 242

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

STRUCTURE CONTOURS
TOP OF No. 4 SEAM
5-6 SOUTH TO 7 SOUTH AREA

SCALE:	1:5,000	DATE
DESIGNED:	S. GARDNER	NOV. 2001
DRAWN:	J. McMILLAN	NOV. 2001
CHECKED:		
APPROVED:		

DESCRIPTION OF REVISION | DATE | BY | NO. | DESCRIPTION OF REVISION | DATE | BY

QUINSAM MINE

2001 EXPLORATION DRILLING PROGRAM

STRUCTURE CONTOURS, No. 4 SEAM

QUINSAM COAL CORPORATION

CAMPBELL RIVER, B.C.

DWG. NO. FIGURE 13 | REV. 1

QUINSAM MINE

2001 EXPLORATION PROGRAM

LEGEND

- BOUNDARY OF MEASURED RESOURCE
- FAULT (structural boundary)
- — 0.60 — PARTING THICKNESS ISOCON No.1 RIDER SEAM TO No.1 MAIN SEAM
- QU-01-17 DRILLHOLE DATA POINT with elevation of top of seam and gross coal thickness
- PROPOSED LAYOUT NO. 1 SEAM (2N workings only)
- EXISTING WORKINGS NO. 1 SEAM
- SYNCLINE (showing direction of plunge)

NO. 1 SEAM MEASURED RESOURCES

QUINSAM RIVER

QUINSAM SYNCLINE

BLOCK 2-N OUTLINE

NO. 1 SEAM EXTENSION

50-m. BARRIER PILLAR

BLOCK 5-S

BLOCK 6-S

BLOCK 242

PILLAR

NO. 3 MAINS

NO. 2 MAINS

NO. 1 MAINS

103,000 N

102,000 N

101,000 N

101,000 E

100,000 E

0 100 SCALE 200 300 m

PARTING THICKNESS ISOCONS BETWEEN No. 1 RIDER SEAM AND No.1 MAIN SEAM 5-6 SOUTH TO 7 SOUTH AREA	SCALE: 1:5,000	QUINSAM MINE	Quinsam COAL CORPORATION #876 CAMPBELL RIVER, B.C.
	DESIGNED: NOV. 2001	2001 EXPLORATION DRILLING PROGRAM	
	DRAWN: NOV. 2001	PARTING THICKNESS, No.1 RIDER–No.1 SEAM	
	CHECKED:	DWG. NO. FIGURE 14	REV. 1
NO. DESCRIPTION OF REVISION DATE BY	APPROVED:		

QUINSAM COAL PROJECT

ALL HOLES (Consecutive Numbering)

HOLE NUMBER	CORED	AREA	NORTHING (m)	EASTING (m)	COLLAR (m)	TILL (m)	No. 5 SEAM		No. 4 SEAM		No. 3 SEAM		No. 3 RIDER		No. 2 SEAM		No. 2 RIDER		No. 1 RIDER		PARTING		No. 1 SEAM		No. 1 BASAL		BASEMENT	TOTAL
							DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	THICK	DEPTH	DEPTH
QU-01-01	Y	3N	101051.79	100723.19	308.9	2.7									42.85	0.95							57.70	3.10				66.6
QU-01-02	Y	3N	104759.40	100966.78	319.2	1.2									69.50	0.60							86.18	2.02	89.20	1.43		121.3
QU-01-03	Y	3N	104846.57	101246.98	318.5	4.3									90.46	1.10			93.73	0.36	94.09	11.37	105.46	0.33	107.25	0.75		113.3
QU-01-04	Y	3N	104250.73	101355.40	288.2	16.5					60.70	0.50											118.60	0.60				153.9
QU-01-05	Y	3N	103846.15	101320.13	272.3	6.4									120.50	1.10							133.58	0.50	139.20	0.30		145.3
QU-01-06	Y	7S	102311.24	101358.54	252.5	13.7	17.27	0.50	44.14	3.54	104.82	1.75																114.0
QU-01-07	Y	7S	102153.27	101605.53	250.3	7.6	7.60	1.50	28.00	3.62	72.39	2.16																84.0
QU-01-08	Y	7S	101598.01	101432.68	276.7	8.2			41.22	3.78	69.40																	75.5
QU-01-09	Y	7S	102240.41	100707.84	296.7	0.6			57.90	0.60	90.69	1.69			125.00	0.39			147.29	0.59	147.88	1.02	148.90	1.92				155.2
QU-01-10	Y	7S	101984.74	100744.97	304.3	5.2			70.10	0.40	100.42	0.63			134.43	0.39			154.47	0.53	155.00	0.60	155.91	2.17				164.3
QU-01-11	Y	5S	101984.89	100451.30	294.2	0.6					59.72	0.76			96.50	0.90			114.38	0.62	115.00	0.60	115.60	2.22				124.9
QU-01-12	Y	7S	102093.77	100122.37	303.7	62.3									72.66	0.34			94.45	0.58	95.03	0.31	95.34	2.37				102.2
QU-01-13	Y	7S	101737.35	100785.37	306.1	12.5			79.37	0.63	114.60	1.69			140.70	0.40	143.00	0.50					163.50	1.60				173.2
QU-01-14	Y	7S	101696.74	101233.22	313.1	4.3	36.50	0.85	57.19	4.00	102.56	2.14											-	-				110.7
QU-01-15	Y	7S	102428.30	101114.04	272.9	8.6	30.48	0.53	57.70	0.30	110.13	1.77			142.90	0.30			169.20	0.82	169.82	1.93	171.75	1.80				180.0
QU-01-16	N	7S	101982.26	101057.97	292.4	17.9	27.50	0.30	50.60	2.60	122.00	1.92			149.27	0.73			168.50	0.72	169.22	1.21	170.43	1.84				178.3
QU-01-17	Y	7S	101811.00	101473.14	282.2	1.2	31.61	1.47	33.85	3.02	78.07	2.06			104.00	0.50			121.30	0.70	122.00	4.80	126.80	1.00				135.5
QU-01-18	Y	7S	101568.38	100459.68	304.7	2.5					81.13	2.01	86.20	0.70	114.30	0.45			119.57	0.61			134.18	0.50				147.0

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-01-C
CO-ORDINATES : 101051.79 N. - 100723.19 E.
ELEVATION (metres): 308.9
DEVIATION (AT T.D.): 0.02 degrees
SLANT ANGLE BEARING: 247 degrees
DATE DRILLED: Aug. 28, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	2.7	Glacial Till
2.7	38.1	Sandstone, grey
38.1	44.2	Shale, dark
44.2	44.8	COAL
44.8	51.8	Shale
51.8	57.3	CORED: Siltstone (from corelog)
57.3	60.4	CORED: COAL, No. 1 Seam (from corelog)
60.4	61.4	CORED: Mudstone (from corelog)
61.4	66.6	CORED: Siltstone (from corelog)
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-01-C**

CO-ORDINATES : 103035.9 N 99168.4 E

ELEVATION : 344.8 m.

LOGGED BY: S. GARDNER

DATE : Aug. 28/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	51.82	54.72	2.90		2.90		
				0.65		Siltstone: Greenish grey; fine sandy laminae in upper 1/2; hard; cross-bedded; bedding at less than 5 deg. to horiz.	
				2.25		Siltstone; Greenish grey becoming brownish grey near base with small coaly imprints; medium hard to hard.	
2	54.72	57.69	2.97		3.02		
				2.25		Siltstone: Greenish grey with buff-coloured irregular concretions; hard and competent but near base contains thin coaly laminae: core broken on these; bedding less than 5 deg. to horizontal.	
				0.10		Coaly Siltstone: (25% coal); Bottom .03 m. a bit muddy and flaggy; softer; thin coal laminae throughout;	
				0.10		Siltstone: Brownish grey; med. hard; scarcer v. thin coaly laminae and imprints.	
				0.03		Muddy Coal; Soft; milled out.	
				0.11		Siltstone: Greenish grey; coaly laminae at top; a bit harder.	
START	SAMPLE	0101		0.08		COAL: Top of No. 1 Seam; broken and mixed with siltstone;	57.70
				0.05		COAL: harder; bright and dull banded; broken.	
				0.30		COAL: clean; hard, some broken sections; abundant calcite; no visible pyrite.	
3	57.69	60.66	2.97		2.66		
				0.17		COAL: Clean, bright, blocky, broken in box, abundant calcite.	
				0.04		Shale: Dark grey to black; carbonaceous with thin bright coaly laminae throughout; soft and broken in box.	
				0.51		COAL: Clean, bright and blocky, hard with two minor broken sections; abundant calcite, no visible pyrite;	
				0.05		COAL: Softer, crushed, clean	
END	SAMPLE	0101		0.17		COAL: Clean, hard, bright and blocky.	
				0.06		Bone: Dark grey; sandy, carbonaceous with coal laminae up to 3mm thick; hard.	
START	SAMPLE	0102		0.13		silty.	59.24
				0.11		Siltstone: Med. grey; harder; coaly laminae throughout; dry	
				0.09		COAL: Dull black with thin bright bands, heavy; dirty, hard; 50% coaly.	
				0.13		COAL: Clean, hard, bright, blocky.	
END	SAMPLE	0102		0.15		Mudstone: Brown streak; coaly and carbonaceous, disseminated pyrite throughout; becoming more coaly near base.	60.00
START	SAMPLE	0103		0.35		COAL: Clean, hard, bright, blocky; bedding near horizontal; abundant pyrite on cleats and as disseminated veinlets.	
				0.05		COAL: Muddy, hard; 50% ash.	
END	SAMPLE	0103		0.41		COAL: Clean, hard, bright, blocky; abundant calcite; occasional pyrite.	60.80
				0.05		in.	
				0.08		COAL: hard; bright and dull banded; thin mudstone laminae throughout.	
				0.13		Mudstone: Dark to med. grey with bright thin coaly laminae; fairly competent; 20% coaly.	
4	60.66	63.63	2.97		3.00		
				0.05		Mudstone: coaly; <10% coal as rootlets and dull imprints.	
				0.12		Mudstone: Med. grey; 20% coaly with fine coal laminae throughout; dark coloured dull carbonaceous band forming lower contact.	
				0.25		COAL: Blocky sections with alternating bright and dull-banded; abundant calcite on cleats; shaly section in middle;	
				0.26		Mudstone: 10% coaly; dark grey; fairly competent.	
				0.07		Coaly Mudstone: 50% bright vitrinite laminae; softer basal contact.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-01-C**

CO-ORDINATES : 103035.9 N 99168.4 E

ELEVATION : 344.8 m.

LOGGED BY: S. GARDNER

DATE : Aug. 28/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
				2..25		Siltstone: Med. greenish grey with brown to buff concretionary structures; hard; competent with two main fractures at 70 deg. to horiz.; uniform.	
5	63.63	66.60	2.97		2.74	NOTE: Lost core at top of run.	
				0.97		Siltstone: Same as previous; hard, competent; one broken section in middle.	
				0.06		COAL: Bright and dull banded; dirty; abundant calcite; near-horizontal bedding;	
				0.13		Mudstone: Dark grey; hard; occasional thin coal laminae.	
				0.21		Mudstone: 40% coaly with bright vitrinite laminae at disjointed angles; abundant calcite veining on bedding at base.	
				1.37		Siltstone: Med. greenish grey; hard, competent; becoming darker in colour near base; END OF HOLE.	

ELECTROLOG SERVICES INC.

2109 - 1 STREET N.W.
CALGARY, ALBERTA
(403)276-6459

GAMMA RESISTANCE DENSITY CALIPER

FILE NO.	COMPANY	QUINSAM COAL CORPORATION	
LSD.	WELL	QU-01-01 3 NORTH	
SEC.	LOCATION	101051.79N 100723.19E	#876
TWP.	FIELD	CAMPBELL RIVER	
RGE.	PROVINCE	BRITISH COLUMBIA	
W. M	LSD. SEC. TWP. RGE. W.		Other Services DIR.
Permanent Datum: GL		Elev. 308.9	Elev. KB.
Log Measured From: GL		Above Perm Datum:	CSG.
Well Depth Measured From:			G.L.

Run No.	ONE		
Date	11 09 01		
First Reading	66.2		
Last Reading	1.5		
Footage Logged	64.70		
Depth Reached	66.7		
Depth Driller	66.9		
Casing Electrolog	2.8		
Casing Driller			
Fluid Type	WATER		
Liquid Level	6.0		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

40.MM	CALIPER 40 MM /DIV	440.0		100 OHMS	RESISTANCE	400 OHMS
0	GAMMA RAY	70	DEPTH	1.2 G/CC	DENSITY	2.7 G/CC

PULSE RUN # 1
01/10/01
02:33:11

QU-01-01

DEPTH: 64.00 TO 64.50 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG

(DRILLER'S LOG)

HOLE NUMBER : QU-01-02-C
CO-ORDINATES : 104759.4 N. - 100966.78 E.
ELEVATION (metres): 319.2
DEVIATION (AT T.D.): 0.79 degrees
SLANT ANGLE BEARING: 179.3 degrees
DATE DRILLED: Aug. 31, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	1.2	Glacial Till, brown
1.2	65.5	Sandstone, reddish grey
65.5	68.6	Shale
68.6	73.2	Shale
73.2	76.5	Sandstone
76.5	86.9	Shale, with coal seams
86.9	88.4	COAL
88.4	89.3	Shale
89.3	90.5	COAL
90.5	95.1	Shale
95.1	96.3	Sandstone
96.3	97.8	Shale
97.8	99.4	Conglomerate
99.4	100.7	CORED: Sandstone, silty sections
100.7	102.3	CORED: Conglomerate, green matrix
102.3	103.6	Lost core barrel: Drilled out: Conglomerate
103.6	121.3	CORED: Conglomerate, green matrix
		END of HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-02-C**

CO-ORDINATES : 103635 N 99140 E

ELEVATION : 324.6 m.

LOGGED BY: S. GARDNER

DATE : Sept. 04/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	99.36	102.33	2.97		2.90		
				0.12		Siltstone: Med. to dark grey; hard but broken in box; bottom contact with high-angle crossbedded erosional contact with bright coal inclusions.	
				0.31		Sandstone: Greenish with dark grey silty laminae; med. grained; gritty; hard; upper section shows minor fault plane at 37 deg. to core axis; calcite on plane shows minor movement; thin coaly laminae and carbonaceous mudstone below fault plane; second minor fault plane approx. 0.1 m below first; bottom contact gradational to coarse gritty sandstone: contact is wavy crossbedding.	
				0.16		Sandstone: Greenish grey with coarse white quartz grains; sub-rounded and poorly sorted, coarse grained; bottom contact sharp at 15 deg. to horiz.	
				0.16		Siltstone: med. to dark grey; hard; bottom contact erosional at 35 deg. to core axis (slumping?).	
				0.22		Sandstone: Med. to dark grey with dark silty interbeds and bright coaly laminae in upper part; fine-grained; wavy crossbedding at base.	
				0.21		Siltstone: Med. to dark grey grading downward to greenish grey; upper part with fine, sandy interbeds; minor carbonaceous sections.	
				0.11		Sandstone: Coarse grained; greenish matrix with coarse white quartz grains (sub-rounded and poorly sorted); near-horizontal bedding.	
				1.61		Conglomerate: Dark green matrix of variable sandstone; coarse cobbles up to 6 cm. (sub-rounded); cobbles include chert, siltstone clasts with calcite infilling.	
T 102.33 m	: HOLE HAD TO BE REAMED OUT TO 103.63 m.						
2	103.63	106.60	2.97		2.97		
				2.97		Conglomerate: Dark green matrix of variable sandstone; coarse cobbles up to 6 cm. (sub-rounded); cobbles include chert, siltstone clasts with calcite infilling. Coarse, gritty sandstone layers; scarce clasts of reddish siltstone.	
3	106.60	109.57	2.97		2.96		
				2.97		Conglomerate: Same as previous	
4	109.57	112.54	2.97		2.97		
				2.97		Conglomerate: Same as previous	
5	112.54	115.34	2.80		2.97		

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-02-C**

CO-ORDINATES : 103635 N 99140 E

ELEVATION : 324.6 m.

LOGGED BY: S. GARDNER

DATE : Sept. 04/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				2.97		Conglomerate: Same as previous	
6	115.34	118.31	2.97		2.97		
				2.97		Conglomerate: Same as previous	
7	118.31	121.28	2.97		2.97		
				2.97		Conglomerate: Same as previous; with one dark brown muddy section of 0.37 m. near top.	
						END OF HOLE.	

ELECTROLOG SERVICES INC.

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CALGARY, ALBERTA
(403)276-6459

GAMMA RESISTANCE DENSITY CALIPER

FILE NO.	COMPANY	QUINSAM COAL CORPORATION	
LSD.	WELL	QU-01-02 3 NORTH	#876
SEC.	LOCATION	104759.40N 100966.78E	
TWP.	FIELD	CAMPBELL RIVER	
RGE.	PROVINCE	BRITISH COLUMBIA	
W. M	LSD. SEC. TWP. RGE. W.		Other Services D.I.R.

Permanent Datum: GL	Elev. 319.2	Elev. KB.
Log Measured From: GL	Above Perm Datum:	CSG.
Well Depth Measured From:		G.L.

Run No.	ONE		
Date	11 09 01		
First Reading	121.2		
Last Reading	2.0		
Footage Logged	119.2		
Depth Reached	121.5		
Depth Driller	121.3		
Casing Electrolog			
Casing Driller			
Fluid Type	WATER		
Liquid Level	78.8		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

PULSE RUN # 2
01/10/01
02:33:11

QU-01-02

DEPTH: 87.00 TO 87.50 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-03C
CO-ORDINATES : 104846.57 N. - 101246.98 E.
ELEVATION (metres): 318.5
DEVIATION (AT T.D.):
SLANT ANGLE BEARING:
DATE DRILLED: Sept. 5, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	1.2	Glacial Till, brown
1.2	4.3	Glacial Till, grey
4.3	15.2	Sandstone, grey
15.2	16.5	Fractured, water-bearing, 4 gpm
16.5	86.9	Sandstone
86.9	90.2	Shale
90.2	90.7	CORED: Siltstone, brownish grey
90.7	91.9	CORED: COAL
91.9	93.6	CORED: Siltstone, muddy
93.6	94.0	CORED: COAL
94.0	100.1	CORED: Sandstone, greenish grey
100.1	101.5	CORED: Conglomerate, pebbles 1 - 2 cm.
101.5	113.3	CORED: Siltstone, muddy sections, thin coals
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-03-C**

CO-ORDINATES : 104846.57 N 101246.98 E

ELEVATION : 318.5 m.

LOGGED BY: J. McMillan

DATE : Sept. 05/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	90.22	93.19	2.97		2.89		
				0.48		Siltstone: Brownish grey; with fine sandy laminae; competent, muddy, med. hard, bedding less than 5 deg. to horizontal, rare shell fragments; no fizz.	
				0.04		COAL; No. 2 Seam; interbedded with siltstone.	90.46
				0.50		COAL: Dull black, a few silty interbeds, hard; broken at lower contact; bedding at less than 5 deg. to horizontal. Massive and blocky near base; occasional pyrite blebs; dry;	
				0.04		Siltstone; muddy; Brownish grey; soft to med. hard; lower bedding contact nearly horizontal.	
				0.32		COAL: Clean, hard, bright, bedding nearly horizontal; disseminated pyrite and veinlets.	
				0.23		COAL: Dull black with mudstone laminae at less than 5 degr. to horizontal; Base of No. 2 Seam.	91.56
				0.04		Mudstone: Brownish grey; Lower contact is slip plane at 30 degr. to horizontal.	
				0.04		COAL: Bright, hard; muddy at base; pyrite grains.	
				1.20		Siltstone: Muddy; brownish grey; occasional coal laminae; soft to med. hard; weakly sheared; 16 breaks at 0 to 20 degr. to horizontal. No fizz except on rare concretions.	
2	93.19	96.16	2.97		2.94		
				0.39		Siltstone: Muddy; brownish grey; soft to med. hard; bedding nearly horizontal; coaly laminae parallel to bedding; coalified plant debris;	
				0.36		COAL: No. 1 Rider Seam; dull with 50% bright layers; bedding nearly horizontal; occasional disseminated pyrite; broken at lower contact.	93.73
				2.19		Siltstone: Greenish grey except slightly brownish near upper contact; med to fine sandy laminae; occasional buff-coloured irregular concretions; hard; poorly developed bedding nearly horizontal; competent.	94.09
3	96.16	99.13	2.97		3.12		
				2.62		Siltstone; Greenish grey; coarsening downwards with increasing fine sandy laminae towards base; hard; occasional thin muddy sections near base; A few thin coaly laminae; bedding nearly horizontal; competent; occasionally very weak cross-bedding; No fizz except on rare concretionary forms;	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-03-C**

CO-ORDINATES : 104846.57 N 101246.98 E

ELEVATION : 318.5 m.

LOGGED BY: J. McMillan

DATE : Sept. 05/01

Core No.	CORED METRES From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.50		Sandstone: Greenish grey; fine sand coarsening downward; fairly massive, hard, several breaks on coaly laminae; suggestion of flat bedding on thin slightly muddy layers.	
4	99.13	102.03	2.90		2.90		
				1.00		Sandstone: Greenish grey; fine sand coarsening downward to medium sand; uniform; possible weak crossbedding, otherwise massive; horizontal lower contact moderate fizz, calcareous cement.	
				1.40		Conglomerate: Greenish grey to tan; poorly sorted; sub-rounded pebbles 1 to 2 cm. in diameter; in coarse sandy matrix; hard, massive, irregular lower contact intruded 10 cm. across lower siltstone. Contains chert, quartz and volcanic pebbles.	
				0.50		Siltstone: Brownish grey; fine sandy laminae; med. hard; upper contact irregular with conglomerate; undulating bedding at less than 5 degr. to horiz. A few thin wispy coal inclusions; one 2 cm. brown muddy siltstone bed with disseminated pyrite at upper contact dipping 15 degrees.	
5	102.03	104.93	2.90		2.73		
				2.02		Siltstone: Greenish and brownish grey; Fine sandy laminae becoming muddy downhole; med hard to hard; uniform; bedding nearly horizontal. A few coaly laminae near base.	
				0.71		Siltstone: Med. grey; with thin coaly laminae; 5% coaly; bedding variable 0 to 10 degrees. broken and rubbly on thicker coal bands.	
6	104.93	107.82	2.89		2.81		
				0.15		Mudstone: with thin coaly laminae (as above);	
				0.27		Siltstone: 25% coaly; bright thin laminae throughout; core broken in slabs along bedding planes;	
				0.11		Siltstone: Muddy, med. hard, a few thin coaly laminae near top.	105.46
				0.33		COAL: No. 1 SEAM; Dull black with bright bands to 2 cm thick; bedding 5 degrees to horizontal; high ash; 2 cm mudstone parting near base;	
				0.09		Mudstone: with thin wispy coal laminae; grey; hard.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-03-C**

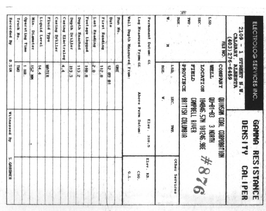
CO-ORDINATES : 104846.57 N 101246.98 E

ELEVATION : 318.5 m.

LOGGED BY: J. McMillan

DATE : Sept. 05/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.19		Siltstone: 35% coaly; coal in laminae and bands to 2 cm thick; med. hard; muddy;	
				1.19		Siltstone: brownish; muddy with some fine sandy zones; med. hard to hard; bedding nearly horizontal; a few concretions in middle.	
				0.48		Mudstone: coaly; dull; dark grey; with 20% bright vitrinite laminae; 5 cm rubble zone 7 cm below top unit; 17 cm of broken rubble starts 22 cm below top contact.	
7	107.82	110.49	2.67		2.66		
				0.27		Mudstone; coaly; (same as above); broken and rubbly except 4 cm. at base.	
				0.71		Siltstone: Brownish grey; uniform; broken on bedding plane upper contact; thin bedding at 5 degrees to horizontal; a few thin coaly laminae.	
				0.27		Mudstone; coaly; 40% coaly with horizontal bands of bright vitrinite to 0.5 cm thick; gradational lower contact.	
				0.17		Siltstone: Med grey; bedding at 5 degrees to horiz.; a few thin coaly laminae near top; lower contact at 10 degrees to horizontal.	
				0.42		Mudstone: 40% coaly; med. hard; vitrinite bands to 1 cm thick; 4 breaks on bedding planes with minor rubble zones nearly horiz.	
				0.05		Siltstone: brownish grey; med hard.	
				0.20		Mudstone: 40% coaly; broken and rubbly throughout.	
				0.57		Siltstone: brownish to greenish grey; uniform; bedding less than 5 degrees to horizontal.	
8	110.49	113.28	2.79		2.77		
				0.60		Mudstone: Med grey; hard; uniform; fine sand layers; patchy minor fizz.	
				0.05		Siltstone; 25% coaly; interbedded with carbonate rich laminae.	
				2.12		Siltstone: med. grey with greenish grey sections; hard; rare coaly laminae; fairly massive; horizontal bedding; several minor broken sections.	
						END OF HOLE	


GAMMA RESISTANCE
DENSITY CALIPER
#876
QU-01-03

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-04
CO-ORDINATES : 5483348.2 N. - 364261.3 E.
ELEVATION (metres): 319.2
DEVIATION (AT T.D.):
SLANT ANGLE BEARING:
DATE DRILLED: Sept. 6, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	1.2	Boulders
1.2	3.7	Glacial Till, brown
3.7	4.6	Gravel
4.6	16.5	Glacial Till, with boulders
16.5	53.3	Sandstone, grey
53.3	56.4	Shale, with thin coal seams
56.4	61.3	Sandstone, grey
61.3	61.6	COAL
61.6	70.1	Sandstone, white
70.1	71.6	Shale
71.6	115.8	Sandstone
115.8	118.9	Shale
118.9	121.0	COAL, shaley
121.0	122.8	Shale
122.8	125.6	Sandstone
125.6	131.1	Shale
131.1	137.8	COAL, shaley
137.8	140.2	Sandstone
140.2	142.3	COAL, shaley
142.3	145.1	Shale
145.1	146.6	Sandstone
146.6	153.9	Shale, red
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

NOT CORED

NOT CORED

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GAMMA RESISTANCE DENSITY CALIPER

FILE NO.

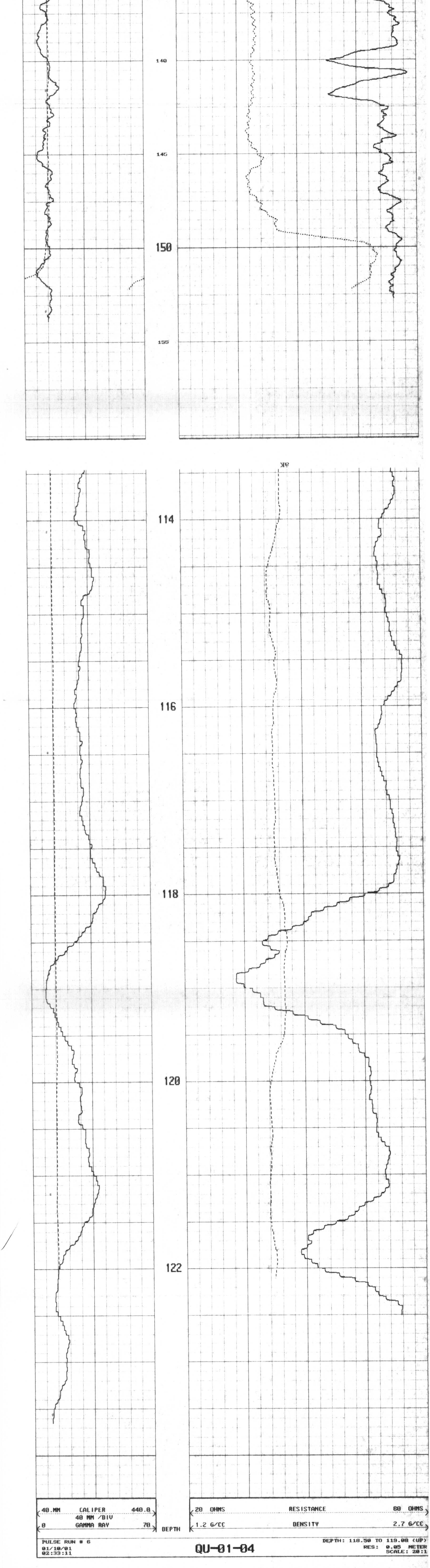
COMPANY QUINSAM COAL CORPORATION
WELL QU-01-04 3 NORTH
LOCATION 104250.73N 101355.40E
FIELD CAMPBELL RIVER
PROVINCE BRITISH COLUMBIA

#876

LSD.	LSD.	SEC.	TWP.
SEC.	RGE.	W.	Other Services
TWP.			
RGE.			
W. M			

Permanent Datum: GL Elev. 288.2 Elev. KB.
Log Measured From: GL Above Perm Datum: CSG.
Well Depth Measured From: G.L.

Run No.	ONE		
Date	12 09 01		
First Reading	154.0		
Last Reading	2.0		
Footage Logged	152.0		
Depth Reached	154.5		
Depth Driller	153.9		
Casing Electrolog	16.8		
Casing Driller			
Fluid Type	WATER		
Liquid Level	77.9		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER



40.MM	CALIPER	440.0		
	40 MM /DIV			
0	GAMMA RAY	70	DEPTH	
20 OHMS	RESISTANCE	80 OHMS		
1.2 G/CC	DENSITY	2.7 G/CC		

PULSE RUN # 6
01/10/01
02:33:11

QU-01-04

DEPTH: 118.50 TO 119.08 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-05C
CO-ORDINATES : 103846.15 N. - 101320.13 E.
ELEVATION (metres): 272.3
DEVIATION (AT T.D.):
SLANT ANGLE BEARING:
DATE DRILLED: Sept. 8, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	6.4	Glacial Till
6.4	65.5	Sandstone, white
65.5	68.6	Shale, coaly
68.6	70.1	Shale
70.1	71.3	COAL
71.3	72.5	Sandstone
72.5	75.0	Shale, coaly
75.0	106.7	Sandstone, Coal Stringers
106.7	108.8	Shale
108.8	113.7	Sandstone
113.7	114.3	Shale
114.3	114.9	Sandstone
114.9	115.5	Shale
115.5	121.0	Sandstone
121.0	126.8	Shale, coaly
126.8	127.4	COAL
127.4	131.1	Shale
131.1	132.6	Shale, coaly
132.6	134.1	Shale
	145.3	END OF HOLE

ELECTROLOG SERVICES INC.

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GAMMA RESISTANCE DENSITY CALIPER

FILE NO.		
LSD.	COMPANY	QUINSAM COAL CORPORATION
SEC.	WELL	QU-01-05 3 NORTH
TWP.	LOCATION	103846.15N 101320.13E
RGE.	FIELD	CAMPBELL RIVER
W. M	PROVINCE	BRITISH COLUMBIA

#876

LSD. SEC. TWP.
RGE. W.

Other Services

Permanent Datum: GL Elev. 272.3
Log Measured From: GL Above Perm Datum:
Well Depth Measured From:

Elev. KB.
CSG.
G.L.

Run No.	ONE		
Date	12 09 01		
First Reading	145.0		
Last Reading	2.0		
Footage Logged	143.0		
Depth Reached	145.4		
Depth Driller	143.3		
Casing Electrolog	6.5		
Casing Driller			
Fluid Type	WATER		
Liquid Level	88.1		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

40.MM CALIPER 440.0
40 MM /DIV
0 GAMMA RAY 70
DEPTH
10 OHMS RESISTANCE 80 OHMS
1.2 G/CC DENSITY 2.7 G/CC

PULSE RUN # 7
01/10/01
02:33:11

QU-01-05

DEPTH: 121.00 TO 121.58 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-05-C**

CO-ORDINATES : 103846.15 N 101320.13 E

ELEVATION : 272.3 m.

LOGGED BY: J. McMillan

DATE : Sept. 08/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	134.11	137.08	2.97		2.67		133.58
				0.17		COAL; No. 1 SEAM; Bright, clean, broken; chips and fines in box.	
				0.18		Mudstone: med. brownish grey; bedding angles less than 5 degrees to horizontal; broken on contacts; 4 cm broken section near base.	
				0.92		Siltstone: greenish to brownish grey; a few coaly laminae and calcite stringers near top; med. hard; several soft and broken zones; lower contact is 8 cm mud band.	
				0.40		Siltstone: 20% coaly, dark grey; hard, broken at contacts; coal laminae to 1 cm thick; bedding less than 5 degrees to horiz.	
				0.30		Siltstone: 10% coal laminae; brownish grey, med hard, bedding less than 5 degrees. to horiz. top contact is 5 cm mudstone.	
				0.16		Siltstone: brownish grey; hard; uniform; calcareous fragments; moderate fizz.	
				0.54		Siltstone: Muddy; brownish to greenish grey; occasional coal laminae top 15 cm;	
2	137.08	139.98	2.89		2.68		
				0.60		Siltstone: grey; med. hard; bedding 5 degrees to horizontal; coaly laminae 5 to 10%;	
				0.20		Siltstone: 35% coaly; bright coal laminae to 2 cm thick; slightly broken parallel to horizontal bedding.	
				0.48		Siltstone: Greenish grey; with fine sandy laminae; coaly organics on bedding planes; nearly horiz. bedding; broken contacts; 16 cm broken section near top;	
				0.08		COAL: Dull to bright; 40% vitrinite; sharp contacts.	
				0.07		Mudstone: Grey; soft; muddy near horizontal	
				0.09		Mudstone: Coaly; dull black; soft; fine rubble and 40% broken coal.	
				0.21		Siltstone: Greenish grey; med hard; nearly horizontal bedding.	
				0.34		Mudstone: coaly; med hard to soft; dark grey; 20% coaly; 8 cm mud near top; 5 cm mudstone at lower contact; slightly broken.	
				0.41		COAL: bright to dull; near-horizontal vitrinite laminae; several breaks parallel to bedding; 3 cm mudstone parting near middle; est. 20% ash; 2 cm broken zone below parting;	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-05-C**

CO-ORDINATES : 103846.15 N 101320.13 E

ELEVATION : 272.3 m.

LOGGED BY: J. McMillan

DATE : Sept. 08/01

	CORED METRES					GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
				0.20		Mudstone: med to dark grey; med hard; fine laminations; coal coatings on bedding planes; lower 10 cm crumbled.	
3	139.98	142.65	2.67		2.51		
				0.27		Siltstone; 30% coaly; dull with a few bright laminae; nearly horiz. bedding; flaggy at top becoming broken and rubbly at base; lower contact on slip plane at 35 degrees to horiz.	
				2.24		Siltstone: greenish grey becoming slightly reddish near base; hard; nearly horiz. bedding (sandy laminae); uniform; 6 cm coal stringer below top contact contains siltstone inclusion and calcite veinlets.	
4	142.65	145.31	2.66		2.44		
				0.27		Siltstone: reddish with green sections; coarsens downward to fine sandstone with visible quartz grains.	
				0.65		Siltstone: reddish with green sections; hard; uniform; massive appearance; slightly broken and fractured.	
				0.35		Siltstone: reddish; med hard; broken and rubbly section; nearly horiz. bedding.	
				0.60		Siltstone: reddish; hard; massive; uniform; greenish grey patches near base; one slip plane 60 degrees to core axis with 5 cm broken zone; base broken at contact.	
				0.57		Siltstone: Greenish grey; hard, uniform, several joints at steep angles; slightly broken on joints and at base.	
						END OF HOLE.	

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-06-C
CO-ORDINATES : 102311.24 N. - 101358.54 E.
ELEVATION (metres): 252.5
DEVIATION (AT T.D.): 0 degrees
SLANT ANGLE BEARING: N/A
DATE DRILLED: Sept. 10, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	1.5	Glacial Till, brown
1.5	10.7	Glacial Till, grey
10.7	13.7	Glacial Till
13.7	16.8	Sandstone, white
16.8	17.4	COAL
17.4	39.6	Sandstone
39.6	44.6	CORED: Sandstone, Hole making 4 -5 gpm from 42.6m
44.6	48.1	CORED: COAL, No. 4 Seam
48.1	51.5	CORED: Sandstone
51.5	72.5	Sandstone
72.5	74.7	Shale
74.7	90.5	Sandstone
90.5	104.6	CORED: Sandstone, grey
104.6	104.7	CORED: COAL
104.7	105.3	CORED: Siltstone
105.3	107.1	CORED: COAL, No. 3 Seam
107.1	113.9	CORED: Siltstone, minor sandstone
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-06-C**
CO-ORDINATES : 102311.24 N 101358.54 E
ELEVATION : 252.5 m.
LOGGED BY: S. Gardner
DATE : Sept. 09/01

Core No.	CORED METRES: CORED From	To	Total	RECOVERED: Section	Total	GEOLOGICAL DESCRIPTION: Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	39.63	42.60	2.97		2.68		
				1.50		Sandstone: med. grained; med. grey; lithic uniform; hard, competent (10 breaks); one high angle joint plane; no fizz; slight evidence of bedding (darker beds) at 6 degrees to horiz.; bottom contact wavy cross-bedding grading into carbonaceous sandy bed.	
				0.10		Sandstone: dark grey with alternating light grey laminations; fine grained; lighter laminae med. grained; carbonaceous; broken; bottom mixed with coal.	
				0.07		COAL: Dirty; abundant calcite veins on bedding (highly effervescent); bottom contact broken and crushed (lost core).	
				0.60		Sandstone: med. grained (a bit finer than previous); re-worked zone immediately below coal with some re-cemented fracturing; softer than previous; no fizz.	
				0.41		Sandstone: lighter grey; slight fizz; medium grained; lithic; broken at top contact; med. hard.	
2	42.60	45.57	2.97		2.83		
				1.34		Sandstone: Med. to coarse grained; coarse zone in middle showing occasional clasts of dark siltstone, sub-rounded and elongate up to 10mm in length; prominent irregular vertical joint throughout section causing saturation of coarser-grained zones. Hole making about 4 - 5 gpm water from this joint. Moderate to strong fizz, especially in bottom 1/2 of section; bedding at 4 degrees to horiz.	
				0.70		Sandstone: Med. to fine grained; light grey; lithic; near-vertical joint from previous section continues into top part of this zone; core quite broken near top; bottom contact wavy cross-bedding.	
				0.12		Sandstone: black; with dark grey and lighter coloured laminations throughout; thin carbonaceous and coaly laminae becoming more prominent at bottom; cross-bedded; moderate to strongly effervescent throughout; hard; bottom contact with No. 4 Coal Seam.	44.14
START	SAMPLE	#0601		0.58		COAL: No. 4 Seam; hard, bright, blocky with occasional thin fissile beds; abundant vitrinite near top but some bony sections; abundant calcite on cleats and bedding; some pyrite as sheeting on cleats and bedding.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-06-C**
CO-ORDINATES : 102311.24 N 101358.54 E
ELEVATION : 252.5 m.
LOGGED BY: S. Gardner
DATE : Sept. 09/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.05		Bone: Sandy texture; very strong fizz; hard; coaly; white to dark grey.	
				0.04		COAL: Dull and bright bands; hard	
3	45.57	48.54	2.97		2.51		44.81
				0.23		Bone: Dull; grey to black with white grains; thin bright coal laminae throughout; hard but broken; no fizz; carbonaceous and coaly.	
				0.13		Sandstone: med. grained; light and dark cross beds throughout (wavy bedding); bright vitrinite bed near top 5 mm thick; becoming very coaly near base.	
				0.06		COAL: Dull and bright banded; hard	
				0.19		COAL: Clean, bright and blocky; broken in box (lost core) ?	
				0.05		Sandstone: same as previous; very strong fizz; coaly wisps throughout.	
				0.21		COAL: top part highly broken; dull and bright banded; some sandy beds; bottom section cleaner.	
				0.04		Bone Coal: Sandy texture; hard; 50% carbon.	
				0.30		COAL: Broken sections bright and dull banded but more vitrinite than dull; bony at base.	
				0.10		Sandstone: same as previous; moderate fizz; bottom 1/2 black (more carbonaceous).	
				0.07		COAL: Clean, bright, blocky	
				0.06		Sandstone: As above but more vitrinite content; 20% coaly.	
				0.20		COAL: Predominantly clean, bright, blocky but some thin sandy zones; bedding less than 5 degrees to horizontal.	
				0.02		PYRITE: single band of variable thickness.	
				0.31		COAL: Clean, bright and blocky; with minor thin dull and sandy sections.	
				0.04		Bone: carbonaceous sandstone;	
				0.12		COAL: Clean, bright, blocky; lower 1/3 becoming dirtier with sandy zones; hard.	
END	SAMPLE	#0601		0.09		COAL: Dull and bright banded; broken; 75% coaly; with sandy beds.	47.68
				0.09		Sandstone: Floor No. 4 Seam; thin carbonaceous laminae throughout	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-06-C**
CO-ORDINATES : 102311.24 N 101358.54 E
ELEVATION : 252.5 m.
LOGGED BY: S. Gardner
DATE : Sept. 09/01

Core No.	CORED METRES: CORED From	To	Total	RECOVERED: Section	Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.20		Sandstone: med. to fine grained; wet; fractured; softer; upper contact approx. 10 degrees to horizontal.	
4	48.54	51.51	2.97		2.78		
				1.54		Sandstone: Med. grey; med. grained; moderate fizz through bottom 1/3; one prominent near-vertical joint which is open and has fine coal particles deposited on fracture plane; sandstone is hard but core is badly broken in middle due to vertical jointing.	
				0.17		Sandstone: Dark grey with black carbonaceous laminae; prominent X-bedding; broken.	
				0.24		COAL: Hard; unbroken; bright and blocky.	
				0.47		Sandstone: med. grained, hard, abundant thin coaly wisps in top 1/2; X-bedded.	
				0.36		Sandstone: Dark grey; abundant carbonaceous material with 1 bright coal section of .12 m. (alternating sandstone/coal interbeds).	
						THIS SECTION DRILLED OUT...	
5	90.53	93.50	2.97		2.97		
				2.97		Sandstone: Med. grey w/ thin dark grey cross-bedded laminations; med. grained; hard; only 5 breaks; slight to moderate fizz; lithic; true bedding angle questionable due to significant X-bedding.	
6	93.50	96.07	2.57		2.51		
				2.51		Sandstone: Same as above but stronger fizz; v. hard near base and jammed in core barrel causing run to terminate early; med grey with brownish sections and thin dark grey X-bedded laminations.	
7	96.07	99.04	2.97		2.88		
				2.88		Sandstone: Same as above but a bit softer and more broken in med. to coarse grained section; slight to moderate fizz.	
8	99.04	102.01	2.97		2.97		
				2.97		Sandstone: Same as above; abundant coaly laminae and coaly wisps throughout, indicating some minor slumping features; only v. slight fizz; only 2 breaks.	
9	102.01	104.99	2.98		2.87		

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-06-C**
CO-ORDINATES : 102311.24 N 101358.54 E
ELEVATION : 252.5 m.
LOGGED BY: S. Gardner
DATE : Sept. 09/01

Core No.	CORED METRES: CORED From	To	Total	RECOVERED: Section	Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				2.54		Sandstone: Same as above; hard and unbroken; slight fizz in some sections; 2 bright, coaly laminae 5 mm thick at immediate base.	
				0.11		COAL: NO. 3 SEAM: Bright, blocky, clean; strong cleating; abundant calcite on cleats; visible pyrite; bedding plane angle at 10 degrees to horiz.	
				0.21		Siltstone: brownish to med grey.	
10	104.99	107.96	2.97		3.01		
				0.73		Siltstone: Muddy in upper section becoming lighter grey and more silty in lower 1/2; thin, bright coaly laminae up to 5 mm thick in middle; slight fizz in lower part.	104.82
START	**SAMPLE**	**#0602**		0.90		COAL: NO. 3 SEAM: Hard, bright, blocky, clean, abundant calcite as sheeting on cleats and horizontal veining on bedding; bedding at 6 degrees to horiz.; one large nodular pyrite 10 mm thick in middle of section; becoming dirtier near base with brown streak.	
				0.22		Siltstone: brown with black coaly laminae becoming coaly in lower part; muddy but fairly hard and competent.	
END	**SAMPLE**	**#0602**		0.63		COAL: Same as above; dirty disseminated pyrite laminations near top; hard; clean, bright, blocky; basal contact not well-defined (gradational).	106.57
				0.21		Mudstone: Carbonaceous and coaly; 2 prominent pyrite laminae up to 2 mm thick near upper contact with coal; no fizz; dark brown grading down to med. brown.	
				0.32		Siltstone: brownish grey grading downward to med. grey; abundant thin coaly laminae in upper section; competent and fairly hard.	
11	107.96	110.93	2.97		2.92		
				1.46		Siltstone: dark grey; hard, competent; prominent pyrite nodule in middle up to 10 mm thick; lighter calcareous lenses with slight to moderate fizz; prominent coaly lenses in bottom 1/2.	
				0.16		COAL: dirty with some bright sections; 60% coaly	
				0.20		Sandstone: Dark grey to black with white quartz grains; med. grained; hard; coaly and carbonaceous throughout (40% coaly).	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-06-C**
CO-ORDINATES : 102311.24 N 101358.54 E
ELEVATION : 252.5 m.
LOGGED BY: S. Gardner
DATE : Sept. 09/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.14		Sandstone: Same as above but lighter coloured and less carbonaceous.	
				0.67		COAL: hard, bright, blocky, clean except for top 10 cm; abundant calcite; bedding approx. 3 degrees to horiz.	
				0.29		Siltstone: brownish grading downward to greenish grey; carbonaceous near top with abundant thin bright coaly laminae.	
12	110.93	113.90	2.97		2.97		
				1.22		Siltstone: brownish grey; hard; competent; laminae nearly horiz. with local X-bedding; a few coal laminae parallel to bedding or including rafts of siltstone; gradational lower contact.	
				0.86		Sandstone: Dark grey with white quartz grains; fine grained coarsening downward to med. gr.; hard; interbedded siltstone on lower contact; 14 cm silty bed near mid-section; 5 - 10% coaly laminae, one at 2 cm thick in lower part of section; bedding nearly horizontal.	
				0.60		Siltstone: light and dark grey; hard, competent; patchy thin wispy coal lenses at 0 - 20 degrees to horiz.	
				0.07		Siltstone: 65% coaly; bright coal lenses 1 to 2 cm. thick.	
				0.12		COAL: bright and dull; est. 25% ash; med. hard; competent; contacts parallel to bedding.	
				0.10		Siltstone: med. grey; muddy; med. hard; minor coaly wisps.	
						END OF HOLE	

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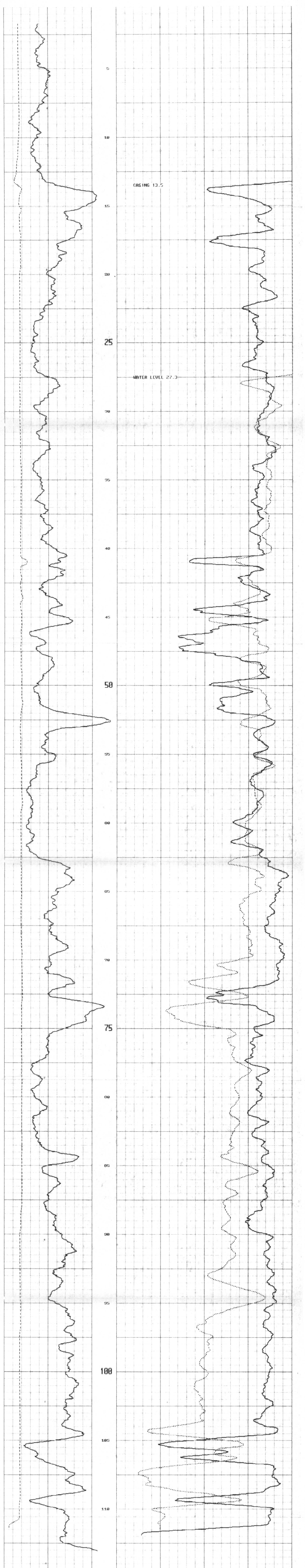
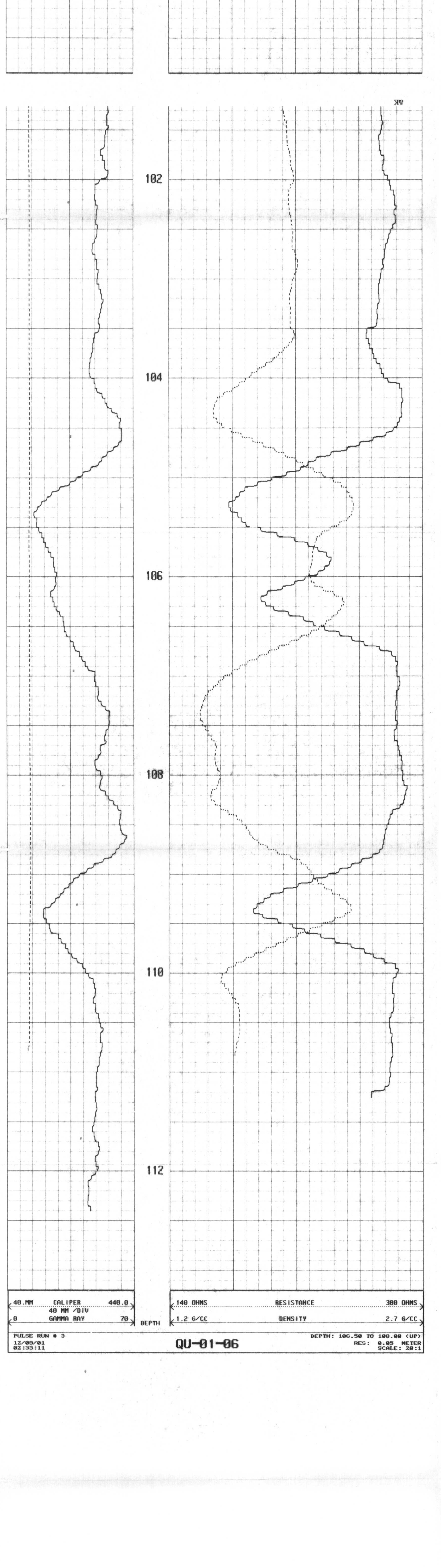
GAMMA RESISTANCE DENSITY CALIPER

#876

FILE NO.	COMPANY	QUINSAM COAL CORPORATION	
LSD.	WELL	QU-01-06 7 SOUTH	
SEC.	LOCATION	102311.244N 101358.538E	
TWP.	FIELD	CAMPBELL RIVER	
RGE.	PROVINCE	BRITISH COLUMBIA	
W. M	LSD. SEC. TWP. RGE. W.		Other Services
Permanent Datum: GL		Elev. 252.482	Elev. KB.
Log Measured From: GL		Above Perm Datum:	CSG.
Well Depth Measured From:			G.L.
Run No.	ONE		
Date	12 09 01		
First Reading	113.0		
Last Reading	1.5		
Footage Logged	111.5		
Depth Reached	113.5		
Depth Driller	114.0		
Casing Electrolog	13.5		
Casing Driller			
Fluid Type	WATER		
Liquid Level	27.3		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER





QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-07-C
CO-ORDINATES : 102153.27 N. - 101605.53 E.
ELEVATION (metres): 250.3
DEVIATION (AT T.D.): 3.22 degrees
SLANT ANGLE BEARING: 354.2 degrees
DATE DRILLED: Sept. 11, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	2.4	Fill
2.4	3.1	Glacial Till, brown
3.1	7.6	Glacial Till, grey
7.6	9.1	COAL
9.1	10.7	Shale
10.7	19.8	Sandstone, white
19.8	28.0	Sandstone
28.0	31.7	CORED: COAL, No. 4 Seam
31.7	35.8	CORED: Sandstone
35.8	42.1	Shale
42.1	72.5	Sandstone
72.5	76.2	CORED: COAL, No. 3 Seam (with partings)
76.2	79.1	CORED: Siltstone
79.1	84.4	CORED: Sandstone
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-07-C**

CO-ORDINATES : 102153.27 N 101605.53 E

ELEVATION : 250.3 m.

LOGGED BY: S. Gardner

DATE : Sept. 12/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	28.04	31.01	2.97		2.96		28.00
START	SAMPLE	0701		0.03		COAL; No. 4 Seam; bright, blocky, broken in box; abundant calcite on cleats and bedding	
				0.01		Mudstone: brownish grey; silty; fairly hard.	
				0.39		COAL: top 3 cm dirty; rest is hard, bright, blocky, clean; bottom contact bedding at 10 deg. to horizontal (could be X-bedding with lower sandstone); no visible pyrite;	
				0.02		Sandstone: med grey with white quartz grains; carbonaceous; 20% coaly; hard and abrasive.	
				1.06		COAL: Clean, hard, bright, blocky; occasional pyrite on cleats; abundant calcite on cleats and as veinlets on bedding planes; bottom contact wavy and irregular.	
				0.04		Sandstone: Same as previous; carbonaceous and coaly; hard; strong fizz.	
				0.86		COAL: Hard, bright, blocky, clean; with some dull and bright banded sections; abundant calcite; minor pyrite.	
				0.02		Sandstone: dark grey; bone coal; carbonaceous	
				0.36		COAL: Dull sections but primarily clean, hard, bright, blocky	
				0.02		Sandstone: Same as previous; carbonaceous, strong fizz, bedding at 10 degrees to horizontal.	
				0.16		COAL: Same as above; hard; bright, blocky, clean	
2	31.01	33.98	2.97		2.72		
				0.02		COAL: Same as above	
				0.02		BONE COAL: Sandy texture; dirty	
				0.04		COAL: Clean but broken in box (LOST CORE?)	
				0.10		COAL & SILTSTONE MIXED: Broken and mixed in box; 50% coal.	
				0.08		COAL: Clean, hard, unbroken, bright, blocky.	
				0.01		Sandstone: Med. grey; bedding at 8 degrees to horizontal.	
				0.18		COAL: Clean, hard, bright, blocky, some dull sections.	
				0.05		Mudstone: Coaly and carbonaceous, thin bright coal laminae becoming scarcer in bottom 2 cm.	
				0.04		COAL: Hard, bright, blocky, abundant calcite; bottom contact on minor bedding plane slip; calcite sheeting on slip plane; angle at 8 degrees to horiz.	
				0.12		COAL: Hard with dull sections; generally clean.	
END	SAMPLE	0701		0.09		Sandstone; 25% coaly; FLOOR, NO. 4 SEAM; gradational contact.	31.62
				0.51		Sandstone: med. grained, med. grey; hard, coaly wisps in upper part; no fizz; uniform; competent rock.	
				0.30		Sandstone: same as above; no fizz.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-07-C**
CO-ORDINATES : 102153.27 N 101605.53 E
ELEVATION : 250.3 m.
LOGGED BY: S. Gardner
DATE : Sept. 12/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.50		Sandstone: Light grey; moderate fizz; a few coaly wisps and one calcite vein 2 mm thick; hard and competent; med. grained.	
				0.16		COAL: Clean, hard, bright, blocky, abundant calcite.	
				0.02		COAL: Dull, sandy.	
				0.12		Sandstone: Buff-grey: med. grained; hard, coaly wisps throughout; broken at base on coaly contact.	
				0.37		Sandstone: Same as previous; coaly in upper part.	
3	33.98	36.94	2.96		2.90		
				1.79		Sandstone: Med. grey to light grey; med. grained coarsening downward; moderate fizz in lower 0.6 m.; hard, competent; irregular contact at base (lost core?)	
				0.14		Siltstone: Abrupt change with overlying sandstone; coaly bands; dark grey; carbonaceous.	
				0.97		Siltstone: Dark grey: only 2 breaks (competent rock); fairly hard; occasional thin coal laminae.	
						HOLE REAMED OUT AND DRILLED TO NEW COREPOINT	
4	72.54	75.51	2.97		2.87		
				0.14		Siltstone: Dark grey with black carbonaceous laminae; broken in core box; (Lost Core?)	72.39
START	SAMPLE	0702		0.08		COAL: TOP OF NO. 3 SEAM; broken in box (Lost Core?)	
				0.15		COAL: Harder, dull sections; dirty	
				1.69		COAL: Bright, blocky, clean, hard, relatively unbroken; abundant calcite on cleats; disseminated pyrite visible in lower part.	
				0.02		DULL COAL	
				0.03		BRIGHT COAL	
				0.03		DULL COAL, with prominent lense of pyrite, wavy and undulatory up to 4mm thick.	
END	SAMPLE	0702		0.17		COAL: Clean, bright, blocky, hard, abundant calcite	74.55
START	SAMPLE	0703		0.30		Siltstone: dark grey to black; scarce coal laminae; fairly hard.	
				0.27		Siltstone: 30% coaly; dull coal with occasional bright laminae.	
5	75.51	78.48	2.97		2.87		
END	SAMPLE	0703		0.03		Siltstone: med. to dark grey; interbedded with coal laminae; strong fizz; broken in box (Lost Core?)	
START	SAMPLE	0704		0.25		Sandstone: fine to med. grained (coarsening downward); med. grey; v. scare thin black carbonaceous laminae; moderate fizz in lower part; hard.	75.40
END	SAMPLE	0704				NOTE : BEDDING 3 TO 5 DEGREES WITH X-BEDDING TO 10 DEGREES.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-07-C**
CO-ORDINATES : 102153.27 N 101605.53 E
ELEVATION : 250.3 m.
LOGGED BY: S. Gardner
DATE : Sept. 12/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
START	**SAMPLE**	**0705**		0.05		COAL: Broken in box (Lost Core?); bright and dull pieces; mixed up;	
				0.34		COAL: Clean, bright, blocky, hard; a few dull bands; no visible pyrite, abundant calcite.	
				0.02		Mudstone: dark grey; fissile, coaly	
END	**SAMPLE**	**0705**		0.24		COAL: Hard, clean, bright, blocky, bottom 5 cm broken in box.	76.18
				0.22		Mudstone: silty; med. grey; upper part coaly but less than 15% coal; pyritized root imprints throughout.	
				1.26		Siltstone: hard, competent, only 4 breaks; med. brownish grey; light sandy lenses for 10 cm. in middle; pyritic.	
6	78.48	81.45	2.97		3.00		
				0.13		Siltstone: Med. grey; hard; occasional slight fizz; thin coaly markings;	
				0.05		Siltstone: dark grey; carbonaceous; no fizz; X-bedded on contacts; pyritic.	
				0.05		Siltstone: Med. grey; hard; no fizz.	
				0.07		Siltstone: Dark grey; streaks brown; carbonaceous bands.	
				0.07		COAL: hard, bright, blocky, unbroken.	
				0.07		Siltstone: Shaly, broken, fissile, carbonaceous, softer.	
				0.13		Siltstone: Dark grey, flaggy, coaly imprints throughout.	
				0.06		COAL: Blocky, dull, dirty.	
				2.37		Sandstone: Med. grey to light grey in bottom half; dark coal grains in top 10 cm.; no fizz until last 30 cm (moderate fizz).	
7	81.45	84.42	2.97		2.91		
				2.91		Sandstone: Light grey, coarse grained with med. grained X-beds at 10 degrees to horiz. hard with only 3 breaks; worm casts in upper part.	
						END OF HOLE	

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GAMMA RESISTANCE DENSITY CALIPER

FILE NO.

COMPANY	QUINSAM COAL CORPORATION		
WELL	QU-01-07 7 SOUTH		
LOCATION	102153.273N 101605.527E		
FIELD	CAMPBELL RIVER		
PROVINCE	BRITISH COLUMBIA		

#876

LSD.	SEC.	TWP.	RGE.
W. M			
LSD.	SEC.	TWP.	
RGE.	W.		Other Services

Permanent Datum: GL	Elev. 250.315	Elev. KB.
Log Measured From: GL	Above Perm Datum:	CSG.
Well Depth Measured From:		G.L.

Run No.	ONE		
Date	12 09 01		
First Reading	83.70		
Last Reading	1.5		
Footage Logged	82.2		
Depth Reached	84.1		
Depth Driller	84.0		
Casing Electrolog	9.5		
Casing Driller			
Fluid Type	WATER		
Liquid Level	66.1		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-08-C
CO-ORDINATES : 101598.01 N. - 101432.68 E.
ELEVATION (metres): 278.7
DEVIATION (AT T.D.): 0.01 degrees
SLANT ANGLE BEARING: 239 degrees
DATE DRILLED: Sept. 13, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	3.7	Glacial Till, brown
3.7	8.2	Glacial Till, grey with cobbles
8.2	11.3	Sandstone, shaley
11.3	29.0	CORED: Sandstone, light grey
29.0	40.8	Sandstone; fractured w\ large chunks, water 35 gpm
40.8	41.2	Shale; coaly
41.2	45.0	CORED: COAL; No. 4 Seam;
45.0	47.1	CORED: Sandstone, light grey
47.1	54.9	Sandstone
54.9	55.2	COAL
55.2	69.5	Sandstone
69.5	70.1	COAL
70.1	70.5	CORED: Mudstone, coaly
70.5	71.0	CORED: COAL, No. 3 Seam
71.0	76.0	CORED: Mudstone
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-08-C**
CO-ORDINATES : 101598.01 N 101432.68 E
ELEVATION : 278.7 m.
LOGGED BY: J. McMillan
DATE : Sept. 18/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	11.28	14.25	2.97		2.89		
				1.20		Sandstone: Med. to dark grey; dark grey due to silty content; med to fine grained; visible quartz grains; contains a few wispy coal laminae at low angles to horiz. A few elongate rounded, lighter grey inclusions near top. Gradual irregular transition to next unit. Suggestion of bedding approx. 10 degrees to horiz.	
				1.69		Sandstone: Light grey; med. grained; hard, competent; 3 breaks; 1 brown-stained fracture near 70 degrees at base; bedding less than 10 degrees from horiz. except possible weak X-bedding in lower portion.	
2	14.25	17.07	2.82		2.67		
				1.03		Sandstone: Light grey; med. grained; hard, uniform; no fizz; 6 breaks; one yellow-brown stained joint at 70 degrees to core axis near top of unit. Joint at 40 degrees near base; weakly defined bedding at 15 degrees to horiz.	
				0.09		Siltstone: Med. to dark grey; fine grained; hard; broken on top contact; lower contact wavy at 45 degrees.	
				1.55		Sandstone: Similar to above except weakly broken zone near mid-section; 14 breaks; several joints at 25 degrees near top of section; wormy texture; possible worm casts for 0.6 m. near mid-section.	
3	17.07	20.04	2.97		2.96		
				0.80		Sandstone: Med. grey; med. grained, hard; strong fizz; carbonate lenses near base of section; slightly broken; occasional carbonate coatings on joints; joints at 10 to 45 degrees to horiz. Lower contact on near-horizontal joints planes.	
				2.16		Sandstone: Med. grained; massive with a few thin laminae; dark grey; silty near base of section; laminae at 5 to 10 degrees from horiz.; a few silty flecks and thin wisps; trace of wormy texture near top of section.	
4	20.04	23.01	2.97		2.96		
				2.96		Sandstone: Light grey; med. grained coarsening downward; uniform except irregular nearly horizontal 5 cm. silty dark grey layer near mid-section; weak fizz top part; and last 20 cm.; 10 breaks.	
5	23.01	25.98	2.97		2.95		
				2.95		Sandstone: Similar to above except possible weak X-bedding in bottom part of section; only a few thin wisps of organic matter in lower part of section; moderate fizz top 1/2; no or v. weak fizz in bottom; 14 breaks; several fractures 20 degrees and 50 degrees to horiz.	
6	25.98	28.95	2.97		2.87		
				2.87		Sandstone: Light grey; minor X-bedding; hard, no fizz; 20 breaks; 2 fractures, 40 and 60 degrees to horiz. DRILLED OUT TO TOP OF NO. 4 SEAM	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-08-C**
CO-ORDINATES : 101598.01 N 101432.68 E
ELEVATION : 278.7 m.
LOGGED BY: J. McMillan
DATE : Sept. 18/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
7	41.15	44.12	2.97		2.28		
				1.57		COAL: TOP OF SEAM DRILLED OUT; dull black with bright vitrinite showing on most breaks; some weathering due to groundwater movement; hard; bedding at 5 to 10 degrees from horizontal; 7 breaks on bedding planes; carbonate veinlets perpendicular and parallel to bedding; Occasional pyrite on cleats; Several broken zones to 15 cm.; one fracture at mid-section at 70 degrees to horiz.	
START	**SAMPLE**	**0801**					41.22
				0.02		Mudstone: Brownish grey; silty; medium hard; contacts on bedding at 5 degrees to horiz.	
				0.13		COAL: Black crystalline dull to bright; bedded at 3 to 5 degrees; lower contact at 10 degrees; abundant calcite veins cut bedding; 1 break.	43.28
				0.19		Mudstone: brownish grey; silty; med. hard; bedded at 5 to 12 degrees; 4cm highly pyritic at base; 10% thin coaly laminae parallel to bedding.	
				0.30		COAL: black, crystalline; dull surface appearance; uniform; occasional calcite veinlets parallel to bedding at approx. 10 degrees from horiz.	43.88
				0.04		Mudstone: dark brownish grey; silty, med. hard.	
				0.03		Sandstone: Med. grey; fine to med. grained; contains thin coal laminae; irregular contacts.	
				0.57		Siltstone: brownish to greenish grey; uniform; bedding less than 5 degrees to horiz.	
8	44.12	47.09	2.97		2.69		
				0.02		Sandstone: As above;	
				1.16		COAL: Bright, becoming dull down section; fairly competent at top becoming broken; 3 cm mudstone parting near mid-section; becomes dirtier downhole; frequently broken on bedding; horizontal bedding at top, steepening downhole; lower contact faulted at 60 degrees to horizontal.	
END	**SAMPLE**	**0801**					45.00
				1.43		Sandstone: Med. to light grey; uniform; lithic; hard; 5 breaks with minor brown staining; minor broken core on 1 joint.	
						DRILLED OUT TO NEXT COREPOINT...	
9	70.10	73.07	2.97		2.15		
				0.28		Mudstone: coaly, dull-bright; broken throughout; occasional muddy coatings on pieces; rubbly; 50% coaly.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-08-C**

CO-ORDINATES : 101598.01 N 101432.68 E

ELEVATION : 278.7 m.

LOGGED BY: J. McMillan

DATE : Sept. 18/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.08		Mudstone: Med. grey; silty; cut by fracture at 80 degrees to horiz.; broken contacts nearly horizontal.	
				0.37		COAL: NO. 3 SEAM; Dirty; very broken; some muddy coatings on rubbly pieces.	
	SAMPLE	**0802**		0.54		COAL: Med. hard; fairly bright; suggestion of bedding at 5 to 15 degrees to horizontal; a few breaks on planes parallel to bedding; a few breaks with muddy coatings; moderate fizz; no visible pyrite; slightly blocky.	
				0.15		Mudstone: Med. grey; medium hard; competent; contains a few coaly laminae; broken on contacts; 7 degrees to horiz.; no fizz.	
				0.15		COAL: Rubbly; suggestion of horiz. bedding; pyrite on cleats;	
				0.21		Mudstone: coaly; rubble; equidimensional pieces less than 1 cm.	
				0.37		Mudstone: Med. grey; silty; 60% small rubble and mud; major fault zone; occasionally coaly rubble; bottom 5 cm is solid piece.	
10	73.07	76.04	2.97		1.50		
				1.50		Mudstone: Silty becoming more muddy downhole; med. grey; med. hard becoming softer downhole; somewhat broken overall with fracture zone at 70 degrees from horiz. in mid-section; a few coaly laminae visible on breaks; 1 cm. coal near base.	
						END OF HOLE	

ELECTROLOG SERVICES INC.

2109 - 1 STREET N.W.
CALGARY, ALBERTA
(403)276-6459

GAMMA RESISTANCE DENSITY CALIPER

FILE NO.		
LSD.	COMPANY	QUINSAM COAL CORPORATION
SEC.	WELL	QU-01-08 7 SOUTH
TWP.	LOCATION	101598.007N 101432.679E
RGE.	FIELD	CAMPBELL RIVER
W. M	PROVINCE	BRITISH COLUMBIA

#876

LSD. SEC. TWP.
RGE. W.

Other Services
DIR.

Permanent Datum: GL Elev. 278.736
Log Measured From: GL Above Perm Datum:
Well Depth Measured From:

Elev. KB.
CSG.
G.L.

Run No.	ONE		
Date	14 09 01		
First Reading	75.5		
Last Reading	1.5		
Footage Logged	74.0		
Depth Reached	75.5		
Depth Driller	75.5		
Casing Electrolog	8.8		
Casing Driller			
Fluid Type	WATER		
Liquid Level	26.0		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

40.MM CALIPER 440.0
40 MM /DIV
0 GAMMA RAY 70

DEPTH

160 OHMS RESISTANCE 300 OHMS
1.2 G/CC DENSITY 2.7 G/CC

PULSE RUN # 8
13/09/01
02:33:11

QU-01-08

DEPTH: 70.50 TO 71.00 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-09-C
CO-ORDINATES : 102240.41 N. - 100707.84 E.
ELEVATION (metres): 296.7
DEVIATION (AT T.D.): 0.02 degrees
SLANT ANGLE BEARING: 81.4 degrees
DATE DRILLED: Sept. 21, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	0.6	Road Fill
0.6	6.1	Sandstone, red
6.1	37.8	Sandstone, grey
37.8	38.4	COAL
38.4	39.6	Shale
39.6	57.9	Sandstone
57.9	58.5	COAL
58.5	76.4	CORED: Sandstone, greenish near base
76.4	90.5	Sandstone
90.5	92.7	COAL
92.7	93.9	Shale
93.9	95.1	COAL
95.1	96.0	Shale
96.0	122.2	Sandstone
122.2	122.5	COAL
122.5	124.4	Shale
124.4	125.6	Shale, coaly
125.6	128.0	Sandstone, grey
128.0	143.3	Shale
143.3	144.2	Shale, coaly
144.2	146.3	Shale
146.3	149.3	CORED: COAL; No. 1 Seam interval
149.3	155.2	CORED: Siltstone, with minor mudstone near top;
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-09-C**
CO-ORDINATES : 102240.41 N 100707.84 E
ELEVATION : 296.7 m.
LOGGED BY: J. McMillan
DATE : Sept. 24/01

Core No.	CORED METRES: CORED From	To	Total	RECOVERED: Section	Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	58.52	61.49	2.97		2.91		
				0.41		Sandstone: Dark grey; med. to fine grained; a few coal laminae; nearly horizontal bedding; abundant carbonaceous debris as thin wisps; hard; 4 breaks; one rough-surfaced joint at 45 degrees to horiz.	
				1.20		Sandstone: Light grey; med. to fine grained; weakly bedded at near-horizontal; competent; 4 breaks; no fizz; moderately lithic.	90.46
				0.20		Sandstone: Dark grey; carbonaceous X-beds and a few thin coaly laminae; solid; weakly pyritic.	
				1.10		Sandstone: Med. to light grey; wisps of carbonaceous material decreasing downhole; hard; competent; 3 breaks; weakly pyritic; moderately lithic.	
2	61.49	64.47	2.98		2.97		
				2.97		Sandstone: Med. to light grey; massive; v. weakly bedded; near-horizontal bedding with thin tan coloured laminae; traces of X-bedding; no fizz except very weak near base; hard; 10 breaks.	
3	64.47	67.44	2.97		2.97		
				2.97		Sandstone: Med. to light grey; Med. grained coarsening downward with coarse, silty pebbles and one angular siltstone inclusion 3 cm in diameter near base. Nearly horizontal weak bedding, with some weak X-bedding; with lithic-rich thin laminae; 12 breaks; weak fizz developing downhole; hard.	
4	67.44	70.41	2.97		2.97		
				2.97		Sandstone: Light grey; med. to coarse grained; lithic; hard; few breaks on bedding planes; 19 breaks; nearly horizontal bedding with some X-bedding at low angles; several v. coarse layers, one with cherty pebbles near top of section; moderate to good fizz; one joint at 60 degrees to horiz.	
4A	70.41	73.38	2.97		2.97		
				2.49		Sandstone: Med. grey to tan; med. grained; moderately lithic; uniform; hard; appears massive with occasional weak bedding nearly horizontal ; 12 breaks; several rough-surfaced joints at 25 to 40 degrees to horiz.; 1 angular siltstone fragment several cm. in diameter; weak fizz.	
				0.09		Sandstone: Greenish grey; thin dark grey bands; very hard; solid.	
				0.40		Sandstone: Med. greyish green; massive; very hard; 1 break; 1 light green band toward mid-unit; Unit is fine grained and may be mistaken for volcanic basement in short section.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-09-C**
CO-ORDINATES : 102240.41 N 100707.84 E
ELEVATION : 296.7 m.
LOGGED BY: J. McMillan
DATE : Sept. 24/01

Core No.	CORED METRES From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
4B	73.38	76.35	2.97		2.91		
				0.90		Sandstone: Med. green; fine grained, very hard; 6 breaks; one rough joint 80 degrees to horiz. for 20 cm. Top 20cm of unit contains thin brown grey horizontal beds confirming sandstone origin. Good Fizz.	
				2.01		Sandstone: Med. light grey tan; med. to coarse grained; hard; 8 breaks on bedding; nearly horizontal bedding; occasional dark siltstone grains; weak bedding; weak fizz;	
						HOLE DEEPENED BY DRILLING	
5	146.30	149.27	2.97		1.97		147.29
	SAMPLE	**0901**		0.30		COAL: TOP OF NO. 1 RIDER SEAM; Dull to bright; hard; broken section; possible shearing at low angles to horiz.; pyrite on cleats; calcite veinlets cross-cutting laminae; broken at lower contact.	147.88
	SAMPLE	**0902**		0.38		Mudstone: Med. brown to grey; silty; med. hard; broken becoming rubbly near base; broken lower contact on 6 cm piece of solid core.	
	SAMPLE	**0902**		0.10		Mudstone: 20% coaly; coarse to fine rubble.	
	SAMPLE	**0902**		0.09		Mudstone: Grey; med. hard; lower contact on rough surface slip plane at 20 degrees to horiz.	148.90
	SAMPLE	**0903**		1.10		COAL: TOP OF NO. 1 SEAM; Dull to shiny; fairly clean; bright vitrinite bands; blocky; bedding 0 - 5 degrees; frequent breaks on bedding planes; patchy calcite veinlets usually parallel to cleats; minor broken zone of 1 to 3 cm at base; BASE of NO. SEAM.	150.82
6	149.27	152.24	2.97		2.42		
				0.20		Mudstone: coaly; rubble zone; coaly on bedding planes.	
				2.22		Siltstone: Brownish grey, muddy at top of unit becoming silty greenish grey within 0.30 m.; hard; several mud-coated slips from horiz. to 45 degrees; uniform with several large siliceous concretions; rimmed with magnetite?; weak, nearly horizontal bedding.	
7	152.24	155.20	2.97		2.97		
				1.44		Siltstone: Patchy green to brown-grey; muddy to silty; uniform; 6 breaks; weak, nearly horizontal bedding; broken zone 10cm thick near lower contact, one coal laminae 1 cm thick 10 degrees from horizontal at base of broken zone.	
				0.10		Siltstone: Coaly; 30% thin bright vitrinite laminae; slight broken.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-09-C**
CO-ORDINATES : 102240.41 N 100707.84 E
ELEVATION : 296.7 m.
LOGGED BY: J. McMillan
DATE : Sept. 24/01

Core No.	CORED METRES					GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
				1.43		Siltstone: Muddy becoming silty downhole; uniform; competent; 2 breaks; small silty concretions within silty portion; no fizz.	
						END OF HOLE	

ELECTROLOG SERVICES INC.
2109 - 1 STREET N.W.
CALGARY, ALBERTA
(403)276-6459
FILE NO.

GAMMA RESISTANCE DENSITY CALIPER

#876

COMPANY	QUINSAM COAL CORPORATION
WELL	QU-01-09 7 SOUTH
LOCATION	102240.411N 100707.836E
FIELD	CAMPBELL RIVER
PROVINCE	BRITISH COLUMBIA

LSD. SEC. TWP. RGE. W. M

LSD. SEC. TWP. RGE. W.

Other Services

Permanent Datum: GL Elev. 286.67
Log Measured From: GL Above Perm Datum:
Well Depth Measured From:

Elev. KB.
CSG.
G.L.

Run No.	ONE		
Date	01 10 01		
First Reading	152.5		
Last Reading	1.5		
Footage Logged	151.0		
Depth Reached	152.5		
Depth Driller	155.2		
Casing Electrolog	2.4		
Casing Driller			
Fluid Type	WATER		
Liquid Level	26.0		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

40.MM CALIPER 440.0	40 MM /DIV		70 OHMS RESISTANCE 170 OHMS	
0 GAMMA RAY 70		DEPTH	1.2 G/CC DENSITY 2.7 G/CC	

PULSE RUN # 12
01/10/01
02:33:11

QU-01-09

DEPTH: 149.50 TO 150.00 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-10-C
CO-ORDINATES : 101984.74 N. - 100744.97 E.
ELEVATION (metres): 304.3
DEVIATION (AT T.D.): 0.01 degrees
SLANT ANGLE BEARING: 239 degrees
DATE DRILLED: Sept. 20, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	1.8	Glacial Till, brown, with boulders
1.8	5.2	Glacial Till, grey, with boulders
5.2	32.0	Sandstone, reddish layers
32.0	51.8	Sandstone, grey
51.8	52.7	Shale, coaly
52.7	54.0	Shale
54.0	70.1	Sandstone
70.1	71.0	Shale, coaly
71.0	72.2	Sandstone
72.2	73.2	Shale
73.2	76.2	Sandstone, fracture zone; 10 gpm water
76.2	85.3	Sandstone, hard
85.3	87.5	Sandstone, green
87.5	93.0	Sandstone, white
93.0	98.5	Sandstone, green
98.5	99.1	Shale, coaly
99.1	100.6	Shale
100.6	101.2	CORED: COAL, No. 3 Seam
101.2	107.6	CORED: Mudstone, minor coal bands
107.6	112.5	CORED: Sandstone
112.5	131.7	Sandstone
131.7	132.6	Shale, coaly
132.6	134.1	Shale
134.1	151.8	Sandstone
151.8	152.4	Shale
152.4	154.9	CORED: Mudstone
154.9	158.6	CORED: COAL, No. 1 Seam interval
158.6	164.3	CORED: Mudstone, siltstone at base
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-10-C**
CO-ORDINATES : 101984.74 N 100744.97 E
ELEVATION : 304.3 m.
LOGGED BY: J. McMillan
DATE : Sept. 21/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	100.58	103.55	2.97		2.97		100.42
				0.52		COAL: NO. 3 SEAM: Coring started within seam; bright; high lustre on cleats; fairly clean; hard; 8 cm broken zone in mid-section; otherwise 4 breaks on bedding planes at 7 degrees from horizontal; lower contact on nearly-horizontal bedding plane; patchy calcareous veinlets both horiz. and vertical; occasional pyrite on cleats; brown staining on core near top.	
				0.03		Mudstone: Greyish brown; thin-bedded nearly horiz.; med. hard.	
				0.10		Mudstone: 30% coaly; irregular coal laminae; coal bedding at 3 degrees to horizontal.	
				2.32		Mudstone: occasional variable thin siltstone laminae 20% in patchy zones; med. brownish grey; med. hard to hard; 12 breaks; bedding at 3 to 7 degrees from horiz.; variable coal laminae and stringers to 1 cm. thick; 5% coaly; no fizz.	
2	103.55	106.52	2.97		2.97		
				0.26		Mudstone: med. greyish brown; uniform; hard; no breaks except on lower contact; horiz. bedding.	
				0.14		COAL: dull with thin bright laminae; bedding planes at 5 degrees to horizontal.	
				0.31		Mudstone: 50% coaly; bright vitrinite laminae at 5 degrees to horiz.; with calcite veinlets; pyrite on cleats;	
				2.23		Mudstone: med. dark greyish brown; hard; competent; contains frequent silty interbeds; 11 breaks; upper contact gradational, thin-bedded at 3 to 10 degrees from horizontal; minor slumping near several large concretionary forms; occasional thin coal laminae and wisps, increasing near lower contact.	
				0.03		Mudstone: 20% coaly with thin laminae; dark brown; bedding at 5 degrees to horizontal.	
3	106.52	109.49	2.97		2.87		
				0.09		Mudstone: 50% coaly; thin vitrinite bands; bedding at 0 to 10 degrees to horizontal.	
				0.04		COAL: dull to bright; blocky; contains calcite and several thin silty laminae.	
				0.31		Siltstone: Med. brownish grey; with fine sandy laminae; fine quartz grains; contains thin coal laminae; wavy bedding to 10 degrees to horizontal; hard and competent. Elongate sandy inclusions near base.	
				0.13		Siltstone: 50% coaly; with bright vitrinite bands; hard; solid; bedding at 8 degrees to horizontal.	
				0.38		COAL: Bright, lustrous; possibly re-heated; solid; hard; bedding at 5 degrees to horiz.; occasional calcite veinlets and pyrite on cleats.	
				0.12		Mudstone: 10% coaly laminae.	
				1.19		Siltstone: Med. brownish grey; uniform; hard; 8 breaks; upper contact sharp on coal laminae; lower contact transitional; bedding at 5 degrees to horizontal; 5% wispy coal lenses to 1 cm thick and sub-parallel to bedding.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

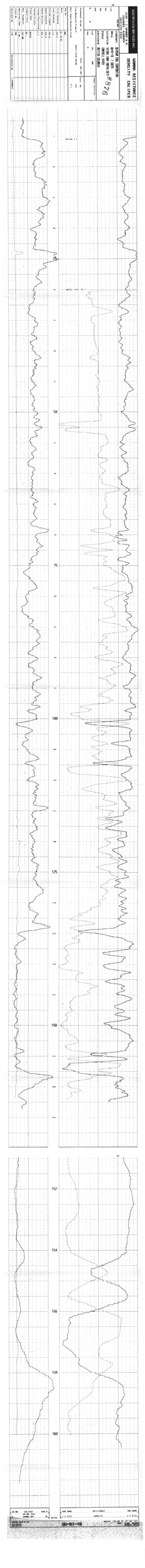
HOLE NUMBER : **QU-01-10-C**
CO-ORDINATES : 101984.74 N 100744.97 E
ELEVATION : 304.3 m.
LOGGED BY: J. McMillan
DATE : Sept. 21/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.61		Sandstone: Med to light grey; fine grained; quartz rich; wavy silty lense-like intrusions decreasing downhole; hard; competent; a few hairline coal stringers, one with pyrite rimming.	
4	109.49	112.46	2.97		2.93		
				0.96		Sandstone: light grey; med to fine grained; uniform, massive appearance; 1 break; hard; wavy lower contact nearly horizontal.	
				1.33		Siltstone: Med. brownish grey; muddy; hard; uniform; thin-bedded; nearly horizontal bedding; competent; only 4 breaks; a few thin coal laminae increasing downhole.	
				0.31		Mudstone: 50% coaly; vitrinite laminae to 1 cm thick; bedding at 7 degrees to horizontal.	
				0.33		Sandstone: med. grey; hard; becoming more lithic; massive; competent; a few thin coal lenses near top.	
						DRILLED OUT TO NEXT COREPOINT.	
6	152.40	155.37	2.97		2.92		
				2.27		Mudstone: muddy with irregular buff-coloured calcareous concretions; med. brownish grey; uniform; competent; 10 breaks; lower contact nearly horizontal on bedding planes; a few thin coaly laminae indicating some slumping to 20 degrees; slightly coaly near base; main bedding nearly horizontal.	
				0.17		Mudstone: 40% coaly; thin vitrinite laminae from horiz. to 5 degrees dip; several muddy pyritic laminae near base; competent (1 break).	
				0.04		Mudstone: Med. grey; med. hard; broken at lower contact; several coal stringers; bedding at 5 degrees to horizontal.	
	SAMPLE	1001		0.06		COAL: TOP OF NO. 1 RIDER SEAM; dirty section with bright vitrinite laminae; a few thin elongate mudstone/pyrite inclusions.	
	SAMPLE	1001		0.38		COAL: Bright, blocky, solid; hard; pyrite on cleats and as coatings on leaf imprints; 2 breaks; 5 cm broken section near top.	
7	155.37	158.34	2.97		2.92		
	SAMPLE	1001		0.09		COAL: Bright, solid; pyritic; irregular contact at base cuts nearly horizontal strata at approx. 10 degrees.	155.00
	SAMPLE	1002		0.03		Mudstone: Grey; med. hard; lower contact nearly horizontal on bedding plane slip.	
	SAMPLE	1002		0.01		COAL: Bright, solid; lower contact on horizontal slip plane on bedding.	
	SAMPLE	1002		0.09		Mudstone: 40% coaly; with bright thin coal laminae; 2 breaks at 7 degrees to horizontal.	
	SAMPLE	1002		0.35		Mudstone: Med. brownish grey; silty near top; competent; 2 breaks; several coal streaks rimmed with carbonate; hard.	
	SAMPLE	1002		0.17		Mudstone: 20% coaly with thin coal laminae; 1 break.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-10-C**
CO-ORDINATES : 101984.74 N 100744.97 E
ELEVATION : 304.3 m.
LOGGED BY: J. McMillan
DATE : Sept. 21/01

Core No.	CORED METRES: CORED From	To	Total	RECOVERED: Section	Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
	SAMPLE	**1002**		0.22		Mudstone: As above; lower contact on bedding plane slip at 7 degrees to horizontal.	155.91
	SAMPLE	**1003**		1.45		COAL: NO. 1 COAL SEAM; Bright, solid, hard, horiz. and vertical calcite veinlets more numerous near top; vitrinite bands within several degrees of horizontal. Crushed section 15 cm at base and saturated with mud from below; only 2 breaks above crushed zone.	
	SAMPLE	**1003**		0.06		Mud: Brown; soft; some clay;	
	SAMPLE	**1003**		0.43		COAL: Bright, hard; fairly solid; slip plane at 50 degrees near top of section; becomes slightly broken at base with thin mudstone inclusion; contains carbonate veinlets near top of section; no pyrite visible. 2.24 m thickness measured in core barrel.	
8	158.34	161.31	2.97		2.85		
	SAMPLE	**1003**		0.21		COAL: As above; broken on lower contact; BASE of NO. 1 SEAM	158.08
				0.13		Mudstone: coaly; brownish grey with horizontal vitrinite laminae; several horizontal breaks.	
				0.40		Siltstone: Silty becoming muddy downhole; hard; nearly horizontal bedding; competent; rare thin coal laminae.	
				2.11		Mudstone: Med. brownish grey; med. hard; weakly sheared; bedding nearly horizontal; several slickensided zones near mid-section; breaks every 10cm.; 35 degree slip near base.	
9	161.31	164.28	2.97		2.87		
				2.13		Mudstone: Med. brownish grey; med. hard; contains a few silty beds and 1 large silty inclusion; weakly sheared; 23 breaks; bedding nearly horizontal; some slumping noted; occasional coal stringers and laminae up to 2 cm thick. no fizz.	
				0.74		Siltstone: med. greenish grey; uniform; hard; 1 break; upper contact at 20 degrees to horiz. indistinct bedding; irregular siliceous concretionary forms.	
						END OF HOLE	



QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-11-C
CO-ORDINATES : 101984.89 N. - 100451.30 E.
ELEVATION (metres): 294.2
DEVIATION (AT T.D.): 0 degrees
SLANT ANGLE BEARING: N/A
DATE DRILLED: Sept. 23, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	0.6	Topsoil
0.6	9.1	Sandstone
9.1	13.1	Shale
13.1	28.7	Sandstone
28.7	29.0	COAL
29.0	38.1	Sandstone
38.1	59.1	Sandstone
59.1	59.4	COAL
59.4	59.7	Shale
59.7	61.6	COAL
61.6	61.9	Shale
61.9	62.2	COAL
62.2	64.9	Shale, coaly
64.9	65.5	Shale
65.5	71.3	Sandstone
71.3	71.9	COAL
71.9	94.5	Sandstone
94.5	94.8	COAL
94.8	95.1	Shale
95.1	96.9	Sandstone
96.9	98.2	Shale, coaly
98.2	114.8	CORED: Siltstone, minor mudstone
114.8	118.4	CORED: COAL, No. 1 Seam interval
118.4	124.9	CORED: Mudstone, siltstone at base
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

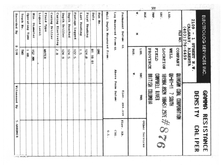
HOLE NUMBER : **QU-01-11-C**
CO-ORDINATES : 101984.89 N 100451.30 E
ELEVATION : 294.2 m.
LOGGED BY: J. McMillan
DATE : Sept. 24/01

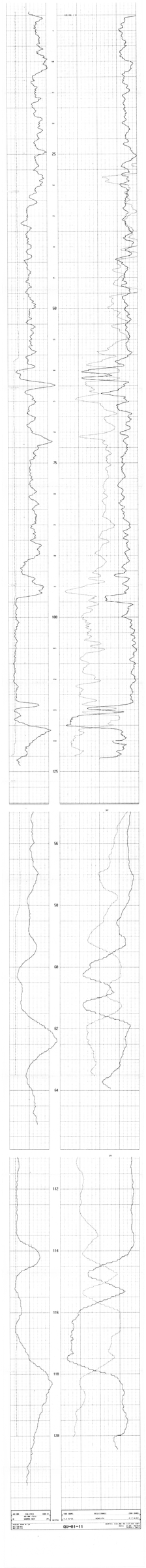
Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	98.15	101.12	2.97		2.97		
				2.97		Mudstone: Med. brownish grey; muddy with fine silty laminae; uniform; med. hard; breaks every 10 cm.; weak, nearly horizontal bedding; patchy, irregular coal lenses up to 2 cm thick; fine calcite veinlets within coal lenses; a few larger concretionary forms with weak fizz;	
2	101.12	104.09	2.97		2.97		
				0.45		Mudstone: med. greyish brown; similar to above unit; gradationaly lower contact.	
				2.52		Siltstone: Greenish grey with irregular buff patches; somewhat muddy becoming silty downhole; hard; breaks every 10 to 30 cm; weak, nearly horizontal bedding; a few wispy coal stringers; no fizz.	
3	104.09	107.06	2.97		2.97		
				2.97		Siltstone: tan to greenish grey; med to coarse silt; thin-bedded; nearly horizontal bedding; wavy coarse and fine layers; abundant concretionary material; 10 breaks; med. fizz on concretions; several coal stringers; occasional fine sandy beds.	
4	107.06	110.03	2.97		2.97		
				2.97		Siltstone: Same as above; one coal stringer; 15 breaks.	
5	110.03	113.00	2.97		2.97		
				2.97		Siltstone: Same as above; some coal stringers; 12 breaks; muddy near base.	
6	113.00	115.97	2.97		2.95		
				1.66		Mudstone: Med. brownish-grey; fine silty laminae decreasing downhole; med. hard; 5% coaly laminae with nearly horizontal bedding; a few calcite laminae; 10 breaks;	
				0.18		Mudstone: 25% coaly; med. hard; bright thin coal laminae, a few rimmed with calcite; coal lenses from horizontal to 5 degrees; broken on lower contact.	114.38
	SAMPLE	1101		0.62		COAL: NO. 1 RIDER SEAM; Dull to bright; uniform; weaky sheared parallel to bedding planes; bedding nearly horizontal; 7 breaks; occasional pyrite disseminated along bedding; a few calcite veinlets; sharp lower contact at 3 degrees to horizontal.	
	SAMPLE	1102		0.09		Mudstone: 20% Coaly; Dark brown; med. hard.	
	SAMPLE	1102		0.40		Mudstone: Med. brownish grey; occasional coaly laminae; nearly horizontal bedding; some calcite; med. hard; 5 breaks; broken at contacts.	
7	115.97	118.95	2.97		2.79		
	SAMPLE	1102		0.02		Mudstone: Broken on horizontal lower contact.	
	SAMPLE	1103		1.35		COAL: NO. 1 SEAM; bright to dull; clean, uniform; fairly solid; hard; abundant calcite on cleats and parallel to bedding; bedding nearly horizontal; 17 breaks on bedding; 1 break on vertical cleat, pyrite coating noted on one bedding plane.	
	SAMPLE	1103		0.12		COAL: Bright to dull flakes; minor mud mixed with finely crushed coal in broken zone; nearly horizontal contacts.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-11-C**
CO-ORDINATES : 101984.89 N 100451.30 E
ELEVATION : 294.2 m.
LOGGED BY: J. McMillan
DATE : Sept. 24/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
	SAMPLE	**1103**		0.77		COAL: Bright to dull; solid, hard; nearly horizontal bedding; calcite stringers; lower contact soft and muddy; a few specks of amber; a few thin dirty laminae near base.	117.82
				0.07		Mudstone: 20% coaly; with thin bedded horizontal laminae; med. hard.	
				0.46		Mudstone: Brown grey; med. hard; uniform; horizontal breaks on upper and lower contact; occasional thin coaly lenses; one slickenside at 20 degrees to horizontal; horizontal bedding; 3 breaks.	
8	118.95	121.92	2.97		2.92		
				2.92		Mudstone: Med. brownish grey; uniform; occasional fine silt; med. hard to hard; several weakly broken sections 10 cm in length; with slickensides on most breaks; 14 breaks; nearly horizontal bedding; a few thin coal stringers and lenses sub-parallel to and cross-cutting the bedding; no fizz.	
9	121.92	124.89	2.97		2.97		
				0.54		Mudstone: Brownish grey; med. hard; nearly horizontal bedding; 7 breaks; minor broken core on breaks; 5 to 10 % thin coaly laminae.	
				2.43		Siltstone: Med. greenish grey; with mudstone layers to 10 cm thick; some coaly laminae; 11 breaks on nearly horizontal bedding; a few concretions within silty zones; weak to moderate fizz on concretions;	
						END OF HOLE	





QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-12-C
CO-ORDINATES : 102093.77 N. - 100122.37 E.
ELEVATION (metres): 303.7
DEVIATION (AT T.D.): 0.04 degrees
SLANT ANGLE BEARING: 251.4 degrees
DATE DRILLED: Sept. 24, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	62.2	Glacial Till, grey, with boulders
62.2	73.2	Sandstone
73.2	73.5	Shale
73.5	74.1	COAL
74.1	82.3	Shale
82.3	81.4	Sandstone
81.4	94.5	Shale
94.5	98.1	CORED: COAL, No. 1 Seam interval
98.1	102.2	CORED: Mudstone, minor siltstone
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-12-C**
CO-ORDINATES : 102093.77 N 100122.37 E
ELEVATION : 303.7 m.
LOGGED BY: J. McMillan
DATE : Sept. 25/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	94.49	96.24	1.75		1.55		94.45
	SAMPLE	**1201**		0.53		COAL: NO. 1 RIDER SEAM; Bright to dull; a few thin muddy laminae towards base; hard; solid; 1 break; sharp lower contact broken on bedding plane; bedding at 3 degrees to horizontal; a few thin calcite stringers parallel to bedding; moderate pyrite on cleats and in laminae; a few specks of amber.	95.03
	SAMPLE	**1202**		0.31		Mudstone: Med. grey; uniform; med. hard; 2 breaks on several coaly laminae in middle; bedding nearly horizontal.	95.34
	SAMPLE	**1203**		0.71		COAL: NO. 1 SEAM: Bright and dull sections; fairly clean; solid; 4 breaks on bedding planes; bedding nearly horizontal to 5 degrees; a few calcite veinlets parallel to bedding; some pyrite as coating on cleat surfaces and small lenses parallel to bedding.	
2	96.24	99.21	2.97		2.57		
	SAMPLE	**1203**		1.23		COAL: increasing dullness downhole; hard becoming med. hard; partly broken near top of unit; several minor rubbly zones with near-horizontal breaks on bedding; 3 slip planes at 45 degrees in lower part of unit; patchy thin calcite veinlets.	
	SAMPLE	**1203**		0.09		Mudstone: Grey; 10% coaly, with thin laminae; lower contact 10 degrees to horizontal;	
	SAMPLE	**1203**		0.16		COAL: Dull with thin bright laminae; med. hard; cut by several slips at 30 degrees to horizontal; solid on lower contact; lower contact approx. horizontal;	97.71
3	99.21	102.18	2.97		2.64		
				0.56		Mudstone: Med. brownish grey; somewhat broken (7 breaks); several slickensides; possible silicified shell debris, some in near-horizontal layer; med. hard; several thin coal laminae;	
				0.98		Siltstone: Med. greenish grey; a few patchy tan concretions; 1 is calcareous and hard; 4 breaks; weak, nearly horizontal bedding.	
				0.07		Mudstone: Med. brownish grey; thin-bedded; nearly horizontal bedding.	
				0.23		Mudstone: Coaly; broken with 1 cm muddy gouge nearly horizontal; 25% coaly.	
				0.66		Mudstone: Brownish grey; nearly horizontal laminae; uniform; 1 break; a few thin coal stringers parallel to bedding.	
				0.07		Mudstone: 50% coaly; with thin coaly laminae; 1 break on bedding at 7 degrees to horizontal.	
				0.07		Mudstone: 15% coaly laminae and lenses; bedding horizontal to 5 degrees.	
						END OF HOLE	

ELECTROLOG SERVICES INC.

2109 - 1 STREET N.W.
CALGARY, ALBERTA
(403)276-6459

GAMMA RESISTANCE DENSITY CALIPER

FILE NO.		
LSD.	COMPANY	QUINSAM COAL CORPORATION
SEC.	WELL	QU-01-12 7 SOUTH
TWP.	LOCATION	102093.774N 100120.366E
RGE.	FIELD	CAMPBELL RIVER
W. M	PROVINCE	BRITISH COLUMBIA

#876

LSD. SEC. TWP.
RGE. W.

Other Services

Permanent Datum: GL — Elev. 303.714 — Elev. KB.
Log Measured From: GL — Above Perm Datum: — CSG.
Well Depth Measured From: — G.L.

Run No.	ONE		
Date	01 10 01		
First Reading	101.5		
Last Reading	1.5		
Footage Logged	100.0		
Depth Reached	102.0		
Depth Driller	102.2		
Casing Electrolog	62.3		
Casing Driller			
Fluid Type	WATER		
Liquid Level	41.1		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

40.MM CALIPER 440.0
40 MM /DIV
0 GAMMA RAY 70

DEPTH

50 OHMS RESISTANCE 80 OHMS
1.2 G/CC DENSITY 2.7 G/CC

PULSE RUN # 15
01/10/01
02:33:11

QU-01-12

DEPTH: 96.00 TO 97.00 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-13-C
CO-ORDINATES : 101737.35 N. - 100785.37 E.
ELEVATION (metres): 306.1
DEVIATION (AT T.D.): 1.87 degrees
SLANT ANGLE BEARING: 191.8 degrees
DATE DRILLED: Sept. 27, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	5.5	Glacial Till, brown
5.5	12.5	Glacial Till, grey, with boulders
12.5	36.6	Sandstone, grey, soft
36.6	40.2	Sandstone, green, hard
40.2	61.9	Sandstone, grey
61.9	62.5	Shale
62.5	79.6	Sandstone, grey
79.6	81.4	Shale, coaly
81.4	97.8	Sandstone, grey
97.8	106.7	Sandstone, green, hard
106.7	111.3	Sandstone, grey
111.3	113.9	CORED: Sandstone
113.9	114.6	CORED: Mudstone, minor coal stringers
114.6	120.2	CORED: COAL; minor mudstones and siltstones
120.2	121.9	Shale
121.9	140.8	Sandstone, grey
140.8	141.4	COAL
141.4	145.1	Shale, coaly
145.1	153.9	Sandstone, grey, fine
153.9	164.3	Sandstone, green, hard
164.3	166.3	CORED: COAL, No. 1 Seam interval
166.3	173.2	CORED: Mudstone, minor sandstone and siltstone
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-13-C**
CO-ORDINATES : 101737.35 N 100785.37 E
ELEVATION : 306.1 m.
LOGGED BY: J. McMillan
DATE : Sept. 27/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	111.25	114.22	2.97		2.97		
				0.63		Sandstone: Light tan grey; med. grained, with coarse interbeds; hard; solid core; well bedded with darker fine beds at 10 degrees to horizontal; lithic; a few coarse siltstone grains; good fizz.	
				1.59		Sandstone: Med. tan grey; becomes more quartz rich downhole; medium to coarse grained; occasional X-beds on dark slump lines; hard to v. hard; 6 breaks near horizontal; moderate to well-bedded by colour and grain size; bedding at 10 degrees to horizontal becoming nearly horizontal near base; variable fizz.	
				0.46		Sandstone: Med. grey; fine grained; thin, wispy sub-horizontal organic lenses; occasional pyrite; horizontal lower contact rimmed by wavy 1 cm pyrite bed; 1 break; slump feature near top of unit.	113.64
				0.14		COAL: Solid, bright; nearly horizontal bedding; v. thin cross-cutting calcite veinlets on cleats; horizontal break on lower contact.	
				0.15		Mudstone: brownish grey; horizontal bedding; med. hard; 5% coaly, in lenses parallel to bedding.	
2	114.22	117.19	2.97		2.60		
				0.41		Mudstone: Brownish grey; becomes more silty towards base of unit; thin-bedded; med. hard; slightly broken sub-parallel to bedding planes; nearly horizontal bedding; a few thin coal laminae.	114.60
	SAMPLE	**1301**		1.03		COAL: NO. 3 SEAM; Bright, blocky; weakly broken on near-vertica slip 0.45 m. long runs through middle of unit; nearly horizontal bright and dull bedding; pyrite grains and on cleat coatings.	
	SAMPLE	**1301**		0.02		PYRITE bed; layered appearance; dull.	
	SAMPLE	**1301**		0.46		COAL: Bright to dull; slightly dirty due to thin muddy laminae; med. hard; weakly sheared parallel to horizontal bedding (esp. 10cm portion 0.1 m from lower contact); sharp lower contact at 3 degrees to horizontal; thin calcite laminae near base.	116.29
				0.16		Mudstone: coaly; dark brown; 15% coaly; transition unit.	
				0.53		Mudstone: Brownish grey; fine, silty laminae near base; med. hard to hard; bedding at 3 degrees to horizontal; a few thin coal laminae; occasional disseminated pyrite grains along bedding planes.	
3	117.19	120.16	2.97		2.98		
				0.45		Mudstone: Med. brownish grey; fine silty laminae; hard; competent; sharp lower contact with nearly horizontal bedding; a few thin coal laminae; several pyrite lenses 0.5 X 3cm near base.	
				0.24		COAL: Bright, horizontal laminae with 35% mudstone interbeds containing pyrite lenses, 1 pyrite laminae to 2 cm thick near base.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-13-C**
CO-ORDINATES : 101737.35 N 100785.37 E
ELEVATION : 306.1 m.
LOGGED BY: J. McMillan
DATE : Sept. 27/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.04		Siltstone: Brownish; muddy;	
				0.23		Sandstone: Med. grey; fine grained; coarsening downward; wispy organic lenses sub-parallel to weak horizontal bedding.	
				0.40		COAL: Bright becoming dull at base; 3 breaks on bedding planes; hard; bedding horizontal to 3 degrees; several pyrite lenses, 1 to 2 cm thick; thin calcite on cleats.	
				0.13		Mudstone: 60% coaly laminae; bright coal; slickensides at lower contact.	
				0.11		COAL: Dirty with bright laminae; solid; calcite veinlets near base.	
				0.44		Siltstone: Med. to light brownish grey; med. hard to hard; occasionally muddy; a few coal lenses; several pyritic lenses; competent with 2 breaks; weak fizz.	
				0.92		Mudstone: Med to dark brownish grey; becoming more silty near base; med. hard to hard; nearly horizontal bedding; 4 breaks; occasional coal laminae (increasing where muddy); occasional thin pyrite coatings on bedding planes in lowe part of unit.	
						DRILLED DOWN TO NEXT COREPOINT...	
4	164.29	167.26	2.97		1.79		163.50
				0.04		COAL: NO. 1 SEAM; 50% coaly, with mudstone; broken, flaggy pieces at top of run. LOST CORE AT TOP OF RUN.	
				0.23		COAL: Dull to bright; 1 solid piece, with 7 cm blocky rubble; hard; 1 dull bed nearly horizontal; a few disseminated pyrite grains; calcite on cleats near right angles to bedding.	
				0.24		Mudstone: Grey; med. hard; variably broken; rubbly in box; with slickensided surfaces; broken on lower contact.	
				0.35		COAL: Dull to bright; solid; hard; breaks along cleats and 45 degree joints; 4 breaks; faulted on lower contact; horizontal; no visible pyrite; base of No. 1 Seam.	
				0.21		Mudstone: Med. to dark grey; soft; broken rubble with small flakes of mudstone; 10% coaly; 4 cm fault gouge mud; nearly horizontal bedding; wet.	
				0.30		Mudstone: Grey; med. hard; med. to coarse rubble; smooth slickensided surfaces; 10 % coaly.	
				0.42		Mudstone: Grey; med. hard; 5 breaks and minor rubble; bedding less than 5 degrees to horizontal; 5% coaly laminae.	
5	167.26	170.23	2.97		2.82		

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-13-C**
CO-ORDINATES : 101737.35 N 100785.37 E
ELEVATION : 306.1 m.
LOGGED BY: J. McMillan
DATE : Sept. 27/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				1.02		Siltstone: Med. grey; slightly muddy; relatively featureless; several coal lenses and slickensides near top; 5 breaks; no fizz.	
				1.80		Mudstone: Brownish grey; med. hard; uniform; 16 breaks; bedding nearly horizontal; a few coal lenses on bedding planes and 45 degree joints; minor calcite veinlets.	
6	170.23	173.20	2.97		2.91		
				0.33		Mudstone: Med. brownish-grey; similar to above; broken; flaggy with slickensides near base; 1 cm coal laminae at base.	
				0.30		Siltstone: Med. grey; hard; muddy; coarsening downwards; weak, nearly horizontal bedding; no fizz.	
				0.30		Sandstone: Med. grey; med. to coarse grained; abundant dark siltstone grains; solid; irregular transitional contacts.	
				1.98		Mudstone: Med. brownish grey; several silty zones, med. hard to hard where silty; uniform; several slickensides; 13 breaks; increasing breaks and a few coal laminae near base; horizontal bedding.	
						END OF HOLE	

ELECTROLOG SERVICES INC.
2109 - 1 STREET N.W.
CALGARY, ALBERTA
(403)276-6459

GAMMA RESISTANCE DENSITY CALIPER

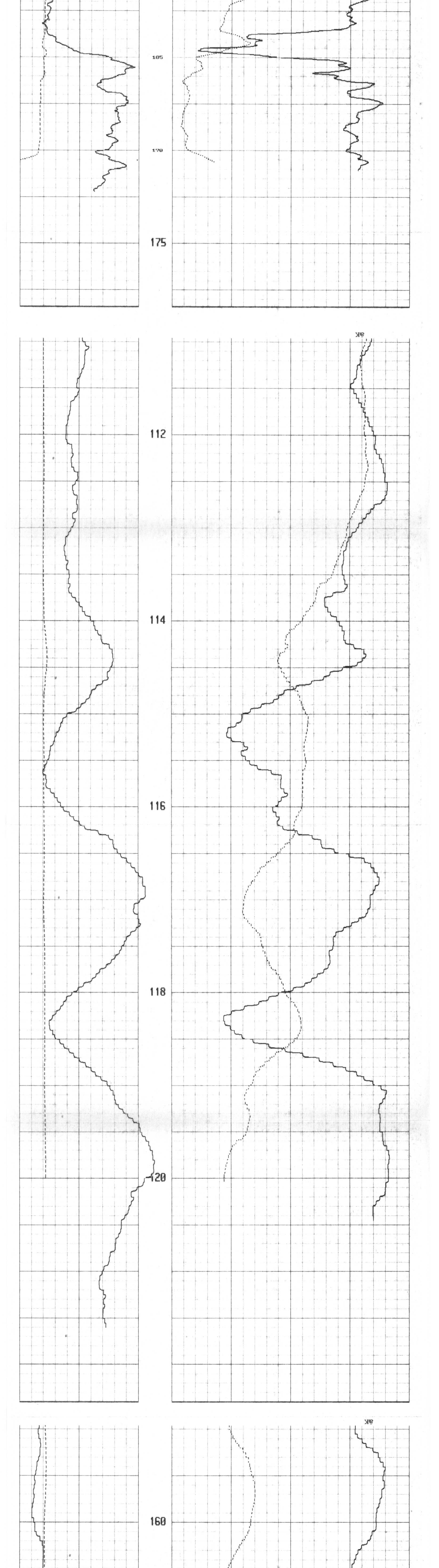
FILE NO. #876

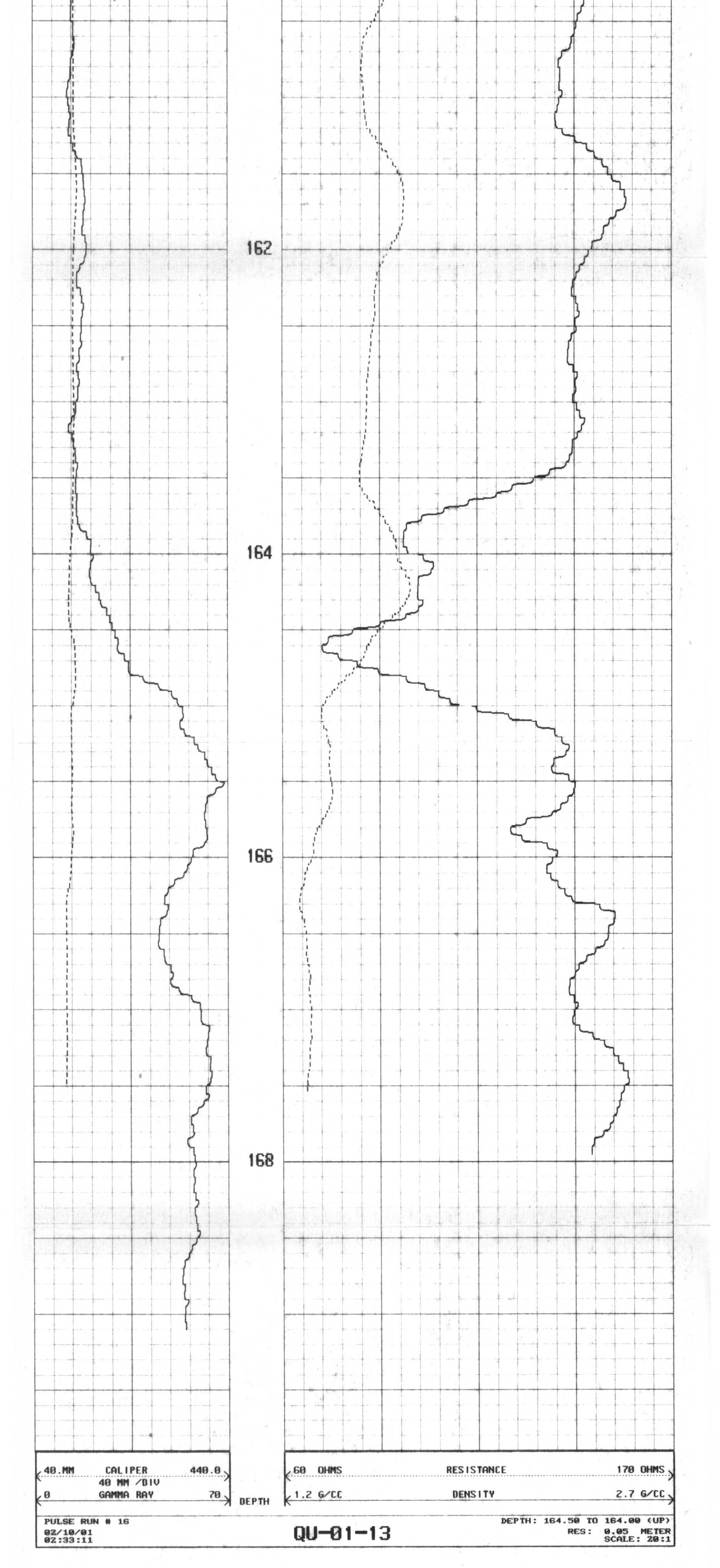
COMPANY	QUINSAM COAL CORPORATION
WELL	QU-01-13 7 SOUTH
LOCATION	10727.365N 10705.365E
FIELD	CAMPBELL RIVER
PROVINCE	BRITISH COLUMBIA

LSD.	SEC.	TWP.	RGE.	W.	M
Other Services					

Permanent Datum: GL Elev. 300.113
Log Measured From: GL Above Perm Datum:
Well Depth Measured From: G.L.
Elev. KB. DF. GL. CSG.

Run No.	ONE
Date	02 10 01
First Reading	172.5
Last Reading	1.5
Footage Logged	171.0
Depth Reached	172.5
Depth Driller	172.5
Casing Electrolog	12.5
Casing Driller	
Fluid type	WATER
Liquid Level	30.0
Min. Diameter	152 MM
Operating Time	1 HR.
Truck No.	TWO
Recorded By	B. SIM
Witnessed By	S. GARDNER





40.MM CALIPER 440.0 / 40 MM /DIV / 0 GAMMA RAY 70	DEPTH	60 OHMS RESISTANCE 170 OHMS	1.2 G/CC DENSITY 2.7 G/CC

PULSE RUN # 16
02/10/01
02:33:11

QU-01-13

DEPTH: 164.50 TO 164.00 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-14-C
CO-ORDINATES : 101696.74 N. - 101233.22 E.
ELEVATION (metres): 313.1
DEVIATION (AT T.D.): 0.01 degrees
SLANT ANGLE BEARING: 48.5 degrees
DATE DRILLED: Oct. 2, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	0.9	Topsoil
0.9	4.6	Sandstone
4.6	9.5	Sandstone
9.5	9.8	COAL
9.8	34.4	Sandstone
34.4	35.1	COAL
35.1	36.9	Sandstone
36.9	37.5	COAL
37.5	39.9	Shale, coaly
39.9	50.0	Sandstone
50.0	57.2	CORED: Sandstone
57.2	61.2	CORED: COAL
61.2	64.8	CORED: Sandstone, minor coal
64.8	70.1	Sandstone
70.1	71.3	Shale, coaly
71.3	71.6	COAL
71.6	73.5	Shale, coaly
73.5	101.8	Sandstone
101.8	102.6	CORED: Sandstone
102.6	104.7	CORED: COAL
104.7	108.0	CORED: Mudstone and coal mixed
108.0	110.7	CORED: Sandstone
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-14-C**
CO-ORDINATES : 101696.74 N 101233.22 E
ELEVATION : 313.1 m.
LOGGED BY: J. McMillan
DATE : Sept. 29/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	49.99	52.96	2.97		2.94		
				2.94		Sandstone: Med. to light grey; med. grained, coarsening downward; hard; solid core; 5 breaks; weakly bedded at 5 degrees to horizontal; lithic; a few coarse siltstone grains; moderate fizz on lighter coloured zone near middle.	
2	52.96	55.93	2.97		3.00		
				3.00		Sandstone: Med. grey; med. grained; coarsening downward; uniform; hard; equigranular with a few coarser siltstone grains; a few thin darker laminae bedded at 7 degrees to horizontal in upper part of unit; competent (6 breaks); minor weak fizz.	
3	55.93	58.90	2.97		2.02		
				1.23		Sandstone: Med. grey; med. grained; uniform; hard; 7 breaks (increasing downhole); v. weak bedding nearly horizontal; v. weak fizz.	57.19
START	SAMPLE	1401		0.80		COAL: NO. 4 SEAM: Dull, with bright vitrinite laminae; solid; appears fairly clean; hard; weakly broken (8 horiz., 1 vertical fracture); 1 to 2 cm broken rubble on horiz. slips; last 13 cm is fine rubble (LOST CORE?); some pyrite on fracture surfaces; a few calcite veinlets.	
4	58.90	61.87	2.97		2.93		
				0.08		Mudstone: 50% coaly; coal with elongate larger inclusions of mudstone with slickensided surfaces.	
				0.82		COAL: bright to dull; partly flaggy with thin mudstone laminae; nearly horizontal bedding; broken on bedding planes; some coarse blocky sections; occasional pyrite; thin calcite coatings on prominent vertical cleats.	59.62
				0.04		Mudstone: 50% coaly; horizontal bed.	
				0.34		COAL: Dull, dirty, flaggy with with thin mudstone laminae esp. near middle; lower contact at 7 degrees to horizontal.	60.00
				0.06		Sandstone: Med. tan grey; fine grained; wavy upper contact; hard; good fizz.	
				0.22		COAL: Thin, bright, nearly horizontal laminae; med. hard; broken at upper contact.	
				0.14		Sandstone: Med. tan grey; hard; broken at 3 degrees to horizontal on lower contact.	
				0.03		COAL: Bright and blocky; broken.	
				0.06		Siltstone: Light brownish grey; med. hard; a few thin coal lenses	
				0.44		COAL: Bright with thin dull muddy bands (20% mudstone); bedding at 3 degrees to horizontal; several breaks on sub-vertical cleats (with calcite coatings); trace of pyrite.	
END	SAMPLE	1401		0.07		Mudstone: 50% coaly, with bright coaly laminae; lower contact at 30 degrees on intersecting slickensides; BASE OF NO. 3 SEAM.	61.19
				0.21		Mudstone: 20% coaly; irregular interlayered siltstone and coal beds up to 2 cm thick; competent.	
				0.04		COAL: Solid, hard; competent; wavy upper contact; broken on lower contact (horizontal).	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-14-C**
CO-ORDINATES : 101696.74 N 101233.22 E
ELEVATION : 313.1 m.
LOGGED BY: J. McMillan
DATE : Sept. 29/01

Core No.	CORED METRES: CORED From	CORED To	CORED Total	RECOVERED Section	RECOVERED Total	GEOLOGICAL DESCRIPTION: Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.38		Mudstone: Med. to dark brownish-grey; a few wavy silty beds near top; a few sandy lenses; variable horizontal coal laminae; 3 horizontal breaks.	
5	61.87	64.84	2.97		2.97		
				0.97		Sandstone: Med. grey, becoming tan-grey downhole; med. grained; no fizz; uniform; hard; competent; no breaks; sharp lower contact; horizontal darker beds; wispy mudstone inclusions near top.	
				0.20		COAL: Dull to bright; 70% coaly; interbedded, nearly horizontal mudstone laminae; a few sandy laminae near top; 0.5 cm pyrite lense near base; solid.	
				0.10		Mudstone: Med. to dark brownish grey; slightly wavy coal laminae near base; 1 break; wavy, nearly horizontal lower contact.	
				1.70		Sandstone: Med. to light tan grey; Med. grained; hard, uniform; competent; 5 breaks; bedding displayed by thin darker beds usually horizontal to 5 degrees; no fizz except trace at base.	
						HOLE DRILLED DOWN TO NEXT COREPOINT.	
6	101.80	104.77	2.97		2.79		
				1.14		Sandstone: Med. grey; med to fine grained; equigranular; hard; competent; 2 breaks; wavy lower contact at 3 degrees to horizontal; X-bedded with some beds at 10 degrees.	102.58
START	**SAMPLE**	**1402**		0.76		COAL: NO. 3 COAL SEAM; Solid, bright; slightly blocky; clean; hard (15 breaks);	
				0.06		COAL: Bony section	
				0.83		COAL: Bright, blocky, clean; bedded at horiz. to 3 degrees; some pyrite lenses; a few calcite veinlets on cleats at right angles to bedding; scarce thin mudstone laminae.	
7	104.77	107.74	2.97		3.00		
END	**SAMPLE**	**1402**		0.38		COAL: Bright to dull; hard; upper 16 cm broken; broken at lower contact; contact nearly horizontal; a few thin mudstone laminae; thin pyrite lenses and some disseminated pyrite; Base of NO. 3 SEAM	104.72
				0.65		Mudstone: Dull to dark brownish grey; 40% coaly; variable thin to 1 cm coal laminae; coal increasing towards base; med. hard; weakly sheared; 9 breaks and minor blocky rubble; solid lower contact at 10 degrees to horizontal on X-bedding; bedding usually horiz. to 3 degrees.	
				0.24		Sandstone: Silty at top coarsening downward to med. grained; minor wispy thin carbonaceous inclusions; irregular lower contact (nearly horizontal); good fizz.	
				0.44		COAL: Bright to dull; hard; fairly solid; 3 breaks; a few thin silty laminae; fairly clean; one slip at 10 degrees to horiz.; good calcite veinlets on cleats.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-14-C**
CO-ORDINATES : 101696.74 N 101233.22 E
ELEVATION : 313.1 m.
LOGGED BY: J. McMillan
DATE : Sept. 29/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
				0.02		Mudstone: with coal laminae; nearly horizontal bedding.	
				0.17		COAL: Bright to dull; solid; a few mudstone laminae; nearly horizontal bedding; transitional lower contact; vertical calcite veinlets.	
				0.18		Mudstone: 30% coaly; with variable thickness coal laminae; nearly horizontal bedding.	
				0.09		COAL: Dull with thin bright laminae; dirty.	
				0.27		Mudstone: coaly; med. dark brownish grey; some wavy fine silty lenses; thin coaly lenses; hard; 3 breaks; sharp lower contact at 5 degrees to horiz.; thin pyrite lenses.	
				0.06		COAL: Lenslike coal band; thins across core interval, dull, hard; contacts at 5 to 15 degrees.	
				0.18		Mudstone: Med. to dark brown; 10% coaly; hard; 1 break; bedding and lower contact at 3 degrees;	
				0.01		COAL: Lense-like coal thins across core; 5 degrees to horiz.	
				0.31		Mudstone: 20% coaly; thin-bedded at 3 degrees to horiz.; 2 breaks.	
8	107.74	110.71	2.96		2.94		
				0.15		Mudstone: 40% coaly; slightly broken; flaggy pieces.	
				0.04		Siltstone: Grey; hard, broken horizontally.	
				0.22		COAL: Dull to bright; blocky, broken horizontally; 30% mudstone laminae.	
				0.08		Mudstone: Brownish grey; med. hard; broken, nearly horizontal contacts.	
				0.10		COAL: Dull and bright banded; nearly horizontal laminae; dirty.	
				0.03		Pyrite Band; solid, nearly horizontal;	
				0.02		COAL: Dull	
				1.23		Sandstone: Med. grey becoming light grey downhole; Med. to coarse grained; slightly coaly near upper contact; weak, nearly horizontal bedding; no fizz.	
				1.08		Sandstone: Med. to light beige grey; medium grained; uniform; hard; competent (2 breaks); weak bedding at horiz. to 5 degrees; good fizz.	
						END OF HOLE	

ELECTROLOG SERVICES INC.
2109 - 1 STREET N.W.
CALGARY, ALBERTA
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GAMMA RESISTANCE DENSITY CALIPER

FILE NO.	#876
COMPANY	QUINSAM COAL CORPORATION
WELL	QU-01-14 7 SOUTH
LOCATION	101696.740N 101233.217E
FIELD	CAMPBELL RIVER
PROVINCE	BRITISH COLUMBIA
LSD. SEC. TWP. RGE. W. M	LSD. SEC. TWP. RGE. W.
Other Services	DIR.
Permanent Datum: GL	Elev. 313.050
Log Measured From: GL	Above Perm Datum:
Well Depth Measured From:	
Elev. KB.	CSG. G.L.
Run No.	ONE
Date	03 10 01
First Reading	110.0
Last Reading	1.5
Footage Logged	108.5
Depth Reached	110.5
Depth Driller	110.7
Casing Electrolog	4.3
Casing Driller	
Fluid Type	WATER
Liquid Level	39.1
Min. Diameter	152 MM
Operating Time	1 HR.
Truck No.	TWO
Recorded By	D.SIM
Witnessed By	S.GARDNER

40.MM CALIPER 440.0		100 OHMS	RESISTANCE 300 OHMS
40 MM /DIV			
0 GAMMA RAY 70	DEPTH	1.2 G/CC	DENSITY 2.7 G/CC

PULSE RUN # 18
03/10/01
02:33:11

QU-01-14

DEPTH: 104.00 TO 105.00 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-15-C
CO-ORDINATES : 102428.30 N. - 101114.04 E.
ELEVATION (metres): 272.9
DEVIATION (AT T.D.):
SLANT ANGLE BEARING:
DATE DRILLED: Oct. 4, 2001(deepened Oct. 11, 2001)
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	3.1	Glacial Till, brown
3.1	8.8	Glacial Till, grey, with boulders
8.8	30.5	Sandstone
30.5	31.1	COAL
31.1	32.0	Sandstone
32.0	57.9	Sandstone
57.9	58.2	COAL
58.2	58.8	CORED: Siltstone, coaly at top
58.8	76.9	CORED: Sandstone, siltstone at base
76.9	79.0	CORED: Sandstone, minor coal bands
79.0	85.0	CORED: Sandstone,
85.0	97.5	Sandstone, grey
97.5	100.6	Sandstone, green
100.6	104.9	Sandstone, grey
104.9	109.1	CORED: Sandstone, greenish sections
109.1	112.3	CORED: COAL, with minor mudstone
112.3	115.3	CORED: Siltstone, minor coal
115.3	119.7	CORED: Sandstone, minor siltstone
119.7	143.3	Sandstone
143.3	143.6	Coaly
143.6	150.9	Siltstone
150.9	155.5	Sandstone, green
155.5	167.6	Conglomerate, green
167.6	170.7	Sandstone
170.7	176.2	COAL, and shale
176.2	177.7	Shale
177.7	182.9	Siltstone
182.9	184.4	Conglomerate, green
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-15-C**
CO-ORDINATES : 102428.30 N 101114.04 E
ELEVATION : 272.9 m.
LOGGED BY: J. McMillan/S. Gardner
DATE : Oct. 05 & Oct. 07/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	58.22	61.19	2.97		2.90		
				0.01		COAL: 1 cm horizontal bed at start of core run; horizontal bedding.	
				0.24		Mudstone: Brownish grey; med. to fine silt; weakly bedded at 3 to 7 degrees to horizontal; hard, solid; irregular lower contact at 7 degrees to horizontal; disseminated pyrite blebs and lenses to 0.5 cm thick; a few thin coal lenses and 1 coal laminae near top of section.	
				0.26		Siltstone: Grey, muddy, with fine sandy lenses; hard, competent; 1 break; moderate disseminated pyrite; weak fizz on silty laminae.	
				2.39		Sandstone: Light grey; med. grained, coarsening downward; fairly hard; solid core; 5 breaks; weakly bedded; a few coarse subrounded siltstone grains; no fizz.	
2	61.19	64.16	2.97		2.99		
				2.99		Sandstone: V. light grey; med. grained, with finer quartz grains; uniform; hard; a few thin darker laminae bedded at 0 to 10 degrees to horizontal; competent (5 breaks); minor weak fizz; faint worm casts near top 0.3 m.	
3	64.16	67.13	2.97		2.94		
				2.94		Sandstone: Light to med. grey; med. grained with coarse dark grey siltstone grains on bedding; quartz rich; hard; competent (12 breaks); indistinct, nearly horizontal bedding; no fizz except near base.	
4	67.13	70.10	2.97		3.04		
				3.04		Sandstone: Med. grey; Med. grained with patchy coarser zones; hard; competent (5 breaks); weak X-bedding; wavy bedding variable 0 to 10 degrees.	
5	70.10	73.07	2.97		3.04		
				1.31		Sandstone: Med. grey; fine to coarse grained; coarsening to v. coarse and pebbly at base in 3 cycles; nearly horizontal bedding in fine, steepening to 15 degrees where v. coarse; 2 breaks; Lower contact at 7 degrees to horizontal.	
6	73.07	76.04	2.97		2.90		
				2.90		Sandstone: Med. to light grey; interbedded light and dark, medium to coarse grained beds; several pebbly zones with sub-rounded silty or carbonate rich pebbles; X-bedded where fine; occasional thin, wavy bedding at 7 degrees to horizontal; 12 breaks.	
7	76.04	79.01	2.97		2.71		
				0.22		Sandstone: Med. grey; med. grained; lithic; hard; good fizz; contains dark wisps of siltstone near base; gradational contact with siltstone below.	
				0.59		Siltstone: Dark grey; hard; thin sandstone laminae and sandy clasts up to 2 cm in diameter; thin calcite stringers on bedding in places; only 1 break; bedding at 8 degrees to horizontal; becoming carbonaceous at base.	
				0.10		COAL: Dull with bright inclusions; abundant pyritic material on bedding planes.	
				0.18		Sandstone: Med. grey; med. grained; hard; with thin dark carbonaceous laminae throughout.	
				0.06		COAL: hard, bright and blocky; solid piece.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-15-C**
CO-ORDINATES : 102428.30 N 101114.04 E
ELEVATION : 272.9 m.
LOGGED BY: J. McMillan/S. Gardner
DATE : Oct. 05 & Oct. 07/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
				0.15		Sandstone: Same as previous.	
				0.23		COAL: Dull with minor bright vitrinite layers; sandy inclusions; broken up on lower 0.05 m; abundant pyrite.	
				0.52		Sandstone: Med. grey; med. grained; lithic; same as previous; no fizz.	
				0.20		COAL: Dull, dirty; soft, carbonaceous mudstone sections.	
				0.46		Mudstone: Med. brown; soft with harder sandy sections; broken; LOST CORE.	
8	79.01	81.98	2.97		2.97		
				2.97		Sandstone: Med. grey; med. grained, becoming coarser in lower 1.5 m.; Upper 1.5 m contains abundant siltstone laminae with coaly imprints; no fizz this section; slight fizz in cleaner lower 1.5 m sand; hard; competent (8 breaks).	
9	81.98	84.95	2.97		2.97		
				2.97		Sandstone: Med. grey; med. grained; lithic; hard; 7 breaks; dirty buff-coloured section in middle with coaly wisps and imprints; slight fizz.	
						DRILLED DOWN TO NEW CORE POINT.	
10	104.85	107.82	2.97		2.96		
				1.44		Sandstone: Med. grey; coarse grained to conglomeratic in upper section; grading downward to med. grained; hard (4 breaks); X-bedding up to 10 degrees; normal bedding at 7 degrees to horizontal; strong fizz.	
				1.52		Sandstone: Med. greenish grey; med. grained; lithic; softer with crumbly sections; highly broken on bedding planes; slight to moderate fizz; bedding averages 8 degrees to horizontal.	
11	107.82	110.79	2.97		3.00		
				1.00		Sandstone: Med. grey; coarse grained; fining upward; bedding at 5 degrees to horizontal; lithic; strong fizz; hard; 3 breaks; lower contact erosional at 18 degrees to core axis.	
				0.31		Sandstone: Darker grey with black beds; hard; no fizz; pyritic; strong X-bedding; coal lenses throughout, more abundant in lower part: sandstone has eroded and replaced coal interval- erosional contact at base.	108.63
				0.20		COAL: NO. 3 SEAM (Rider); Hard, bright, blocky; with minor dull sections; abundant pyritized lenses on bedding planes; minor bedding plane slip near base with slickensides and minor calcite.	
				1.19		Mudstone: Silty: Med. grey with muddy brown sections; abundant coal lenses throughout; highly pyritic with pyrite as bedding plane lenses; normal bedding at 3 degrees to horizontal; competent but fissile sections; will degrade when exposed to air; roof will require 2 m bolt length to support.	110.13
START	SAMPLE:	1501		0.30		COAL: NO. 3 SEAM; gradational upper contact; dirty; highly pyritic section in top 0.12 m.; bright, blocky beds interspersed with dull, muddy laminae; bottom part clean; hard; only 1 break.	
12	110.79	113.76	2.97		2.97		

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-15-C**
CO-ORDINATES : 102428.30 N 101114.04 E
ELEVATION : 272.9 m.
LOGGED BY: J. McMillan/S. Gardner
DATE : Oct. 05 & Oct. 07/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
				0.54		COAL: Clean, bright, blocky; hard; light in weight; pyritic laminae in lower 1/2; becoming interlayered with dull muddy laminae lower 6 cm.; bedding at 6 degrees to horizontal.	
				0.25		Mudstone: Med. brownish grey; silty; bottom 5 cm 50% coaly; some pyritic laminae and calcite laminae;	
END	**SAMPLE**	**1501**		0.69		COAL: Clean, hard, bright, blocky; abundant calcite; minor dull laminae throughout but increasing in last 6 cm; some fine pyritic lenses near base; minor slickensides and calcite showing on bedding plane near base; lower contact at 10 degrees to horizontal.	111.90
				1.01		Siltstone: Med. grey; upper 20 cm streaks brown (muddy); 4 breaks; prominent coaly lenses throughout; also abundant pyritized lenses; no fizz.	
				0.06		COAL: Fairly clean and vitreous; some calcite; blocky section with pyritized laminae in top 2 cm.	
				0.30		Sandstone: Muddy; distinctive dark bed with prominent coarse grains of white calcite; carbonaceous laminae throughout; hard; abundant pyritic lenses throughout; strong fizz.	
				0.11		COAL: Clean, bright, blocky, abundant calcite;	
13	113.76	116.73	2.97		2.88		
				0.49		COAL: Clean, bright with occasional dull bands; blocky; hard; abundant calcite; prominent pyritic lenses; bottom 6 cm dirty and silty.	
				0.95		Siltstone: Med. grey; with light sandy grains; fairly hard (2 breaks); abundant coaly laminae throughout; abundant pyritic laminae esp. top part; no fizz; becoming more sandy in lower 10 cm (gradational contact).	
				1.44		Sandstone: Med. grey; med. grained; no fizz; buff coloured and silty in top 20 cm.; abundant coaly markings and imprints throughout; hard and competent (5 breaks).	
14	116.73	119.70	2.97		2.97		
				1.48		Sandstone: Med. grey; med. grained; uniform; lithic; hard; competent; 5 breaks; scarce coaly imprints near top; abundant silt layers and wavy beds in bottom 20 cm; no fizz.	
				0.41		Siltstone: Med. grey; 2 breaks; sandstone clasts in upper part; gradational to coal on lower contact;	
				0.17		COAL: Hard, bright, blocky; clean; abundant calcite; some dull bands	
				0.08		Mudstone: brownish grey; coaly imprints.	
				0.06		COAL: Dirty; bright and dull banded; abundant pyritic lenses near base	
				0.77		Sandstone: Med. buff-grey; med. grained; hard (1 break); coaly markings in upper part; no fizz.	
						END OF HOLE	

ELECTROLOG SERVICES INC.
2109 - 1 STREET N.W.
CALGARY, ALBERTA
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FILE NO.

GAMMA RESISTANCE DENSITY CALIPER

COMPANY	QUINSAM COAL CORPORATION
WELL	QU-01-15 7 SOUTH
LOCATION	102428.298N 101114.038E
FIELD	CAMPBELL RIVER
PROVINCE	BRITISH COLUMBIA

#875

LSD. SEC. TWP. RGE. W. M

LSD. SEC. TWP. RGE. W.

Other Services
DIR.

Permanent Datum: GL Elev. 272.850
Log Measured From: GL Above Perm Datum:
Well Depth Measured From:

Elev. KB.
CSG.
G.L.

Run No.	ONE	
Date	12 09 01	
First Reading	180.0	
Last Reading	1.5	
Footage Logged	178.5	
Depth Reached	180.0	
Depth Driller	180.0	
Casing Electrolog	8.8	
Casing Driller		
Fluid Type	WATER	
Liquid Level	82.4	
Min. Diameter	152 MM	
Operating Time	1 HR.	
Truck No.	TWO	
Recorded By	D.SIM	Witnessed By S.GARDNER

40.MM CALIPER 440.0
40 MM /DIV
0 GAMMA RAY 70
DEPTH
10 OHMS RESISTANCE 120 OHMS
1.2 G/CC DENSITY 2.7 G/CC

PULSE RUN # 5
24/08/01
19:21:57

QU-01-15

DEPTH: 172.50 TO 174.00 (UP)
RES: 0.05 METER
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-16-C
CO-ORDINATES : 101982.26 N. - 101057.97 E.
ELEVATION (metres): 292.4
DEVIATION (AT T.D.): 4.83 degrees
SLANT ANGLE BEARING: 126.3 degrees
DATE DRILLED: Oct. 6, 2001 (deepened Oct. 12, 2001)
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	3.1	Glacial Till, brown
3.1	17.7	Glacial Till, grey
17.7	27.7	Sandstone
27.7	28.4	COAL
28.4	46.3	Sandstone
46.3	49.1	COAL
49.1	50.3	Sandstone
50.3	51.5	COAL
51.5	52.1	Shale
52.1	53.3	COAL
53.3	54.0	Shale, coaly
54.0	59.7	Sandstone
59.7	60.1	COAL
60.1	61.3	Shale
61.3	61.9	COAL
61.9	82.3	Sandstone
82.3	82.9	COAL
82.9	97.2	Sandstone
97.2	103.2	CORED: Sandstone, minor coal at top
103.2	121.6	Sandstone
121.6	126.5	Shale, coaly
126.5	135.0	Sandstone
135.0	146.6	Sandstone
146.6	149.4	Shale, coaly
149.4	150.0	Sandstone
150.0	150.9	COAL
150.9	151.2	Siltstone
151.2	152.4	Sandstone
152.4	156.1	Sandstone, green
156.1	169.2	Siltstone
169.2	169.5	COAL
169.5	170.7	Shale
170.7	172.2	COAL
172.2	173.7	Siltstone
173.7	176.8	Shale, coaly
176.8	178.3	Rock, green (conglomerate?)
		END OF HOLE
		Note: Casing bent at 12 metres causing severe hole
		deviation, could not run core barrel past bent casing.

CORING TERMINATED AFTER ONE RUN DUE TO BENT CASING - COULD NOT RUN IN CORE BARREL - HOLE DRILLED TO T.D. AT 178.3 m.

CORING TERMINATED AFTER ONE RUN DUE TO BENT CASING - COULD NOT RUN IN CORE BARREL - HOLE DRILLED TO T.D. AT 178.3 m.

ELECTROLOG SERVICES INC.

2109 - 1 STREET N.W.
CALGARY, ALBERTA
(403)276-6459

GAMMA RESISTANCE DENSITY CALIPER

FILE NO.		
LSD.	COMPANY	QUINSAM COAL CORPORATION
SEC.	WELL	QU-01-16 7 NORTH
TWP.	LOCATION	101982.258N 101057.965E
RGE.	FIELD	CAMPBELL RIVER
W. M	PROVINCE	BRITISH COLUMBIA

#876

LSD.	SEC.	TWP.	Other Services
RGE.	W.		

Permanent Datum: GL	Elev. 292.389	Elev. KB.
Log Measured From: GL	Above Perm Datum:	CSG.
Well Depth Measured From:		G.L.

Run No.	ONE		
Date	13 10 01		
First Reading	178.0		
Last Reading	2.0		
Footage Logged	176.0		
Depth Reached	178.5		
Depth Driller	178.5		
Casing Electrolog	17.9		
Casing Driller	17.9		
Fluid Type	WATER		
Liquid Level	38.3		
Min. Diameter	152 MM		
Operating Time	1 HR.		
Truck No.	TWO		
Recorded By	D.SIM	Witnessed By	S.GARDNER

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-17C
CO-ORDINATES : 101811.00 N. - 101473.14 E.
ELEVATION (metres): 282.2
DEVIATION (AT T.D.): 0.12 degrees
SLANT ANGLE BEARING: 177 degrees
DATE DRILLED: October 8, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	1.2	Glacial Till
1.2	16.8	Sandstone
16.8	18.3	Shale, coaly
18.3	27.7	Sandstone
27.7	28.0	Shale, coaly
28.0	30.6	CORED: Sandstone
30.6	31.6	CORED: Siltstone, minor sandstone
31.6	38.7	CORED: COAL; minor sandstone bands
38.7	42.9	CORED: Sandstone, minor silt beds
42.9	44.2	Shale
44.2	45.1	COAL
45.1	47.2	Shale
47.2	73.5	Sandstone
73.5	76.1	CORED: Sandstone
76.1	78.1	CORED: COAL
78.1	82.4	CORED: Sandstone, minor coal and mudstone
82.4	100.6	Sandstone
100.6	101.8	COAL
101.8	105.8	Shale
105.8	114.9	Sandstone
114.9	121.0	Shale
121.0	121.9	COAL
121.9	126.5	Shale, coaly
126.5	127.1	COAL
127.1	127.7	Shale
127.7	129.5	COAL
129.5	131.7	Shale
131.7	135.0	Shale, coaly
135.0	138.7	Conglomerate
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-17-C**
CO-ORDINATES : 101811.00 N 101473.14 E
ELEVATION : 282.2 m.
LOGGED BY: J. McMillan
DATE : Oct. 10/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
1	28.04	31.01	2.97		2.97		
				2.51		Sandstone: Med. grey; med. grained; hard; uniform; competent (8 breaks); poorly bedded with occasional minor slumping; wavy lower contact at 10 degrees to horizontal.	
				0.46		Siltstone: Muddy; numerous sandy lenses parallel to wavy bedding; bedding at 5 degrees to horizontal; dark grey; hard; fairly competent; a few coaly laminae.	
2	31.01	33.98	2.97		2.66		
				0.28		Siltstone: Muddy, with sandstone inclusions; same as above.	
				0.32		Sandstone: Med. to light brownish grey; med. grained; hard; 1 break; upper contact gradational; lower contact sharp at 5 degrees to horizontal; thin, wispy irregular mudstone laminae throughout.	31.61
START	SAMPLE	1701		0.45		COAL: NO. 4 SEAM: Bright to dull; fairly clean, blocky; broken and rubbly at upper contact; fairly hard (1 break); bedding at 3 degrees to horizontal; several thin pyrite lenses; a few calcite veinlets.	
				0.05		Mudstone: 50% coaly; fine, broken blocky rubble in box, horizontal upper contact; LOST CORE?	
END	SAMPLE	1701		0.84		COAL: Bright; solid to blocky; hard; competent; 2 breaks; bedding at 3 to 5 degrees; broken upper contact; sharp lower contact at 3 degrees to horizontal; several pyrite lenses typically 0.5 to 4 cm pinched along bedding planes; a few calcite veinlets on bedding planes and along cleats.	33.08
START	SAMPLE	1702		0.45		Mudstone: Brownish grey; med. hard; 3 breaks; numerous thin coal laminae in upper portion on bedding planes; bedding at 0 to 3 degrees; a few thin calcite laminae.	
END	SAMPLE	1702		0.14		Sandstone: grey and black; coaly; reworked material with sandstone lenses enveloped in coal; 50% coaly; hard; 1 break; lower contact broken on slip at 10 degrees to horizontal.	33.85
START	SAMPLE	1703		0.13		COAL: Solid; heavier piece; dirty with bright laminae.	
3	33.98	36.95	2.97		2.97		
				0.85		COAL: Bright, blocky; slightly friable; 8 breaks on bedding planes at 3 degrees to horizontal; fairly clean; occasional calcite stringers.	
				1.02		COAL: Solid; dull to bright; fairly hard; 5 breaks on bedding planes at 5 degrees to horizontal; fairly friable; unit is dirtier than above with occasional muddy laminae.	
				0.04		Sandstone: Light grey; hard; cut by coal veinlets, 1 break; bedding at 3 degrees to horizontal; no fizz.	
END	SAMPLE	1703		0.98		COAL: Bright to dull; fairly hard; slightly dirty with a few mudstone laminae; 5 breaks; bedding horizontal to 5 degrees, one break on slip at 30 degrees to horizontal; Several calcite veinlets; uncommon thin pyrite coatings on cleats; broken at lower contact.	36.87
START	SAMPLE	1704		0.08		Mudstone: brown grey; med. hard; bedding at 5 degrees; several coal laminae.	
4	36.95	39.92	2.97		2.97		
				0.11		Mudstone: Dark brownish grey; 20% coaly with thin bright coal laminae.	
				0.23		COAL: Dirty, dull; with bright coal laminae at 2 to 5 degrees to horizontal; broken at lower contact; 2 breaks; several bright coal beds with abundant calcite veinlets.	
				0.03		Sandstone: Dark grey; fine sandy grains with carbonaceous material, cut by thin coal laminae at 7 degrees to horizontal; no fizz	
				0.08		Sandstone: Light grey; hard; solid; a few coaly wisps;	
				0.19		COAL: Solid; dull to bright; broken on contacts at 5 degrees to horizontal, a few silty laminae; several calcite veinlets	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-17-C**
CO-ORDINATES : 101811.00 N 101473.14 E
ELEVATION : 282.2 m.
LOGGED BY: J. McMillan
DATE : Oct. 10/01

Core No.	CORED METRES CORED From	To	Total	RECOVERED Section	Total	GEOLOGICAL DESCRIPTION Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding Angle, Alteration, Wetness, Contamination	E-LOG CORRECTED DEPTH (m.)
END	SAMPLE	1704		0.13		Sandstone: Light grey; lower contact on slickensides at 0 - 45 degrees; coal intrudes at 45 degrees past slickensides enveloping sand lenses.	37.80
START	SAMPLE	1705		0.58		COAL: Dirty; dull to bright; variable mudstone laminae at 5 to 15 degrees to horizontal; calcite veinlets and coatings on cleats; some muddy lenses appear pyritic; broken at upper contact, 3 breaks on bedding planes.	
				0.02		Sandstone: Slightly wavy contacts at 10 degrees to horizontal; solid with coal laminae.	
				0.06		COAL: Solid; similar to above; grades into lower unit.	
				0.04		Mudstone: 10% thin coaly laminae; broken at lower contact; bedding at 6 degrees to horizontal.	
END	SAMPLE	1705		0.20		COAL: Dirty with thin mudstone laminae; 70% coaly; solid; 1 slickenside at 15 degrees; wavy laminae at base.	38.70
				0.11		Mudstone: Grey; silty; thin coal lenses at 10 degrees to horizontal; wavy lower contact at 10 degrees.	
				0.14		COAL: Dirty, dull; lower contact angled at 15 degrees; upper contact gradational.	
				0.68		Sandstone: Med. to light tan-grey; med to fine grained; hard; thin-bedded; bedding at 5 to 10 degrees near base; 1 break; broken on wavy lower contact (nearly horizontal); coal laminae near upper contact; no fizz.	
				0.30		COAL: Dull, solid, hard; thin mudstone laminae; bedding at 3 to 7 degrees; calcite veinlets on cleats; lower contact is slip plane at 15 degrees to horizontal.	
				0.07		Sandstone: Same as above; solid; no fizz.	
5	39.92	42.89	2.97		3.00		
				0.54		Sandstone: Med. to light grey; med. grained; hard; wavy dark silty lenses; coal laminae to 1 cm at upper contact; several coarse pyrite grains near base; 2 breaks; weak fizz.	
				2.26		Siltstone: Med. grey; muddy near upper contact; variable sandy laminae; 12 breaks; bedding horizontal to 5 degrees; occasional thin coal laminae.	
				0.20		Sandstone: Med. tan-brown-grey; silty, wavy bedding, gradational from unit above	
						DRILLED DOWN TO NO. 3 SEAM COREPOINT.	
6	73.46	76.43	2.97		2.91		
				2.35		Sandstone: Med. grey; med. grained; hard; uniform, equigranular, competent (8 breaks); weakly bedded usually at 10 degrees, occasionally wavy with thin carbonaceous inclusions; no fizz.	
				0.05		Sandstone: Contact zone with coal enveloping elongate, wavy sandstone lenses; upper contact is coal-coated slip plane at 15 degrees to horizontal; lower contact same at 5 degrees to horizontal.	76.07
START	SAMPLE	1706		0.51		COAL: Fairly bright; solid; slightly blocky; hard, 5 breaks, bedding at 3 to 5 degrees to horizontal; a few mudstone laminae; one slickenside 0.1 m. below upper contact.	
7	76.43	79.40	2.97		2.85		
				0.84		COAL. Bright, blocky; hard, solid, 10 breaks; bedding horizontal to 5 degrees; one vertical break on cleats; several broken zones to 10 cm thick, occasional calcite veinlets on bedding and cleats; fairly clean with minor thin mudstone laminae; occasional pyrite on bedding planes	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-17-C**
CO-ORDINATES : 101811.00 N 101473.14 E
ELEVATION : 282.2 m.
LOGGED BY: J. McMillan
DATE : Oct. 10/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG CORRECTED DEPTH (m.)
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	
				0.01		Pyrite: Dull, hard, solid layer, unbroken contacts at 3 to 7 degrees to horizontal.	
				0.32		COAL: Same as above; solid core with 2 breaks on bedding planes.	
				0.03		Mud and Fine Coaly Rubble: Contacts at 3 degrees to horizontal.	
				0.35		COAL: Bright to dull; vitrinite appears re-heated with conchoidal fracture; variable thin mudstone laminae; slightly broken and friable near top of unit; minor pyrite on cleat surfaces.	78.09
END	SAMPLE	1706		0.04		Mudstone: 35% coaly; thin vitrinite laminae throughout; slightly friable.	78.13
				0.11		Mudstone: Med. brownish-grey; med. hard; several thin coal laminae; 1 break.	
				0.02		COAL: Bright coal lense; pinches across core; upper contact cuts bedding at 20 degrees; lower contact on bedding at 2 degrees to horizontal.	
				0.16		Mudstone: Brownish grey; med. hard with a few thin coal laminae. broken at base;	
				0.21		COAL: Dull to bright; dirty; many thin mudstone laminae at 3 to 5 degrees to horizontal; 65% coaly; 2 breaks; broken at top contact.	
				0.04		Mudstone: 25% coaly; dark brown; may be pyritic.	
				0.25		Sandstone: Light grey; fine grained coarsening downward to med. grained; 1 rough break near base; a few thin coal wisps near contacts; nearly horizontal bedding.	
				0.47		COAL: Bright to dull; solid; hard; broken at upper contact on weak slip at 10 degrees to horizontal; one wedge of mudstone 1 cm thick, 8 cm from base of unit bounded on lower side by weak slickensides; occasional hairline calcite veinlets on cleats.	
8	79.40	82.37	2.97		2.97		
				0.31		COAL: Fairly bright, blocky, with minor mudstone laminae; broken on lower bedding contact (at 3 degrees to horizontal).	
				0.44		Mudstone: Med to dark grey; med. hard; occasional coal laminae; nearly horizontal bedding; 7 breaks on bedding or on slips subparallel to bedding.	
				0.05		COAL: Bright, blocky; carbonate on cleats; contacts 5 degrees to horizontal.	
				0.40		Mudstone: coaly; dark brown; hard; flecked with coal and occasional thin coal laminae to 1 cm thick; 6 breaks on bedding; bedding at 5 degrees to horizontal.	
				0.30		Siltstone: Light to med. grey; hard; 1 break; bedding 0 to 5 degrees to horiz.; several coaly portions 3 cm. in length.	
				0.21		COAL: Dull to bright; thin mudstone laminae; somewhat dirty; carbonate coatings on cleats	
				0.11		Siltstone: Grey; broken, rubbly zone at upper contact.	
				0.10		Mudstone: Coaly; coal laminae to 1 cm thick; bedding at 3 degrees to horizontal; 1 break; solid lower contact	
				1.05		Sandstone: Med. to light tan grey; hard, uniform, massive; slightly darker near top of unit with a few coal lenses. no breaks; no fizz	
						END OF HOLE	


ELECTROLOG SERVICES INC.
2109 - 1 STREET S.W.
CALGARY ALBERTA
(403) 276-4469
GAMMA RESISTANCE DENSITY CALIPER
#8276
COMPANY QUINSAM COAL CORPORATION
WELL QU-01-17 7 SOUTH
FIELD CAMPBELL RIVER
PROVINCE BRITISH COLUMBIA
Permanent Datum GL
Log Measured From GL
Well Depth Measured From: G.L.
Run No. ONE
Date 89.10.01
First Reading 135.5
Last Reading 1.5
Footage Logged 134.0
Depth Reached 135.5
Depth Driller 135.5
Fluid Type WATER
Liquid Level 14.4
Min. Diameter 152 MM
Truck No. TWO
Recorded By D.SIM
Witnessed By S.GARDNER
WATER LEVEL 14.4
40.MM CALIPER 440.0
40 MM /DIV
0 GAMMA RAY 70
DEPTH
10 OHMS RESISTANCE 150 OHMS
1.2 G/CC DENSITY 2.7 G/CC
PULSE RUN # 22
89/10/01
QU-01-17
SCALE: 20:1

QUINSAM COAL 2001 EXPLORATION PROJECT
LITHOLOGY LOG
(DRILLER'S LOG)

HOLE NUMBER : QU-01-18-C
CO-ORDINATES : 101568.38 N. - 100459.68 E.
ELEVATION (metres): 304.7
DEVIATION (AT T.D.):
SLANT ANGLE BEARING:
DATE DRILLED: Oct. 10, 2001
DRILLER: Drillwell Enterprises Ltd.
R. Bourget

DEPTH (m)		DESCRIPTION
From	To	
0.0	2.4	Glacial Till, with boulders
2.4	36.0	Sandstone
36.0	38.1	Shale, coaly
38.1	52.7	Sandstone
52.7	54.6	Shale, coaly
54.6	55.2	Sandstone
55.2	55.8	COAL
55.8	57.9	Shale
57.9	80.8	Sandstone
80.8	81.7	Shale
81.7	83.8	COAL
83.8	86.3	Shale
86.3	86.9	COAL
86.9	88.4	Shale
88.4	108.2	Sandstone
108.2	108.5	COAL
108.5	109.9	CORED: Mudstone, minor coal bands
109.9	111.5	CORED: Sandstone
111.5	114.3	Shale
114.3	114.6	COAL
114.6	116.1	Shale, coaly
116.1	118.9	Sandstone
118.9	121.9	Shale
121.9	129.5	Sandstone
129.5	135.0	Shale, coaly
135.0	135.3	CORED: COAL
135.3	142.2	CORED: Mudstone; minor coals and silt beds
142.2	146.9	CORED: Siltstone; distinct red colour; (unconformity)
		END OF HOLE

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

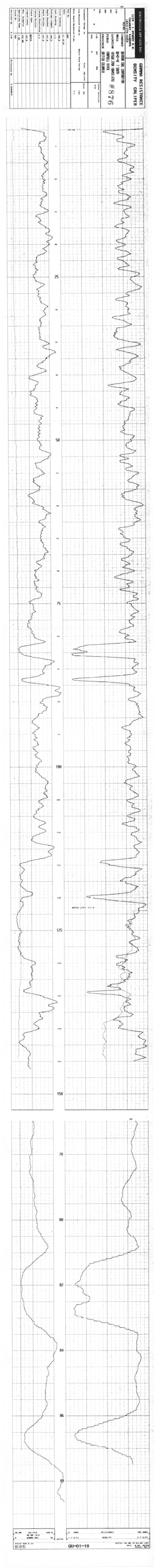
HOLE NUMBER : **QU-01-18-C**
CO-ORDINATES : 101568.38 N 100459.68 E
ELEVATION : 304.7 m.
LOGGED BY: J. McMillan
DATE : Oct. 12/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour,Size,Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
1	108.51	111.48	2.97		2.91		
				0.44		Mudstone: Med to dark brownish-grey; med. hard; weakly broken (7 breaks); 13 cm of coarse rubble near base; bedding nearly horizontal; occasional coal laminae increasing towards base.	
				0.33		Mudstone: med. brownish grey; med. hard; 5 breaks on bedding; bedding horizontal at top of unit to 8 degrees near base; a few v. thin coaly laminae; no fizz.	
				0.01		COAL: Hard, dull lense subparallel to bedding; pinches out across core.	
				0.62		Mudstone: Transitional unit; med. brownish-grey; hard; silty laminae and variable light grey fine sandy interbeds; 3 breaks; bedding near horiz. to 10 degrees; several pyrite lenses in upper 15 cm of unit; no fizz.	
				0.53		Sandstone: Light grey; irregular thin wisps of mudstone; hard; fine to med. grained; 2 breaks; indistinct bedding; v. weak fizz.	
				0.98		Sandstone: Med to light grey; med. grained; coarsening downward; bedding 0 to 3 degrees; weak X-bedding near base of unit; weak fizz becoming strong downhole; 2 breaks.	
						DRILLED TO NEXT COREPOINT	
2	135.03	138.00	2.97		2.91		134.18
				0.22		COAL: Dull, hard; 4 breaks on bedding planes; bedding nearly horizontal; rubbly and broken at lower contact.	
				0.20		Mudstone: Med. brown; med. hard; fairly broken with 1 to 2 cm thick pieces broken on bedding; several slickensides and coaly prints on broken surfaces.	134.68
				0.18		Sandstone: Med. grey-tan; fine grained with larger irregular siliceous concretionary forms; bedding nearly horizontal; no breaks; no fizz.	
				0.04		COAL: Dull, solid; no breaks, except broken on contacts; bedding nearly horizontal.	
				0.07		Mudstone: 20% coaly; dark grey; slickensides on lower contact.	
				0.28		Mudstone: med. grey; med. hard; uniform; several slickensided breaks; lower contact is slip plane at 20 degrees to horizontal with parallel calcite stringer.	
				0.12		Mudstone: tan grey; concretionary form; hard; heavy; no fizz; cut by irregular coal stringer. cut by calcite stringers: possible tension gashes.	
				0.12		COAL: Dull, hard; solid; mudstone cuts across core at 60 degrees to horizontal on lower contact; irregular, abundant calcite veinlets horizontal and near-vertical.	
				0.75		Siltstone: Med. grey; hard; uniform; broken near upper contact; 3 slickensided planes; 5 breaks; nearly horizontal lower contact.	
				0.03		Mudstone: 30% coaly; nearly horizontal thin coaly laminae throughout; sandy section.	
				0.56		Mudstone: Med. brownish-grey; med. hard; uniform; 4 breaks; slickensided surface near base; irregular, broken lower contact on intersecting slip planes.	

QUINSAM COAL CORPORATION CORELOG DESCRIPTION

HOLE NUMBER : **QU-01-18-C**
CO-ORDINATES : 101568.38 N 100459.68 E
ELEVATION : 304.7 m.
LOGGED BY: J. McMillan
DATE : Oct. 12/01

CORED METRES						GEOLOGICAL DESCRIPTION	E-LOG
	CORED			RECOVERED		Lithology, Colour, Size, Texture, Hardness, Shearing, Contacts, Bedding	CORRECTED
Core No.	From	To	Total	Section	Total	Angle, Alteration, Wetness, Contamination	DEPTH (m.)
				0.34		Siltstone: Med. grey; hard; cut by rough-surfaced, nearly horizontal slip; Texture appears wormy in upper part of unit; several spotty sandy layers, 3 nearly horizontal breaks.	
3	138.00	140.97	2.97		2.63		
				0.21		Mudstone: Med. brownish grey; med. hard; uniform; 2 breaks at approx. 5 degrees to horiz.; several coal laminae.	
				0.33		Siltstone: Muddy; med. grey; featureless; 1 break on lower contact (slip surface at 50 degrees to horiz.)	
				0.38		Mudstone: Med. brownish grey; med. hard; uniform; featureless, broken at lower contact; cut by 2 slickensided slips at 50 and 70 degrees to horizontal.	
				0.10		Mudstone: Gougy and broken; 10% fine coaly rubble; near-horizontal fault.	
				1.35		Mudstone: Med. brownish grey, med. hard; 11 breaks; minor broken material on some breaks; broken on lower contact; occasional coal laminae; nearly horizontal bedding.	
				0.06		Mudstone: 10 % coaly; broken rubbly zone; contacts on slips at 5 to 10 degrees.	
				0.20		Mudstone : 15% coaly; variable thin bright coal laminae; nearly horizontal bedding.	
4	140.97	143.94	2.97		2.98		
				1.25		Siltstone: Med. greenish brown to grey; hard; 4 breaks; many small irregular tan coloured concretions; some with dark centres;	
				1.73		Siltstone: Reddish; hard; 7 breaks; 1 patchy tan concretion; a few patchy blueish green zones; weak bedding at 7 degrees to horizontal.	
5	143.94	146.91	2.97		3.05		
				3.05		Siltstone: Reddish; hard; 14 breaks; same as above; nearly horizontal bedding; no fizz.	
						END OF HOLE	


GAMMA RESISTANCE
DENSITY CALIPER
#876
GU-01-18

7 - SOUTH COAL RESERVE CALCULATIONS
NO. 4 SEAM

POLYGON	AREA sq. m.	GROSS COAL (m)	VOLUME cu. m.	R. D. FACTOR	MASS (tonnes)
A	24200	3.44	83248	1.5	124,872
B	36400	4.54	165256	1.5	247,884
C	22500	2.80	63000	1.5	94,500
D	15120	4.27	64562	1.5	96,844
E	16360	3.41	55788	1.5	83,681
F	17740	3.93	69718	1.5	104,577
G	13620	4.33	58975	1.5	88,462
H	25280	3.50	88480	1.5	132,720
I	41140	2.65	109021	1.5	163,532
J	35780	3.20	114496	1.5	171,744
K	14200	4.00	56800	1.5	85,200
L	21800	3.57	77826	1.5	116,739
M	22900	3.41	78089	1.5	117,134
N	16920	2.83	47884	1.5	71,825
O	19380	3.84	74419	1.5	111,629
P	15080	3.99	60169	1.5	90,254
Q	14980	4.20	62916	1.5	94,374
R	36600	3.02	110532	1.5	165,798
S	32820	3.81	125044	1.5	187,566
T	29100	3.62	105342	1.5	158,013
U	25040	3.14	78626	1.5	117,938
V	24420	3.69	90110	1.5	135,165
W	57720	3.54	204329	1.5	306,493
X	45980	3.78	173804	1.5	260,707
	Average :	3.60			
		TOTAL MEASURED :			3,327,650
	INDICATED				
	QU-01-08 (Other side of fault)				
	41108	3.78	155388	1.50	233,082
	At north end by Quinsam River				
	54360	3.66	198958	1.50	298,436
		TOTAL INDICATED :			531,519
		TOTAL MEASURED & INDICATED :			3,859,169

7 - SOUTH COAL RESERVE CALCULATIONS
NO. 3 SEAM

POLYGON	AREA sq. m.	GROSS COAL (m)	VOLUME cu. m.	R. D. FACTOR	MASS (tonnes)
A	50280	1.92	96537.6	1.5	144,806
B	87440	1.89	165262	1.5	247,892
C	128880	1.98	255182	1.5	382,774
D	114440	2.01	230024	1.5	345,037
E	132900	1.69	224601	1.5	336,902
F	93120	2.14	199277	1.5	298,915
G	106120	1.92	203750	1.5	305,626
H	95600	1.77	169212	1.5	253,818
I	75920	1.75	132860	1.5	199,290
J	68920	2.07	142664	1.5	213,997
K	34040	2.35	79994	1.5	119,991
L	62060	2.06	127844	1.5	191,765
M	60420	2.16	130507	1.5	195,761
N	45600	1.92	87552	1.5	131,328
	Average :	1.97			
		TOTAL MEASURED :			3,367,901

7 - SOUTH COAL RESERVE CALCULATIONS
NO. 1 SEAM

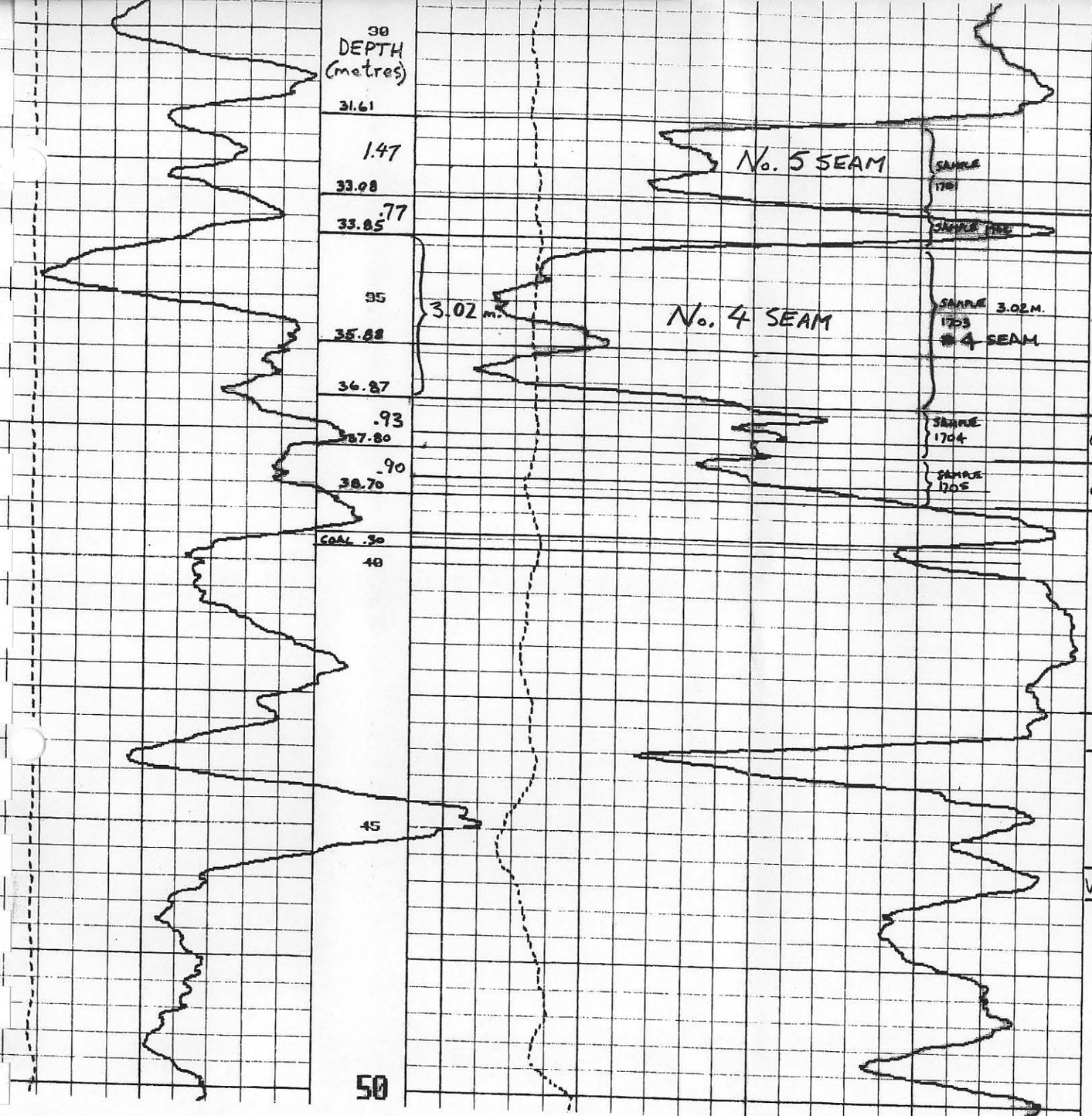
POLYGON	AREA sq. m.	GROSS COAL (m)	VOLUME cu. m.	R. D. FACTOR	MASS (tonnes)
A	50104	2.37	118746.5	1.5	178,120
B	87843	2.20	193255	1.5	289,882
C	137593	2.22	305456	1.5	458,185
D	37500	1.60	60000	1.5	90,000
E	78000	2.17	169260	1.5	253,890
F	120844	1.92	232020	1.5	348,031
G	43719	2.61	114107	1.5	171,160
H	83750	2.48	207700	1.5	311,550
I	157250	1.80	283050	1.5	424,575
J	112125	1.84	206310	1.5	309,465
K	25469	2.70	68766	1.5	103,149
L	19313	1.61	31094	1.5	46,641
	Average :	2.13			
			TOTAL MEASURED :		2,984,647

SAMPLE INVENTORY AND RAW HEAD ANALYSES, 2001 EXPLORATION PROGRAM
QUINSAM COAL MINE

Hole No.	Sample No.	Sample Interval (From)	(To)	Sample Thick.	Missing Core	Total Thick.	No. of	REMARKS	RAW HEAD ANALYSIS, DRY BASIS					
		meters		m.	m.	m.	Bags	Seam Designation: Revised Nomenclature	Ash %	V. M. %	F. C. %	Sulphur %	MJ/kg	Btu/lb
QU-01-01C	QU0101	57.39	59.34	1.95	0.29	2.24	2	Analysed at Quinsam Lab	14.75			0.30		
QU-01-01C	QU0102	59.34	60.00	0.66	0.00	0.66	1	Analysed at Quinsam Lab	63.67			2.08		
QU-01-01C	QU0103	60.00	60.96	0.95	0.00	0.95	1	Analysed at Quinsam Lab	17.68			1.86		
QU-01-02C				0.00		0.00		Not Sampled						
QU-01-03				0.00		0.00		Not Cored						
QU-01-04				0.00		0.00		Not Cored						
QU-01-05				0.00		0.00		Not Cored						
QU-01-06C	QU0601	44.55	48.09	2.89	0.65	3.54	3	No. 4 Seam	43.28	27.69	29.03	6.05	15.81	6800
QU-01-06C	QU0601-A	48.09	48.38	0.29	0.00	0.29	1	No. 4 Seam Floor Rock (Saved)						
QU-01-06C	QU0602	105.30	107.05	1.75	0.00	1.75	2	No. 3 Seam	22.92	35.54	41.53	6.14	24.03	10335
QU-01-07C	QU0701	28.00	31.62	3.61	0.01	3.62	4	No. 4 Seam	21.28	33.73	40.75	2.51	23.81	10241
QU-01-07C	QU0702	72.39	74.55	2.16	0.00	2.16	3	No. 3 Seam	16.03	38.00	45.97	5.35	27.22	11708
QU-01-07C	QU0703	74.55	75.15	0.60	0.00	0.60	1	No. 3 Seam Parting	60.97	22.88	16.15	11.43	3.54	1523
QU-01-07C	QU0704	75.15	75.40	0.25	0.00	0.25	1	No. 3 Seam Parting	89.65	9.28	1.07	3.50	0.31	133
QU-01-07C	QU0705	75.40	76.18	0.78	0.00	0.78	1	No. 3 Seam Basal	13.97	40.11	45.92	3.20	28.31	12176
QU-01-08C	QU0801	41.22	45.00	3.78	0.32	4.10	3	No. 4 Seam	29.22	33.48	37.30	4.15	21.84	9394
QU-01-08C	QU0802	70.95	71.55	0.60	0.06	0.66	1	No. 3 Seam	31.41	33.30	35.28	0.95	21.77	9363
QU-01-09C	QU0901	147.29	147.88	0.30	0.29	0.59	1	No. 1 Rider Seam	17.51	39.15	43.35	5.40	26.47	11385
QU-01-09C	QU0902	147.88	148.90	0.57	0.45	1.02	1	No. 1 Rider Parting (Saved)						
QU-01-09C	QU0903	148.90	150.82	1.10	0.82	1.92	1	No. 1 Seam	9.60	38.46	51.93	0.58	29.37	12632
QU-01-10C	QU1001	154.42	155.00	0.53	0.05	0.58	1	No. 1 Rider Seam	17.97	37.53	44.51	2.80	27.23	11712
QU-01-10C	QU1002	155.00	155.87	0.87	0.00	0.87	1	No. 1 Rider Parting (Saved)						
QU-01-10C	QU1003	155.87	158.02	2.15	0.00	2.15	3	No. 1 Seam	18.16	36.01	45.83	0.40	26.73	11497
QU-01-11C	QU1101	114.38	115.00	0.62	0.00	0.62	1	No. 1 Rider Seam	15.68	38.54	45.77	2.97	27.46	11811
QU-01-11C	QU1102	115.00	115.60	0.51	0.09	0.60	1	No. 1 Rider Parting (Saved)						
QU-01-11C	QU1103	115.60	117.82	2.24	-0.02	2.22	3	No. 1 Seam	10.25	38.91	50.84	0.53	29.41	12649
QU-01-12C	QU1201	94.45	95.03	0.53	0.05	0.58	1	No. 1 Rider Seam	20.16	37.34	42.49	5.19	26.74	11501
QU-01-12C	QU1202	95.03	95.34	0.31	0.31	0.31	1	No. 1 Rider Parting (Saved)	78.48	16.67	4.85	0.94	3.38	1454
QU-01-12C	QU1203	95.34	97.71	2.19	0.18	2.37	3	No. 1 Seam	15.43	37.99	46.58	0.92	27.85	11978
QU-01-13C	QU1301	114.55	116.24	1.51	0.18	1.69	2	No. 3 Seam	19.58	38.19	42.22	4.19	26.17	11256
QU-01-14C	QU1401	57.19	61.19	3.10	0.90	4.00	4	No. 4 Seam	34.05	32.03	33.92	1.76	20.89	8985
QU-01-14C	QU1402	102.58	105.16	2.03	0.11	2.14	3	No. 3 Seam	15.13	38.95	45.93	3.28	27.75	11935
QU-01-15C	QU1501	110.13	111.91	1.78	0.00	1.78	2	No. 3 Seam	30.92	33.61	35.46	5.55	21.02	9041
QU-01-15C	QU1502	171	173	proximate interval			1	DRILL CUTTINGS						
QU-01-17C	QU1701	31.61	33.08	1.34	0.13	1.47	1	No.5 Seam	12.51	39.47	48.01	3.82	28.79	12383
QU-01-17C	QU1702	33.08	33.85	0.59	0.18	0.77	1	No. 4 Seam Roof (Saved)						
QU-01-17C	QU1703	33.85	36.87	3.02	0.00	3.02	4	No. 4 Seam	16.82	37.46	45.72	0.84	27.25	11720
QU-01-17C	QU1704	36.87	37.80	0.85	0.08	0.93	1	No. 4 Seam Parting	48.87	25.42	25.71	4.17	17.69	7609
QU-01-17C	QU1705	37.80	38.70	0.90	0.00	0.90	1	No. 4 Seam (Lower)	31.81	34.15	34.05	3.85	21.99	9458
QU-01-17C	QU1706	76.07	78.13	2.10	-0.04	2.06	3	No. 3 Seam	14.56	38.58	46.88	3.44	27.80	11957
QU-01-18	QU1801	170	171.5	proximate interval			1	DRILL CUTTINGS						

NOTE 1 : Hole QU-01-16 did not recover any core samples due to bad hole conditions (bent casing).
NOTE 2 : Hole QU-01-15 did not recover any core in No. 1 Seam interval due to beyond depth of core string.
NOTE 2 : Sample Interval from driller's measured depth (not corrected for E-log).

TABLE 8. : SAMPLE INVENTORY



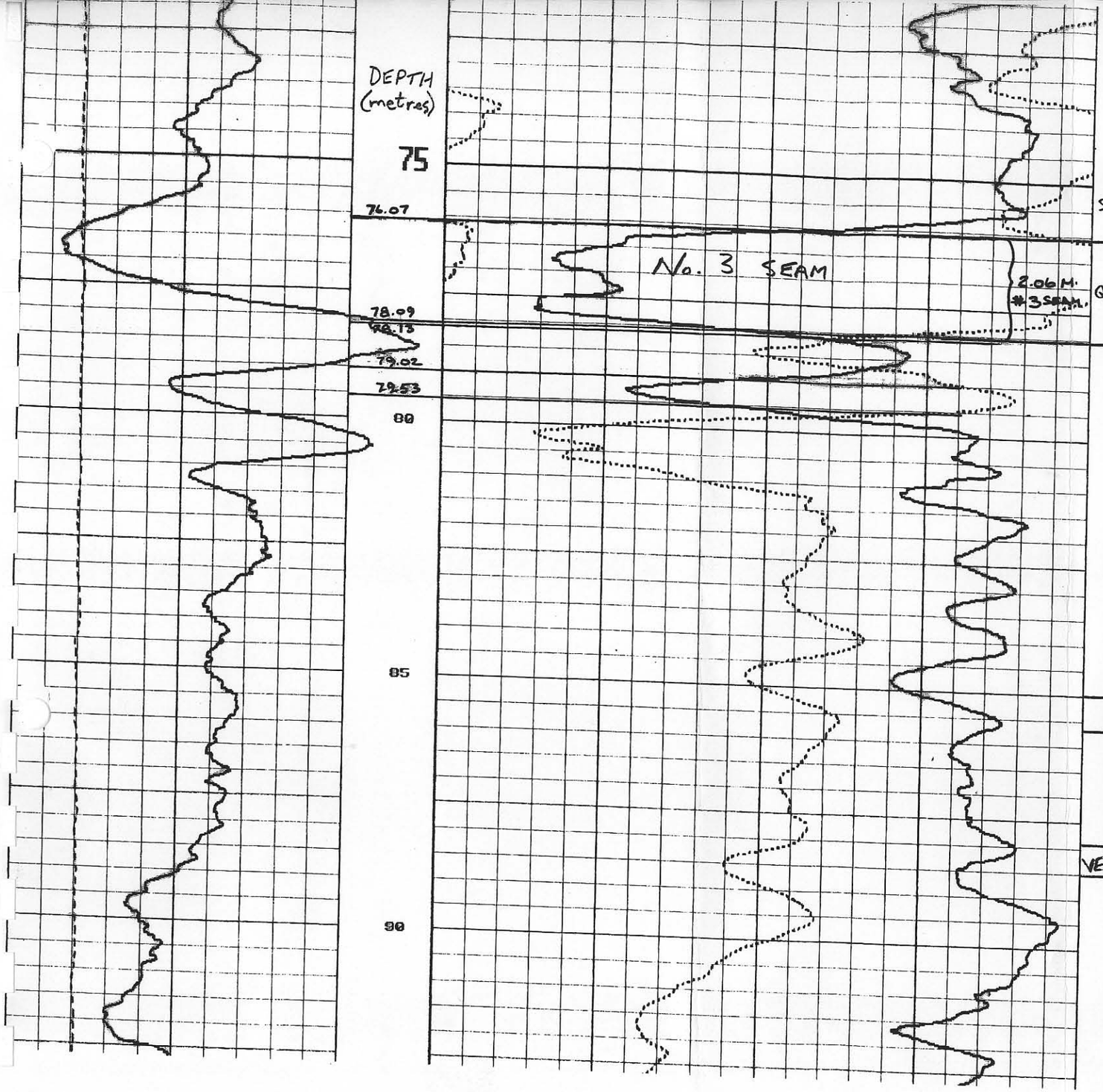
HOLE QU-01-17

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M. %	F.C. %	S %	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS RECOVERY % (OF TOTAL)	ASH %	S %	MG/kg
QU1701	12.51	39.47	48.01	3.82				
QU1702								
QU1703	16.82	37.46	45.72	0.84	74.85	13.25	1.53	28.86
QU1704	48.87	25.42	25.71	4.17				
QU1705	31.81	34.15	34.05	3.85				

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 5 & No. 4 SEAMS
HOLE QU-01-17
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100	DWG. No. IV - L	BY: S.L.G.



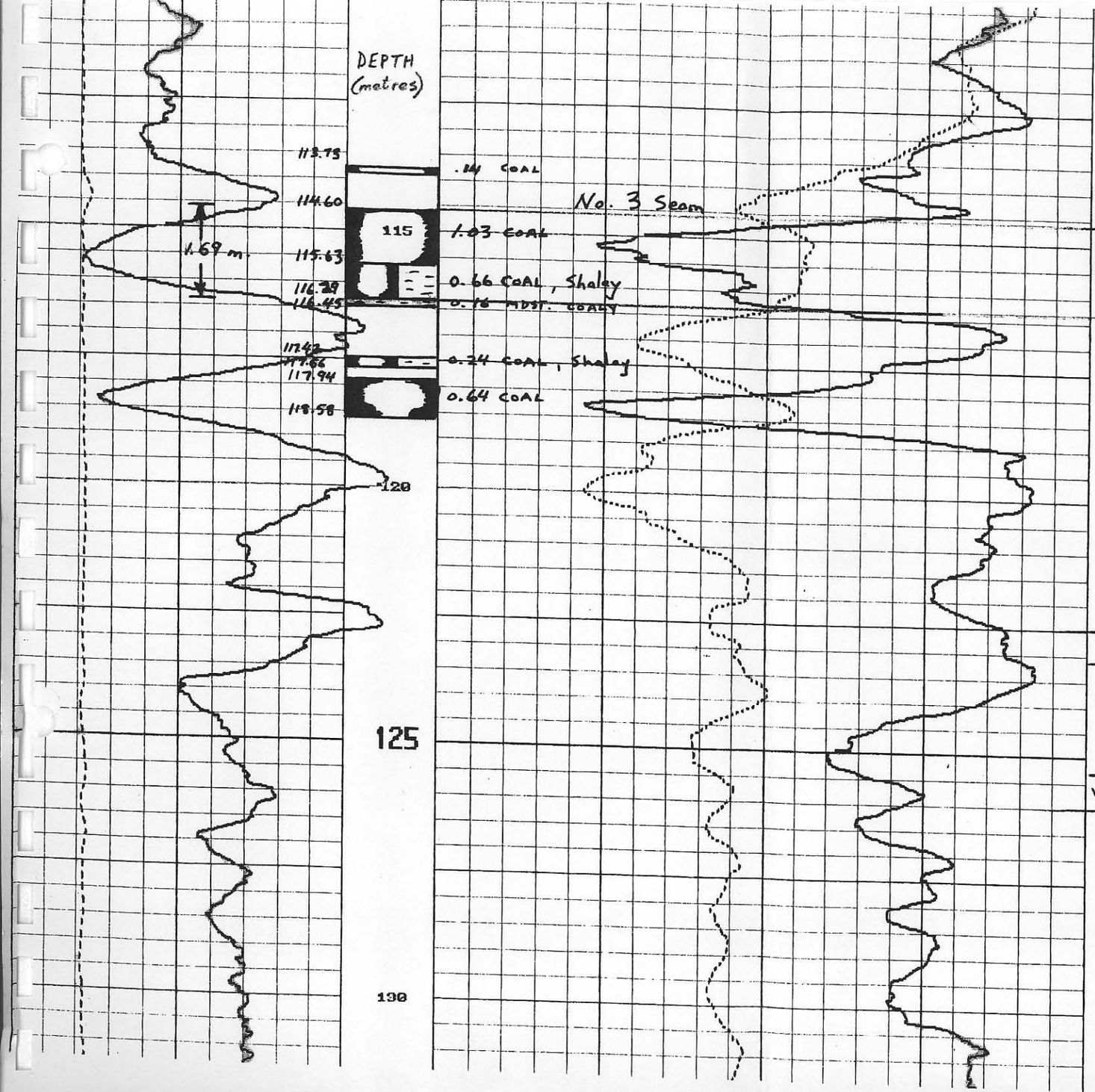
HOLE QU-01-17

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH%	V.M.%	F.C.%	S%	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS RECOVERY % (OF TOTAL)	ASH%	S%	MG/kg
QU1706	14.56	38.58	46.88	3.44	89.30	11.03	2.16	29.77

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 3 SEAM INTERVAL
HOLE QU-01-17
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | DWG. No. IV - M | BY: S.L.G.



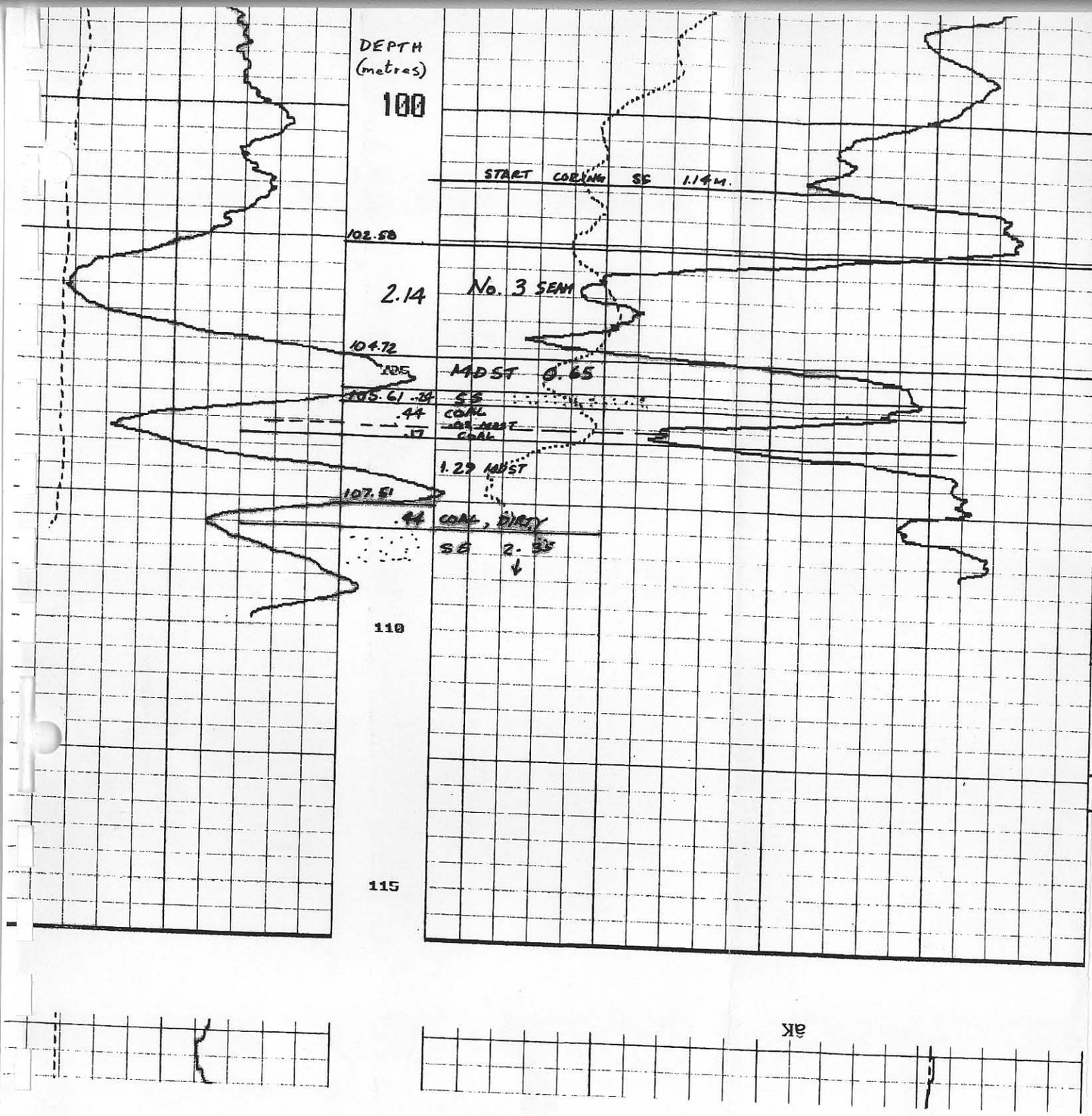
HOLE QU-01-13

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH%	V.M.%	F.C. %	S%	CLEAN COAL AT 1.7 S.G. +60 MESH. DRY BASIS %RECOVERY (OF TOTAL)	ASH%	S%	MG/kg
QU1301	19.58	38.19	42.22	4.19	86.61	16.68	3.60	27.50

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 3 SEAM INTERVAL
HOLE QU-01-13
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA.

VERTICAL SCALE - 1:100	DWG. No. IV - J	BY: S.L.G.



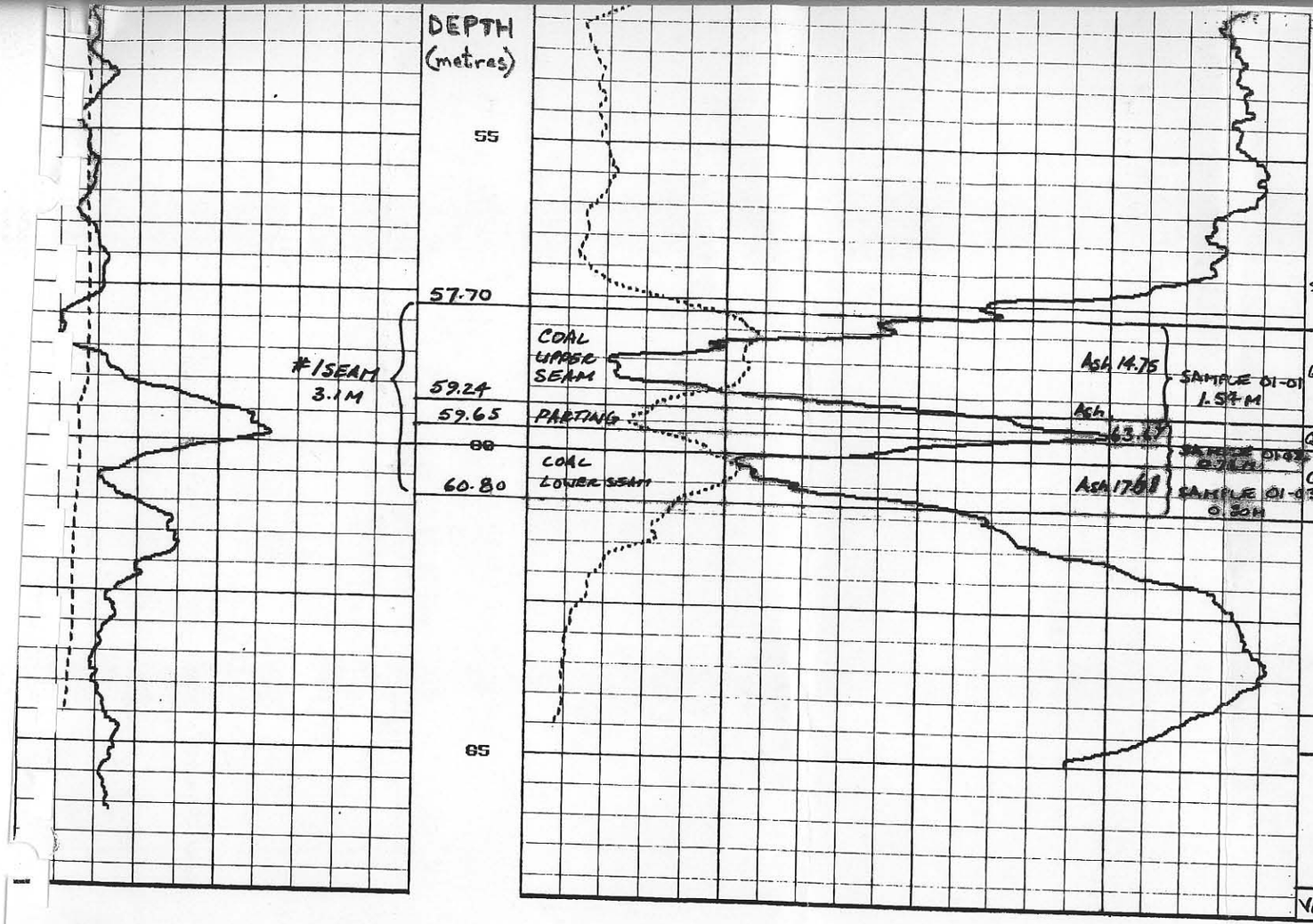
HOLE Qu-01-14

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M. %	F.C. %	S %	CLEAN COAL AT 1.7 S.G. %REC. OF TOTAL	+60 MESH DRY BASIS ASH %	S %	MG/kg
Qu1402	15.13	38.95	45.93	3.28	90.81	12.78	2.68	28.96

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 3 SEAM INTERVAL
HOLE QU-01-14
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | DWG. No. IV - k | BY: S.L.G.

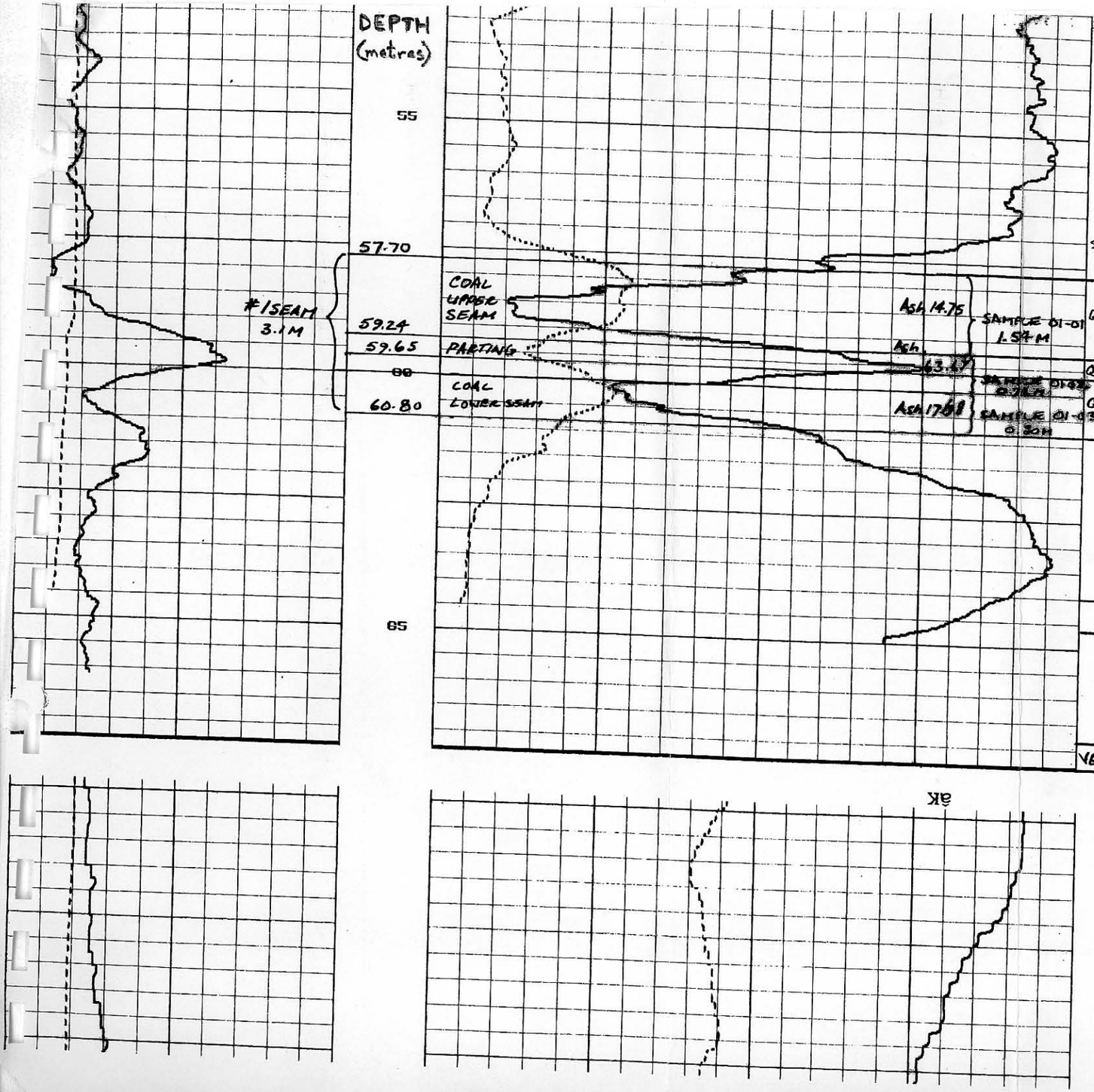


SAMPLE No.	RAW COAL (AIR-DRY BASIS) ASH %	S%	CALCULATED AVERAGE VALUES ASH %	S%
Qu0101	14.75	0.30	24.05	1.17
Qu0102	63.67	2.08		
Qu0103	17.68	1.86		

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 1 SEAM INTERVAL
3 NORTH HOLE QU-01-01
SHOWING RAW COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | FIG. IV-A | BY: S.L.G.

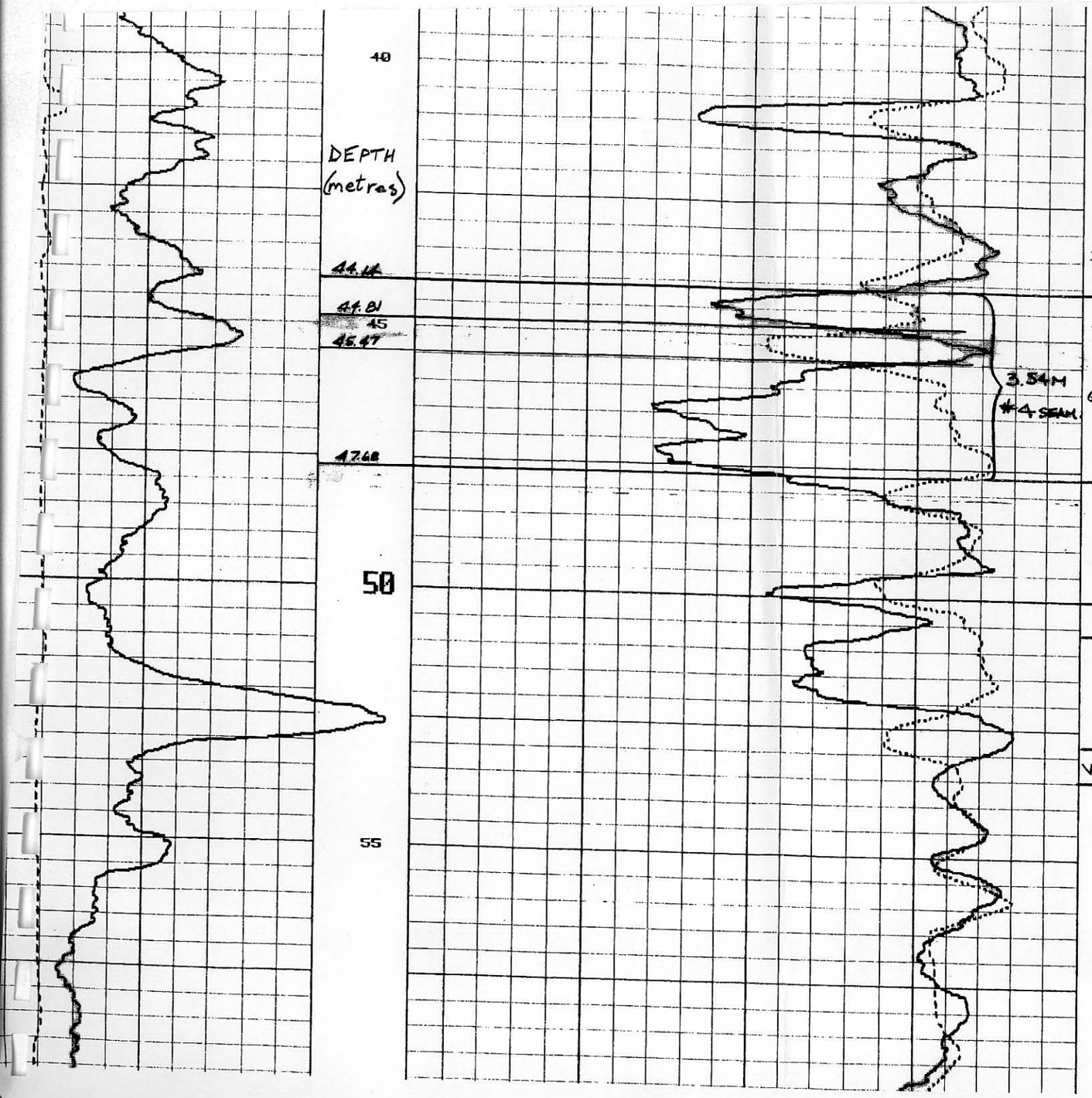


SAMPLE No.	RAW COAL (AIR-DRY BASIS) ASH %	S %	CALCULATED AVERAGE VALUES ASH %	S %
QU0101	14.75	0.30	24.05	1.17
QU0102	63.67	2.08		
QU0103	17.68	1.86		

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 1 SEAM INTERVAL
3 NORTH HOLE QU-01-01
SHOWING RAW COAL ANALYTICAL DATA

VERTICAL SCALE - 1 : 100 | FIG. IV-A | BY: S.L.G.



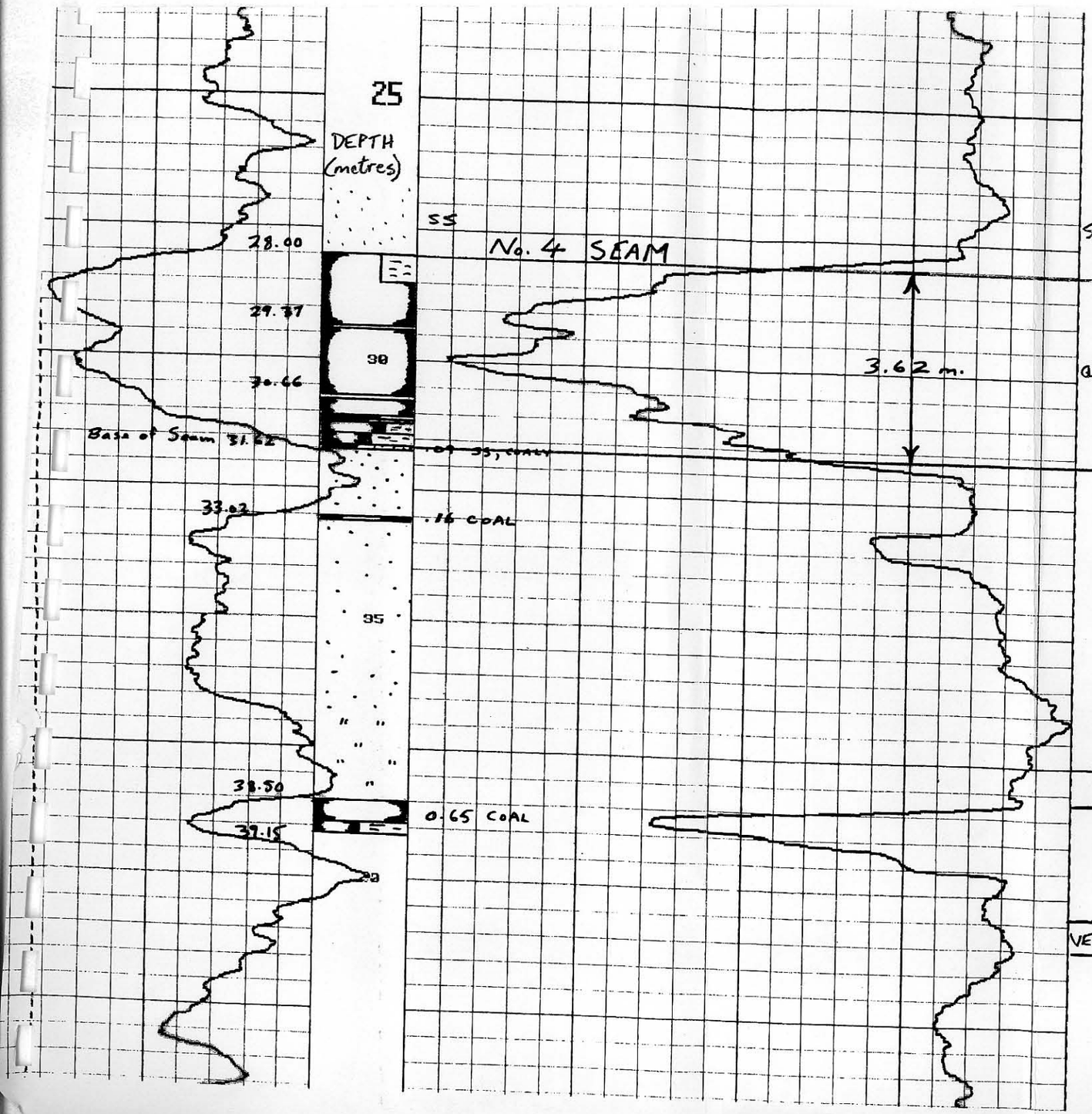
HOLE QU-01-06

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M. %	F.C. %	S %	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS % RECOVERY (OF TOTAL)	ASH %	S %	MG/kg
QU-0601	43.28	27.69	29.03	6.05	49.04	17.98	2.87	26.80

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 4 SEAM INTERVAL
HOLE QU-01-06
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE- 1:100 | DWG. No. IV-B | BY: S.L.G.



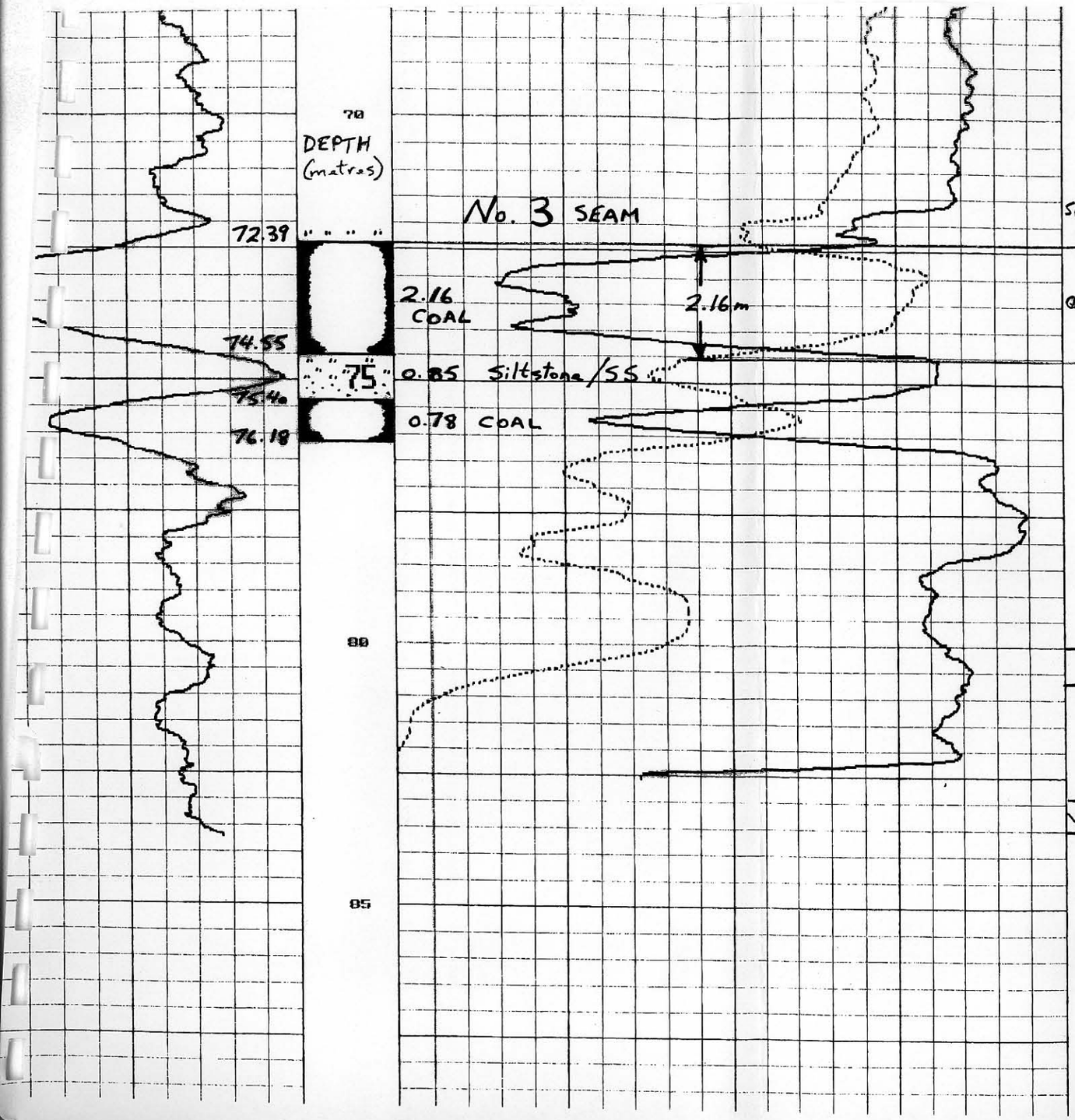
HOLE Qu-01-07

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M. %	F.C. %	S %	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS % RECOVERY (OF TOTAL)	ASH %	S %	MJ/kg
QU0701	21.28	33.73	40.75	2.51	80.34	12.73	2.24	28.78

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 4 SEAM INTERVAL
HOLE QU-01-07
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100	DWG. No. IV-C	BY: S.L.G.



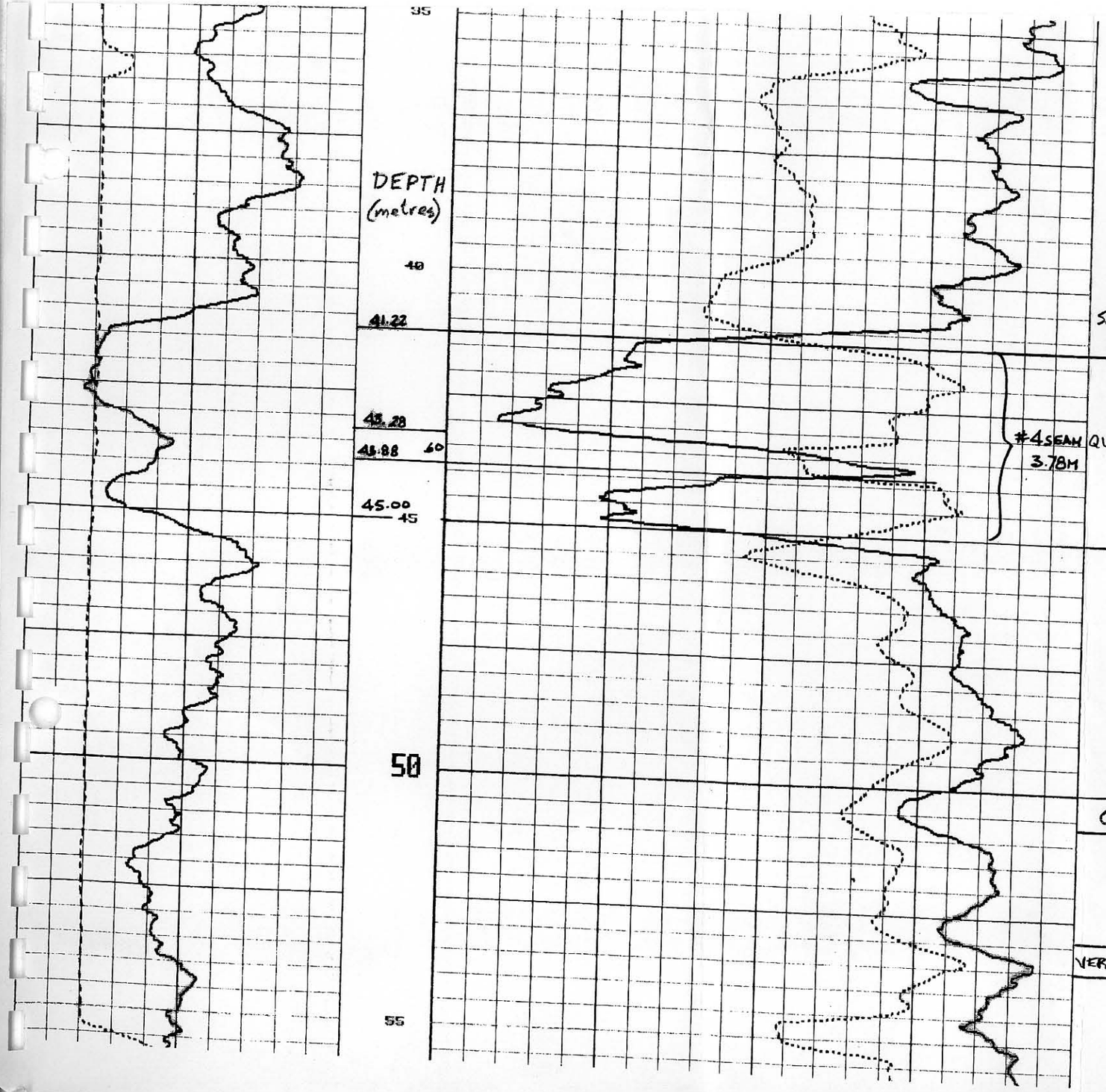
HOLE QU-01-07

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M. %	F.C. %	S%	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS %RECOVERY (OF TOTAL)	ASH %	S%	MJ/Kg
QU0702	16.03	38.00	45.97	5.35	84.17	10.25	2.63	29.99

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 3 SEAM INTERVAL
HOLE QU-01-07
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | DWG. No. IV-D | BY: S.L.G.



HOLE QU-01-08

RAW HEAD ANALYSIS (DRY BASIS)

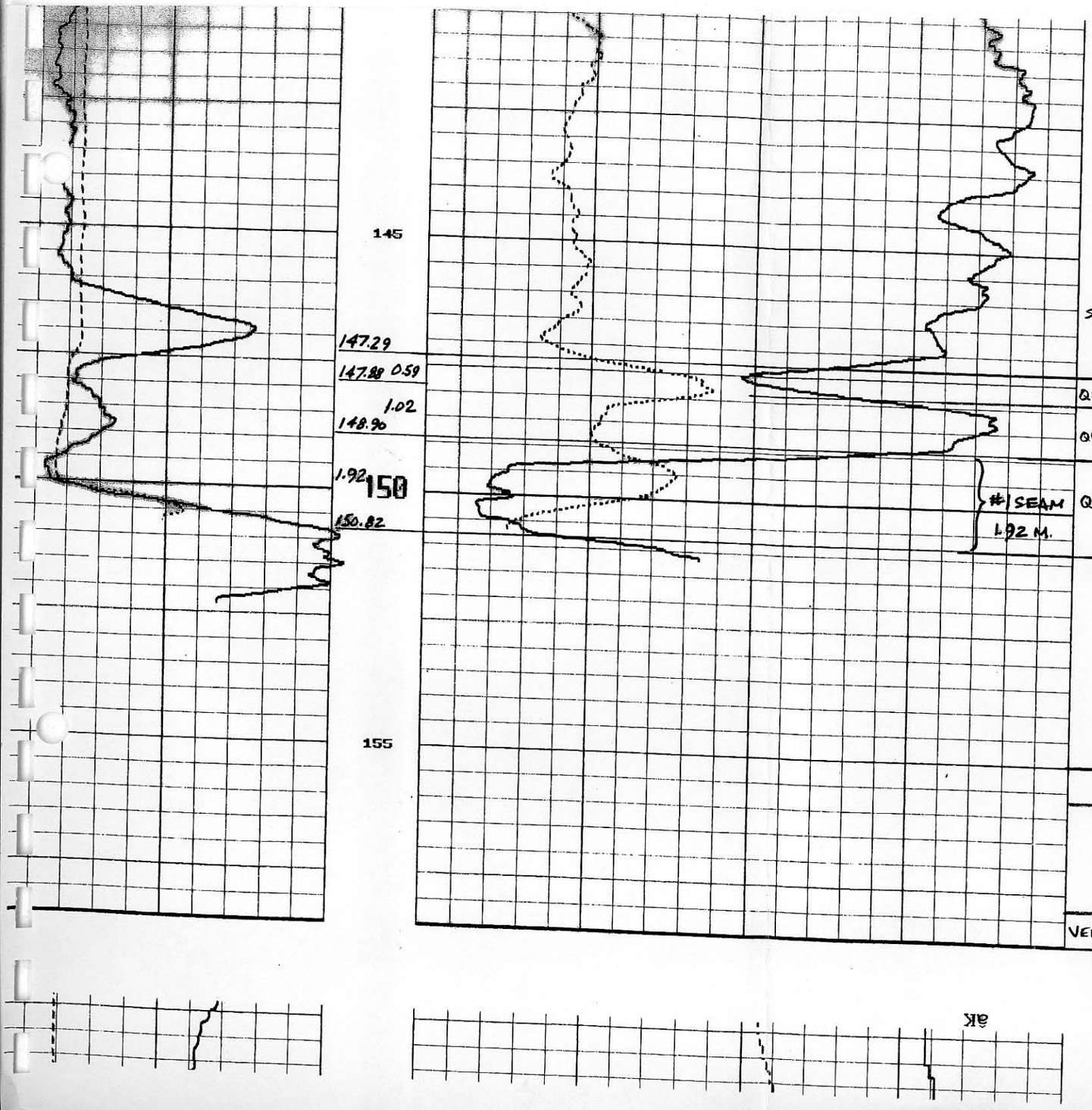
CLEAN COAL AT 1.75 S.G. +60 MESH, DRY BASIS

SAMPLE No.	ASH%	V.M.%	F.C.%	S%	% RECOVERY (OF TOTAL)	ASH%	S%	MG/Kg
QU0801	29.22	33.48	37.30	4.15	66.69	15.29	1.72	27.74

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 4 SEAM INTERVAL
HOLE QU-01-08
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1 : 100 | DWG. No. IV-E | BY: S.L.G.



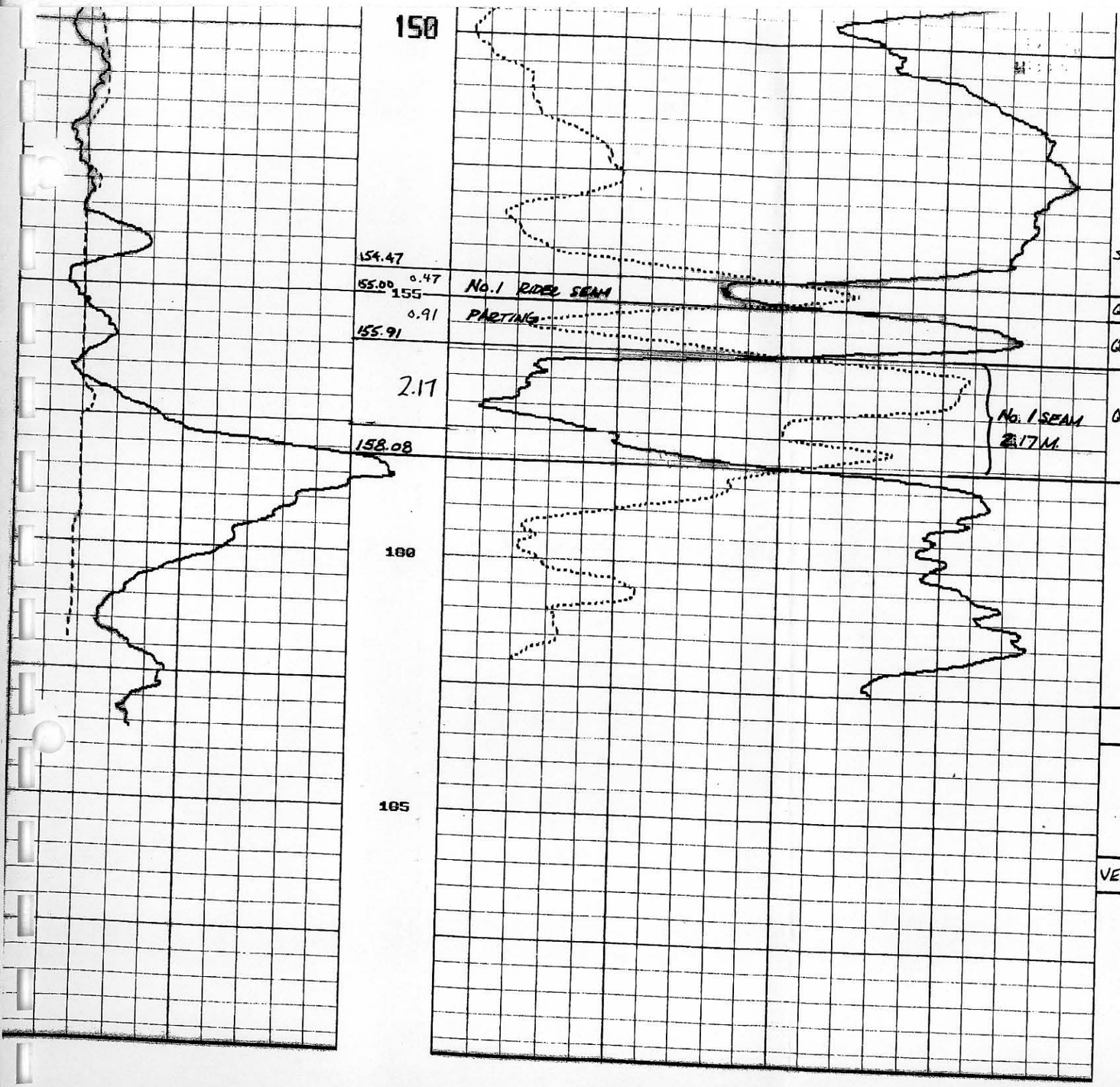
HOLE QU-01-09

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH%	V.M.%	F.C.%	S%	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS % RECOVERY (OF TOTAL)	ASH%	S%	MG/kg
QU 0901	17.51	39.15	43.35	5.40				
QU 0902								
QU-0903	9.60	38.46	51.93	0.58	91.87	7.31	0.61	30.28

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 1 SEAM INTERVAL
HOLE QU-01-09
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | DWG. No. IV-F | BY: S.L.G.



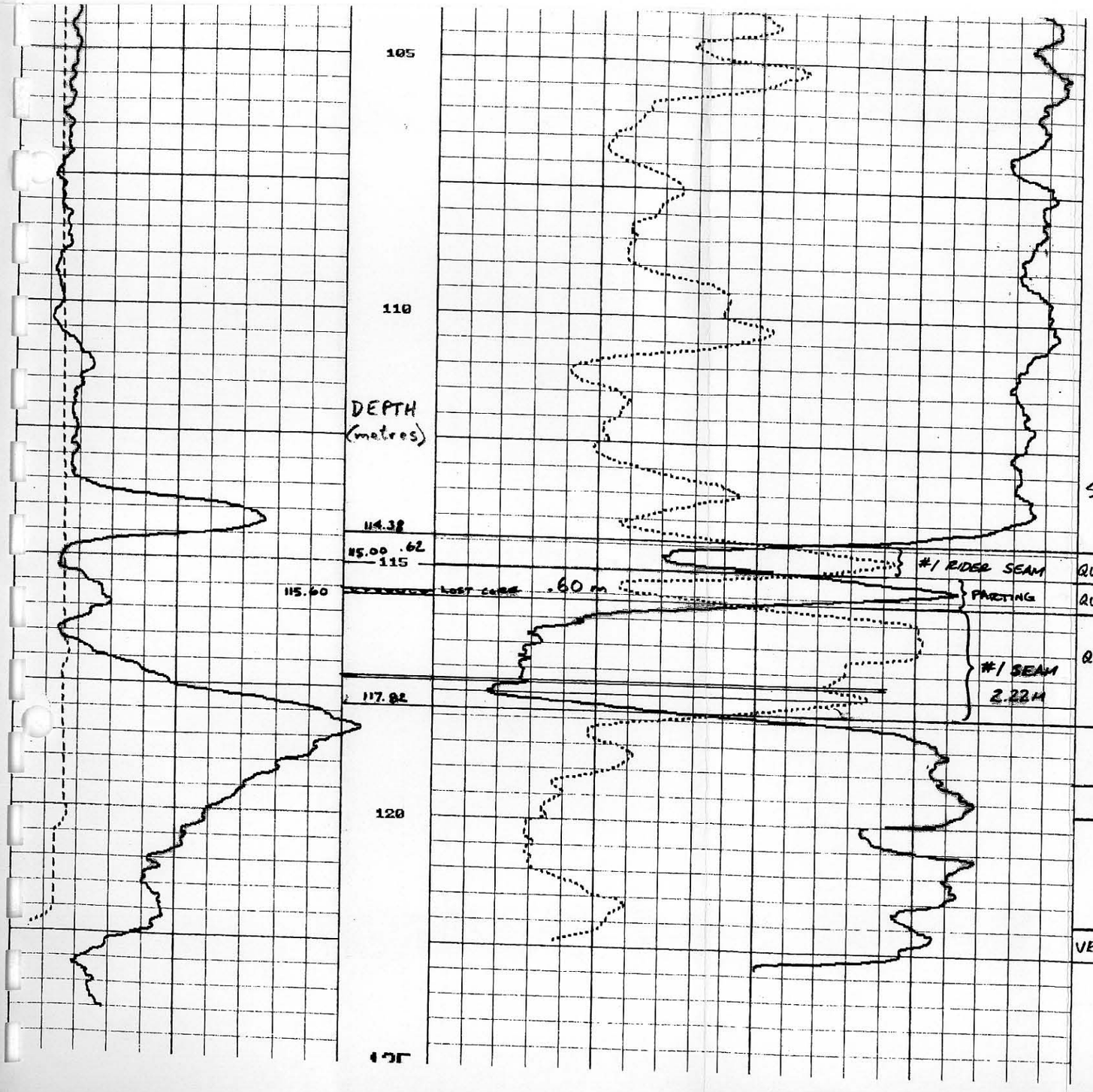
HOLE Qu-01-10

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M. %	F.C. %	S %	CLEAN COAL AT 1.75 S.G. +60 MESH, DRY BASIS % RECOVERY (OF TOTAL)	ASH %	S %	MG/kg
Qu1001	17.97	37.53	44.51	2.80				
Qu1002								
Qu1003	18.16	36.01	45.83	0.40	81.32	8.43	0.43	30.16

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 1 SEAM INTERVAL
HOLE Qu-01-10
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100	DWG. No. IV-G	BY: S.L.G.



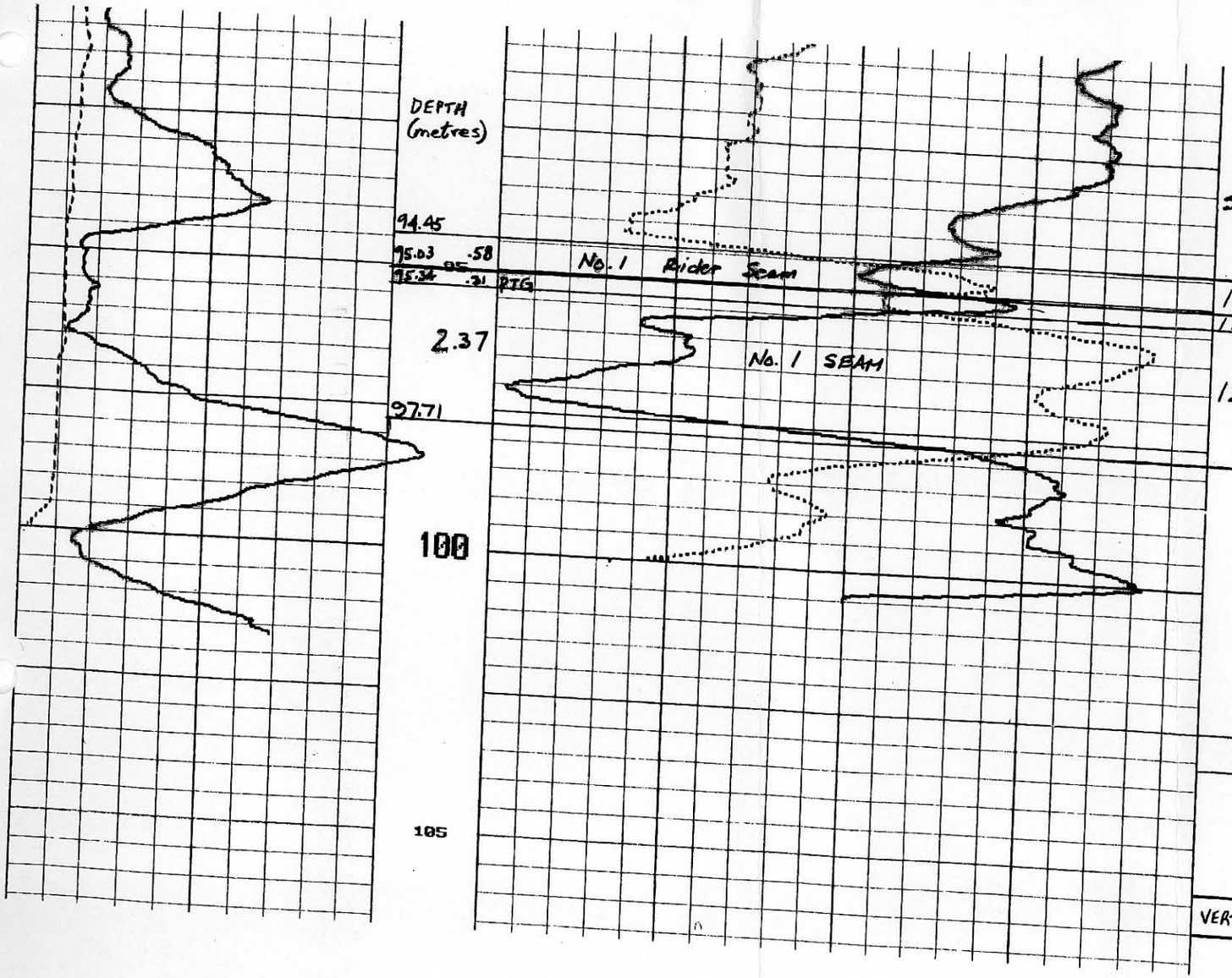
HOLE Qu-01-11

SAMPLE No.	RAW HEAD ANALYSIS (DRY BASIS) ASH %	V.M.%	F.C.%	S %	CLEAN COAL AT 1.7 S.G. +60 MESH, DRY BASIS % RECOVERY (OF TOTAL)	ASH%	S%	MG/kg
Qu 1101	15.68	38.54	45.77	2.97				
Qu 1102								
Qu 1103	10.25	38.91	50.84	0.53	90.73	7.61	0.53	30.68

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 1 SEAM INTERVAL
HOLE Qu-01-11
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | DWG. No. IV-H | BY: S.L.G.



HOLE QU-01-12

SAMPLE No.	RAW HEAD ANALYSES (DRY BASIS) ASH%	V.M.%	F.C.%	S%	CLEAN COAL COMPOSITE AT 1.7 S.G. +60 MESH, DRY BASIS ASH%	S%
1201	20.16	37.34	42.49	5.19		
1202	78.48	16.67	4.85	0.94		
1203	15.43	37.99	46.58	0.92	9.40	1.48

QUINSAM 2001 EXPLORATION PROGRAM

GEOPHYSICAL LOG OF No. 1 SEAM INTERVAL
HOLE QU-01-12
SHOWING RAW AND CLEAN COAL ANALYTICAL DATA

VERTICAL SCALE - 1:100 | DWG. No. IV-I | BY: S.L.G.

LORING LABORATORIES LTD.

629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541

TO : QUINSAM COAL CORPORATION
ATTN : STEPHEN GARDNER
PROJECT : 2001 EXPLORATION

LLL FILE # : 44225
DATE: 22 Oct, 01
REPORT BY : DAVID KO

SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID	BASIS	H2O (%)	V.M. (%)	ASH (%)	F.C. (%)	S (%)	MJ/Kg
QU0703	A.R.	2.28	22.36	59.59	15.78	11.17	3.46
No. 3 Seam	A.D.	1.04	22.64	60.34	15.98	11.31	3.50
Parting	Dry	-----	22.88	60.97	16.15	11.43	3.54
QU0704	A.R.	1.13	9.17	88.64	1.06	3.47	0.31
No. 3 Seam	A.D.	0.42	9.24	89.27	1.07	3.49	0.31
Parting	Dry	-----	9.28	89.65	1.07	3.50	0.31
QU0705	A.R.	4.15	38.45	13.39	44.02	3.07	27.14
No. 3 Seam	A.D.	1.92	39.34	13.70	45.04	3.14	27.77
Basal	Dry	-----	40.11	13.97	45.92	3.20	28.31
QU0802	A.R.	6.32	31.20	29.43	33.05	0.89	20.40
No. 3 Seam	A.D.	2.08	32.61	30.76	34.55	0.93	21.32
	Dry	-----	33.30	31.41	35.28	0.95	21.77
QU0901	A.R.	4.46	37.40	16.73	41.41	5.16	25.29
No. 1 Rider Seam	A.D.	1.75	38.46	17.20	42.59	5.31	26.01
	Dry	-----	39.15	17.51	43.35	5.40	26.47
QU1001	A.R.	4.14	35.97	17.22	42.67	2.69	26.10
No. 1 Rider Seam	A.D.	2.60	36.55	17.50	43.35	2.73	26.52
	Dry	-----	37.53	17.97	44.51	2.80	27.23
QU1101	A.R.	3.71	37.11	15.10	44.07	2.86	26.44
No. 1 Rider Seam	A.D.	2.76	37.48	15.25	44.51	2.89	26.70
	Dry	-----	38.54	15.68	45.77	2.97	27.46

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SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU0601	**RAW HEAD**		A.R.	3.62	26.69	41.71	27.98	5.83	15.24
No. 4 Seam			A.D.	0.94	27.43	42.87	28.76	5.99	15.66
			Dry	-----	27.69	43.28	29.03	6.05	15.81
	+60 MESH	**96.65**							
	-60 MESH	**3.35**	A.D.	1.04	31.18	40.21	27.57	5.22	17.48
			Dry	-----	31.51	40.63	27.86	5.27	17.66
	+60 MESH	**50.74**	A.D.	1.48	35.14	17.71	45.67	2.83	26.40
	1.70 FLT		Dry	-----	35.67	17.98	46.36	2.87	26.80
	+60 MESH	**49.26**	A.D.	0.95	18.91	68.12	12.02		
	1.70 SINK		Dry	-----	19.09	68.77	12.14		
QU0602	**RAW HEAD**		A.R.	3.78	34.20	22.06	39.96	5.91	23.12
No. 3 Seam			A.D.	1.50	35.01	22.58	40.91	6.05	23.67
			Dry	-----	35.54	22.92	41.53	6.14	24.03
	+60 MESH	**97.21**							
	-60 MESH	**2.79**	A.D.	1.47	36.41	25.13	36.99	4.34	22.37
			Dry	-----	36.95	25.50	37.54	4.40	22.70
	+60 MESH	**76.45**	A.D.	1.59	37.57	11.32	49.52	3.14	29.08
	1.70 FLT		Dry	-----	38.18	11.50	50.32	3.19	29.55
	+60 MESH	**23.55**	A.D.	0.97	23.89	57.74	17.40		
	1.70 SINK		Dry	-----	24.12	58.31	17.57		

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DATE: 22 Oct, 01
REPORT BY : DAVID KO

SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU0701	**RAW HEAD**		A.R.	4.24	33.73	21.28	40.75	2.51	23.81
No. 4 Seam			A.D.	1.57	34.67	21.87	41.89	2.58	24.47
			Dry	-----	35.22	22.22	42.56	2.62	24.86
	+60 MESH	**97.05**							
	-60 MESH	**2.95**	A.D.	1.41	36.59	24.93	37.07	2.35	21.88
			Dry	-----	37.11	25.29	37.60	2.38	22.19
	+60 MESH	**82.78**	A.D.	1.79	37.55	12.50	48.16	2.20	28.26
	1.70 FLT		Dry	-----	38.23	12.73	49.04	2.24	28.78
	+60 MESH	**17.22**	A.D.	0.79	23.17	62.15	13.89		
	1.70 SINK		Dry	-----	23.35	62.64	14.00		
QU0702	**RAW HEAD**		A.R.	4.01	36.48	15.38	44.13	5.13	26.13
No. 3 Seam			A.D.	1.85	37.30	15.73	45.12	5.25	26.72
			Dry	-----	38.00	16.03	45.97	5.35	27.22
	+60 MESH	**97.09**							
	-60 MESH	**2.91**	A.D.	1.53	38.65	20.57	39.25	3.62	24.55
			Dry	-----	39.25	20.89	39.86	3.68	24.93
	+60 MESH	**86.69**	A.D.	1.89	38.98	10.06	49.07	2.58	29.42
	1.70 FLT		Dry	-----	39.73	10.25	50.02	2.63	29.99
	+60 MESH	**13.31**	A.D.	0.88	28.35	53.20	17.57		
	1.70 SINK		Dry	-----	28.60	53.67	17.73		

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REPORT BY : DAVID KO

SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU0801	**RAW HEAD**		A.R.	5.45	31.66	27.63	35.27	3.93	20.65
No. 4 Seam			A.D.	1.76	32.89	28.71	36.64	4.08	21.46
			Dry	-----	33.48	29.22	37.30	4.15	21.84
	+60 MESH	**97.42**							
	-60 MESH	**2.58**	A.D.	1.44	34.26	24.60	39.70	2.98	23.41
			Dry	-----	34.76	24.96	40.28	3.02	23.75
	+60 MESH	**68.46**	A.D.	1.88	36.46	15.00	46.66	1.69	27.22
	1.70 FLT		Dry	-----	37.16	15.29	47.55	1.72	27.74
	+60 MESH	**31.54**	A.D.	0.84	24.63	60.47	14.06		
	1.70 SINK		Dry	-----	24.84	60.98	14.18		
QU0903	**RAW HEAD**		A.R.	4.88	36.59	9.13	49.40	0.55	27.93
No. 1 Seam			A.D.	2.30	37.58	9.38	50.74	0.57	28.69
			Dry	-----	38.46	9.60	51.93	0.58	29.37
	+60 MESH	**97.39**							
	-60 MESH	**2.61**	A.D.	1.81	37.85	20.67	39.67	0.58	24.28
			Dry	-----	38.55	21.05	40.40	0.59	24.73
	+60 MESH	**94.33**	A.D.	2.07	38.17	7.16	52.60	0.60	29.65
	1.70 FLT		Dry	-----	38.98	7.31	53.71	0.61	30.28
	+60 MESH	**5.67**	A.D.	0.69	22.24	39.80	37.27		
	1.70 SINK		Dry	-----	22.39	40.08	37.53		

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LLL FILE # : 44225
DATE: 22 Oct, 01
REPORT BY : DAVID KO

SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID		% RECOVERY	BASIS	% H2O	% V.M.	% ASH	% F.C.	% S	MJ/Kg
QU1003	**RAW HEAD**		A.R.	7.46	33.33	16.80	42.41	0.37	24.74
No. 1 Seam			A.D.	2.95	34.95	17.62	44.48	0.39	25.94
			Dry	-----	36.01	18.16	45.83	0.40	26.73
	+60 MESH	**95.50**							
	-60 MESH	**4.50**	A.D.	2.00	17.20	45.38	35.42	0.29	14.68
			Dry	-----	17.55	46.31	36.14	0.30	14.98
	+60 MESH	**85.16**	A.D.	1.69	38.61	8.29	51.41	0.42	29.65
	1.70 FLT		Dry	-----	39.27	8.43	52.29	0.43	30.16
	+60 MESH	**14.84**	A.D.	0.59	22.74	66.41	10.26		
	1.70 SINK		Dry	-----	22.87	66.80	10.32		
QU1103	**RAW HEAD**		A.R.	4.69	37.09	9.76	48.46	0.50	28.03
No. 1 Seam			A.D.	2.88	37.79	9.95	49.38	0.51	28.56
			Dry	-----	38.91	10.25	50.84	0.53	29.41
	+60 MESH	**96.10**							
	-60 MESH	**3.90**	A.D.	2.32	34.22	28.24	35.22	0.51	20.57
			Dry	-----	35.03	28.91	36.06	0.52	21.06
	+60 MESH	**94.41**	A.D.	1.93	38.87	7.46	51.74	0.52	30.09
	1.70 FLT		Dry	-----	39.63	7.61	52.76	0.53	30.68
	+60 MESH	**5.59**	A.D.	0.78	23.32	45.76	30.14		
	1.70 SINK		Dry	-----	23.50	46.12	30.38		

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TO : QUINSAM COAL CORPORATION
ATTN : STEPHEN GARDNER
PROJECT : 2001 EXPLORATION

LLL FILE # : 44225
DATE: 14 Nov, 01
REPORT BY : DAVID KO

SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID	BASIS	% H2O	% V.M.	% ASH	% F.C.	% S	MJ/Kg
QU1201	A.R.	4.61	35.62	19.23	40.53	4.95	25.51
No. 1 Rider Seam	A.D.	1.94	36.62	19.77	41.67	5.09	26.22
	Dry	-----	37.34	20.16	42.49	5.19	26.74
QU1202	A.R.	12.12	14.65	68.97	4.26	0.83	2.97
No. 1 Rider	A.D.	1.19	16.47	77.55	4.79	0.93	3.34
Parting	Dry	-----	16.67	78.48	4.85	0.94	3.38
QU1203	A.R.	6.27	35.61	14.46	43.66	0.86	26.10
No. 1 Seam	A.D.	2.21	37.15	15.09	45.55	0.90	27.23
	Dry	-----	37.99	15.43	46.58	0.92	27.85
QU1701	A.R.	5.19	37.43	11.86	45.52	3.63	27.30
No. 5 Seam	A.D.	2.19	38.61	12.24	46.96	3.74	28.16
	Dry	-----	39.47	12.51	48.01	3.82	28.79
QU1703	A.R.	5.29	35.48	15.93	43.30	0.80	25.81
No. 4 Seam	A.D.	2.41	36.56	16.41	44.62	0.82	26.59
	Dry	-----	37.46	16.82	45.72	0.84	27.25
QU1704	A.R.	3.27	24.58	47.27	24.87	4.03	17.11
No. 4 Seam	A.D.	1.36	25.07	48.21	25.36	4.11	17.45
	Dry	-----	25.42	48.87	25.71	4.17	17.69
QU1705	A.R.	3.81	32.85	30.60	32.75	3.70	21.16
No. 4 Seam	A.D.	1.75	33.55	31.25	33.45	3.78	21.61
	Dry	-----	34.15	31.81	34.05	3.85	21.99

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DATE: 22 Oct, 01
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SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU1201-03 COMP	**RAW COMP**		A.D.	1.98	33.60	24.69	39.73	1.73	23.85
No. 1 Seam			Dry	-----	34.28	25.19	40.53	1.76	24.33
	+60 MESH	**98.10**							
	-60 MESH	**1.90**	A.D.	1.56	34.34	29.09	35.01	1.48	20.35
			Dry	-----	34.88	29.55	35.56	1.50	20.67
	+60 MESH	**75.28**	A.D.	1.54	37.72	9.26	51.48	1.46	29.95
	1.70 FLT		Dry	-----	38.31	9.40	52.29	1.48	30.42
	+60 MESH	**24.72**	A.D.	0.76	18.54	73.46	7.24		
	1.70 SINK		Dry	-----	18.68	74.02	7.30		
QU1301	**RAW HEAD**		A.R.	5.01	36.28	18.60	40.10	3.98	24.86
No. 3 Seam			A.D.	1.71	37.54	19.25	41.50	4.12	25.72
			Dry	-----	38.19	19.58	42.22	4.19	26.17
	+60 MESH	**97.90**							
	-60 MESH	**2.10**	A.D.	1.56	36.44	26.71	35.29	3.34	20.28
			Dry	-----	37.02	27.13	35.85	3.39	20.60
	+60 MESH	**88.47**	A.D.	1.17	38.27	16.48	44.08	3.56	27.18
	1.70 FLT		Dry	-----	38.72	16.68	44.60	3.60	27.50
	+60 MESH	**11.53**	A.D.	0.83	30.13	49.57	19.47		
	1.70 SINK		Dry	-----	30.38	49.98	19.63		

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SAMPLE TYPE : RAW COAL

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SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU1401	**RAW HEAD**		A.R.	4.81	30.49	32.41	32.28	1.68	19.89
No. 4 Seam			A.D.	1.73	31.48	33.46	33.33	1.73	20.53
			Dry	-----	32.03	34.05	33.92	1.76	20.89
	+60 MESH	**97.16**							
	-60 MESH	**2.84**	A.D.	1.61	31.63	35.82	30.94	1.59	17.73
			Dry	-----	32.15	36.41	31.45	1.62	18.02
	+60 MESH	**72.01**	A.D.	1.35	37.36	15.92	45.37	1.67	27.61
	1.70 FLT		Dry	-----	37.87	16.14	45.99	1.69	27.99
	+60 MESH	**27.99**	A.D.	0.71	16.30	77.68	5.31		
	1.70 SINK		Dry	-----	16.42	78.24	5.35		
QU1402	**RAW HEAD**		A.R.	4.78	37.08	14.41	43.73	3.12	26.42
No. 3 Seam			A.D.	2.30	38.05	14.78	44.87	3.20	27.11
			Dry	-----	38.95	15.13	45.93	3.28	27.75
	+60 MESH	**97.50**							
	-60 MESH	**2.50**	A.D.	1.77	38.25	20.17	39.81	3.19	23.59
			Dry	-----	38.94	20.53	40.53	3.25	24.02
	+60 MESH	**93.14**	A.D.	1.73	38.22	12.56	47.49	2.63	28.46
	1.70 FLT		Dry	-----	38.89	12.78	48.33	2.68	28.96
	+60 MESH	**6.86**	A.D.	0.96	30.39	50.83	17.82		
	1.70 SINK		Dry	-----	30.68	51.32	17.99		

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REPORT BY : DAVID KO

SAMPLE TYPE : RAW COAL

P.O. # 33060

SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU1501	**RAW HEAD**		A.R.	3.83	32.32	29.74	34.10	5.34	20.21
No. 3 Seam			A.D.	1.76	33.02	30.38	34.84	5.45	20.65
			Dry	-----	33.61	30.92	35.46	5.55	21.02
	+60 MESH	**97.75**							
	-60 MESH	**2.25**	A.D.	1.71	37.16	28.80	32.33	4.40	21.71
			Dry	-----	37.81	29.30	32.89	4.48	22.09
	+60 MESH	**65.34**	A.D.	1.50	39.05	11.38	48.07	2.97	28.91
	1.70 FLT		Dry	-----	39.64	11.55	48.80	3.02	29.35
	+60 MESH	**34.66**	A.D.	0.89	22.48	64.00	12.63		
	1.70 SINK		Dry	-----	22.68	64.57	12.74		
QU1703-05 COMP	**RAW COMP**		A.D.	1.97	33.28	25.89	38.86	2.12	23.85
No. 4 Seam			Dry	-----	33.95	26.41	39.64	2.16	24.33
	+60 MESH	**98.06**							
	-60 MESH	**1.94**	A.D.	1.88	33.62	32.27	32.23	2.26	19.69
			Dry	-----	34.26	32.89	32.85	2.30	20.07
	+60 MESH	**76.33**	A.D.	1.35	36.89	13.07	48.69	1.51	28.47
	1.70 FLT		Dry	-----	37.39	13.25	49.36	1.53	28.86
	+60 MESH	**23.67**	A.D.	0.71	20.50	66.59	12.20		
	1.70 SINK		Dry	-----	20.65	67.07	12.29		

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SAMPLE TYPE : RAW COAL

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SAMPLE ID		% RECOVERY	BASIS	H2O %	V.M. %	ASH %	F.C. %	S %	MJ/Kg
QU1706	**RAW HEAD**		A.R.	4.93	36.66	13.84	44.57	3.27	26.43
No. 3 Seam			A.D.	2.05	37.77	14.26	45.92	3.37	27.23
			Dry	-----	38.56	14.56	46.88	3.44	27.80
	+60 MESH	**97.09**							
	-60 MESH	**2.91**	A.D.	1.75	37.92	23.97	36.36	3.12	22.76
			Dry	-----	38.60	24.40	37.01	3.18	23.17
	+60 MESH	**91.98**	A.D.	1.59	37.42	10.85	50.14	2.13	29.30
	1.70 FLT		Dry	-----	38.02	11.03	50.95	2.16	29.77
	+60 MESH	**8.02**	A.D.	0.86	29.63	53.37	16.14		
	1.70 SINK		Dry	-----	29.89	53.83	16.28		

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629 Beaverdam Road N.E. Calgary, Alberta T2K 4W7
Tel : (403) 274-2777 Fax : (403) 275-0541

TO : QUINSAM COAL CORPORATION
ATTN : STEPHEN GARDNER
PROJECT : 2001 EXPLORATION

LLL FILE # : 44225
DATE: 14 Nov, 01
REPORT BY : DAVID KO

SAMPLE TYPE : DRILL CUTTINGS

P.O. # 33060

SAMPLE ID	% RECOVERY 1.70 FLT	BASIS	% H2O	% V.M.	% ASH	% F.C.	% S	MJ/Kg
QU1502	**55.44**	A.R.	3.22	35.03	11.46	50.29	0.49	28.40
No. 1 Seam		A.D.	0.16	36.14	11.82	51.88	0.51	29.30
		Dry	-----	36.20	11.84	51.96	0.51	29.35

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TO : QUINSAM COAL CORPORATION
ATTN : STEPHEN GARDNER
PROJECT : 2001 EXPLORATION

LLL FILE # : 4 4 2 2 5
DATE: 22 Nov, 01
REPORT BY : DAVID KO

SAMPLE TYPE : +60 Mesh, 1.70 Floats

P.O. # 33060

MINERAL ANALYSIS OF ASH

SAMPLE	% In Ash										
	SiO2	Al2O3	**TiO2**	Fe2O3	**CaO**	MgO	**Na2O**	K2O	**P2O5**	SO3	**Undet.**
QU0601	**49.66**	22.92	**1.65**	15.87	**4.29**	0.60	**0.55**	0.24	**0.04**	2.88	**1.31**
QU0602	**22.32**	18.12	**1.41**	26.62	**16.14**	1.30	**0.89**	0.18	**0.29**	12.08	**0.64**
QU0701	**39.66**	22.82	**1.21**	14.21	**8.26**	0.74	**0.64**	0.26	**0.04**	9.64	**2.52**
QU0702	**24.68**	19.31	**1.57**	21.20	**15.36**	1.97	**0.82**	0.16	**0.13**	11.99	**2.83**
QU0801	**31.76**	24.23	**1.61**	11.92	**15.33**	1.39	**0.70**	0.20	**0.13**	10.78	**1.95**
QU0903	**18.05**	17.28	**1.18**	8.72	**35.58**	0.32	**0.76**	0.05	**1.14**	13.99	**2.94**
QU1003	**22.70**	19.43	**1.40**	9.17	**32.89**	0.54	**0.91**	0.06	**0.88**	9.47	**2.53**
QU1103	**19.32**	17.69	**1.31**	9.82	**35.11**	0.44	**0.58**	0.05	**1.08**	12.55	**2.05**
QU1301	**38.24**	22.23	**1.49**	15.41	**10.69**	0.82	**0.81**	0.22	**0.06**	7.27	**2.77**
QU1401	**48.26**	28.14	**1.56**	8.84	**6.22**	0.54	**0.81**	0.33	**0.05**	3.87	**1.39**
QU1402	**36.68**	22.65	**1.27**	14.15	**11.98**	0.99	**0.85**	0.19	**0.10**	8.48	**2.67**
QU1501	**29.70**	19.45	**1.54**	17.53	**15.64**	1.09	**0.94**	0.16	**0.14**	11.22	**2.58**
QU1706	**31.72**	21.99	**1.48**	14.93	**14.50**	1.08	**1.15**	0.22	**0.07**	11.02	**1.85**
Comp QU1201-03	**28.00**	19.98	**1.49**	13.95	**19.23**	0.27	**0.77**	0.06	**0.73**	13.04	**2.48**
Comp QU1703-05	**38.82**	23.84	**1.36**	9.23	**13.02**	0.57	**0.77**	0.29	**0.06**	9.67	**2.39**

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TO : QUINSAM COAL CORPORATION
ATTN : STEPHEN GARDNER
PROJECT : 2001 EXPLORATION

LLL FILE # : 44225
DATE: 22 Nov, 01
REPORT BY : DAVID KO

SAMPLE TYPE : +60 Mesh, 1.70 Floats

P.O.# 33060

ULTIMATE ANALYSIS

SAMPLE ID	BASIS	H2O	C	H	N	ASH	S	O
		%	%	%	%	%	%	%
QU0601	A.D.	1.48	63.17	4.44	0.49	17.71	2.83	9.88
	Dry	-----	64.12	4.50	0.50	17.98	2.87	10.03
QU0602	A.D.	1.59	69.24	3.81	0.53	11.32	3.14	10.37
	Dry	-----	70.36	3.87	0.54	11.50	3.19	10.53
QU0701	A.D.	1.79	68.07	4.74	0.55	12.50	2.20	10.15
	Dry	-----	69.31	4.83	0.56	12.73	2.24	10.33
QU0702	A.D.	1.89	69.70	4.19	0.51	10.06	2.58	11.07
	Dry	-----	71.04	4.27	0.52	10.25	2.63	11.28
QU0801	A.D.	1.88	65.30	4.00	0.50	15.00	1.69	11.63
	Dry	-----	66.55	4.08	0.51	15.29	1.72	11.85
QU0903	A.D.	2.07	72.73	4.95	0.48	7.16	0.60	12.01
	Dry	-----	74.27	5.05	0.49	7.31	0.61	12.26
QU1003	A.D.	1.69	70.94	4.56	0.51	8.29	0.42	13.59
	Dry	-----	72.16	4.64	0.52	8.43	0.43	13.82
QU1103	A.D.	1.93	72.27	4.05	0.43	7.46	0.52	13.34
	Dry	-----	73.69	4.13	0.44	7.61	0.53	13.61

Note : Hydrogen and Oxygen do not include H and O from Sample Moisture. Value of Oxygen by difference.

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SAMPLE TYPE : +60 Mesh, 1.70 Floats

P.O.# 33060

ULTIMATE ANALYSIS

SAMPLE ID	BASIS	H2O	C	H	N	ASH	S	O
		%	%	%	%	%	%	%
QU1301	A.D.	1.17	63.87	4.72	0.43	16.48	3.56	9.77
	Dry	-----	64.63	4.78	0.44	16.68	3.60	9.89
QU1401	A.D.	1.35	64.81	3.81	0.51	15.92	1.67	11.93
	Dry	-----	65.70	3.86	0.52	16.14	1.69	12.09
QU1402	A.D.	1.73	67.06	4.66	0.49	12.56	2.63	10.87
	Dry	-----	68.24	4.74	0.50	12.78	2.68	11.06
QU1501	A.D.	1.50	69.00	4.35	0.50	11.38	2.97	10.30
	Dry	-----	70.05	4.42	0.51	11.55	3.02	10.45
QU1706	A.D.	1.59	69.85	4.94	0.65	10.85	2.13	9.99
	Dry	-----	70.98	5.02	0.66	11.03	2.16	10.15
COMP QU1201-03	A.D.	1.54	71.82	4.99	0.44	9.26	1.46	10.49
	Dry	-----	72.94	5.07	0.45	9.40	1.48	10.66
COMP QU1703-05	A.D.	1.35	67.11	4.44	0.44	13.07	1.51	12.08
	Dry	-----	68.03	4.50	0.45	13.25	1.53	12.25

Note : Hydrogen and Oxygen do not include H and O from Sample Moisture. Value of Oxygen by difference.

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SAMPLE TYPE : +60 Mesh, 1.70 Floats

P.O. # 33060

ASH FUSION TEMPERATURES

Reducing Atmosphere

SAMPLE ID	Degrees Celsius Initial	Softening	Hemispherical	Fluid
QU0601	1225	1269	1279	1294
QU0602	1070	1101	1106	1121
QU0701	1126	1253	1266	1279
QU0702	1070	1106	1111	1124
QU0801	1111	1289	1294	1305
QU0903	1227	1326	1338	1357
QU1003	1227	1318	1333	1344
QU1103	1230	1282	1328	1357
QU1301	1297	1323	1331	1354
QU1401	1302	+1426	+1426	+1426
QU1402	1113	1282	1289	1294
QU1501	1103	1152	1173	1181
QU1706	1173	1248	1261	1271
Comp QU1201-03	1111	1199	1204	1212
Comp QU1703-05	1230	1318	1326	1333

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SAMPLE TYPE : +60 Mesh, 1.70 Floats

P.O. # 33060

ASH FUSION TEMPERATURES

Oxidizing Atmosphere

SAMPLE ID	Initial (Degrees Celsius)	Softening (Degrees Celsius)	Hemispherical (Degrees Celsius)	Fluid (Degrees Celsius)
QU0601	1256	1369	1372	1377
QU0602	1173	1266	1274	1279
QU0701	1287	1364	1369	1372
QU0702	1219	1261	1271	1279
QU0801	1178	1292	1302	1320
QU0903	1289	1331	1351	1375
QU1003	1230	1328	1338	1354
QU1103	1292	1302	1338	1364
QU1301	1302	1328	1338	1369
QU1401	1390	+1426	+1426	+1426
QU1402	1251	1297	1307	1331
QU1501	1204	1219	1251	1266
QU1706	1287	1318	1323	1336
Comp QU1201-03	1245	1297	1315	1338
Comp QU1703-05	1364	1406	1411	1421

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SAMPLE ID	PPM MERCURY IN COAL
QU0601	0.27
QU0602	0.18
QU0701	0.20
QU0702	0.40
QU0801	0.20
QU0903	0.37
QU1003	0.18
QU1103	0.29
QU1301	0.19
QU1401	0.35
QU1402	0.19
QU1501	0.19
QU1706	0.25
Comp QU1201-03	0.45
Comp QU1703-05	0.15

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