L. A. SMITH CONSULTING

&

DEVELOPMENT LTD

698

MINNES GROUP

GETHING Fm.

CADOMIN CONGLOMERATE

CADOMIN SEAM

ROCKY CREEK BASELINE

0+00m N

2+00m N

4+00m N

6+00m N

8+00m N

10+00m N

12+00m N

0+00m E

2+00m E

4+00m E

6+00m E

8+00m E

55°16'00"

55°17'00"

55°18'00"

55°19'00"

6130000m N

6129000m N

6128000m N

6127000m N

6126000m N

6125000m N

6124000m N

BP-14 BP-4 BP-9 BP-10 BP-12 BP-11 BP-18 BP-19 BP-15 BP-7 BP-1 BP8 BP2 BP-6

TR58 TR19 TR54 TR55 TR50/STN20/30 TR51/STN29 TR21/STN18 TR22 TR57 TR53 TR52 TR56

SNT28 SNT19 SNT22 SNT31 SNT25 SNT1 SNT2 SNT3 SNT4 SNT5 SNT6 SNT7 SNT8 SNT9 SNT11 SNT12 SNT13 SNT14 SNT15 SNT16 SNT17 SNT23 SNT24 SNT27

LINE H LINE J LINE G-N LINE G-S LINE D LINE C LINE A LINE B LINE E LINE F LINE BP6N LINE BP6W LINE BP6E LINE BP6S

ODH-1

W/L 1417 W/L 1408 W/L 1411 W/L 1369 W/L 1332 W/L 1573 W/L 1602 W/L 1041

C.L. 5275 C.L. 5268 C.L. 4044 C.L. 4043 C.L. 4048 C.L. 4046 C.L. 4041 C.L. 4038 C.L. 4037

LEGEND

TRAIL

CONTOURS

SPOT HEIGHT 1500

STREAM, LAKE

TREE LINE

CUT LINE

HORIZONTAL CONTROL

VERTICAL CONTROL

T.N. 1°02' Grid North

200 0 200 400 600 800 metres

10 METRES FORM LINE INTERVAL

CONTROL TAKEN FROM N.T.S. MAP SHEET 93P/5

LEGEND:

LINE B : EM 16R-RESISTIVITY SURVEY LINES

698

10 METRES FORM LINE INTERVAL

ROCKY CREEK PROJECT

SUMMARY OF ROCKY CREEK EXPLORATION
SUKUNKA NORTH BLOCK

U.T.M. ZONE 10 — FIGURE No. 3 — N.T.S. MAP SHEET : 93P/5

DRAWN BY: THE ORTHOSHOP	CHECKED:	DATE: NOV/1985
COMPILED BY: AERO GEOMETRICS	CLIENT APP'L:	DWG. NO.
	SCALE: HORIZ. 1 : 10,000 VERT.	FILE NO.

LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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BP RESOURCES CANADA LIMITED
SELCO DIVISION
ROCKY CREEK COAL PROPERTY
TERRACE HILL AND SUKUNKA NORTH BLOCKS
1985 EXPLORATION REPORT
GEOLOGY AND COAL RESERVES

CONSULTANT:

L.A. Smith Consulting & Development, Ltd.

AUTHOR:

L.A. Smith, P. Geol.

OWNER:

BP Resources Canada Ltd.
Selco Division

COAL LICENCES:

4030 & 4031
(Licence Group 332)
4037, 4038, 4039, 4041, 4042,
4043, 4044, 4047, 4048, 4049.
(Licence Group 355)

PEACE RIVER LAND DISTRICT

NTS 93P/4

LATITUDE: 55° 15', LONGITUDE: 121° 45'

November 26, 1985

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1.0 INTRODUCTION

This report provides the documentation and evaluation of the exploration program completed on a 10 licence block (4037, 4038, 4039, 4041, 4043, 4044, 4047, 4048 and 4049) formerly called Sukunka North and on a 2 licence block (4031 and 4032) called Terrace Hill, which together form a part of the once widely scattered Rocky Creek Property, located some 50 km southeast of Chetwynd, B.C. (Figure 1.0). The program was authorized by Mr. J. Hainey of BP Canada, Selco Division on June 18, 1985 by Purchase Order 2622. The field program commenced on August 22, 1985 with all field related activities completed on September 28th.

The program was conducted as a helicopter supported geological mapping, trenching and geophysical survey project that was based out of Chetwynd, B.C. For the most part, the program employed two geologists and two field assistants, all under the direction of L.A. Smith Consulting & Development, Ltd. The scope of the program was changed on September 13, 1985 under letter of authorization from Mr. J. Hainey. Specifically, this changed the original trenching program, wherein cat and backhoe trenching would be replaced by less expensive hand trenching and additional EM-16R resistivity surveys. To assist the hand trenching operation, a certified blaster and 8 temporary labourers were employed from the Chetwynd area. Supervising of the trenching as well as logging and sampling of the completed trenches was carried out by an L.A. Smith Consulting & Development, Ltd. geologist.

The main objectives of the program were to increase the level of confidence in the project's coal reserves, to satisfy work requirements on the above coal licences, and to move the project toward a Holding Lease.

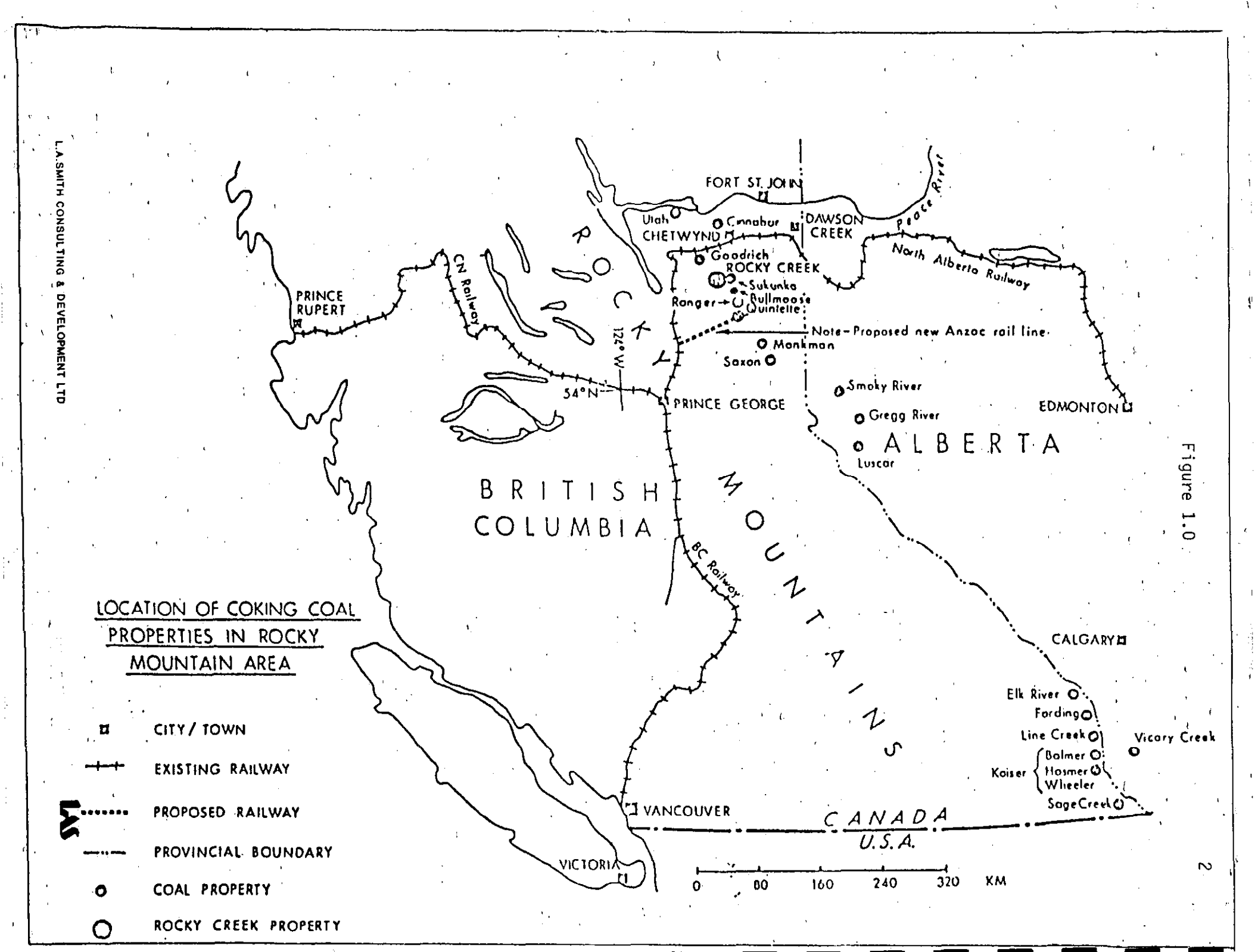

Figure 1.0

SOURCE: [redacted] Rocky Creek Report, 1981

2.0 THE PROPERTY

2.1 History

Coal licences 3617 and 4036 to 4049 inclusive were initially licenced in 1978 by Master Exploration (Manalta Coal). In August, 1979, BP entered an option agreement with Manalta and as a result of work carried out in 1979 and 1980, BP obtained the sole right to these licences. The above licences, known as the Sukunka North block, along with licences filed by BP in March 1979 in three neighbouring blocks, are now collectively known as the Rocky Creek Property.

The Sukunka North block was mapped on a reconnaissance basis during the 1979 field season. This was followed by surface mapping, the drilling of five diamond drill holes, with a total of 1400 metres of core, and hand trenching, measuring and sampling of 23 coal seam outcrops. An additional followup program was conducted in 1981 consisting of surface mapping, drilling and hand trenching. During that program, 14 diamond drill holes, with a total of 2800 metres of core, and ten hand trenches were measured and sampled.

Since 1981, due to the lack of open pit reserve potential, various parts of the Rocky Creek Property have been dropped and at present only a portion of the original so called Sukunka North licence block remains. The remaining Rocky Creek property is divided into two groups as shown in Table 1 below and on Figure 2.0.

Table 1
Status of Coal Licences

Group No.	Coal Licences	Acreage	Anniversary Date
332	4030, 4031	592 ha.	Dec. 31/85
335	4037, 4038, 4039, 4041, 4042, 4043, 4044, 4047, 4048, 4049	2950 ha.	Dec. 31/85

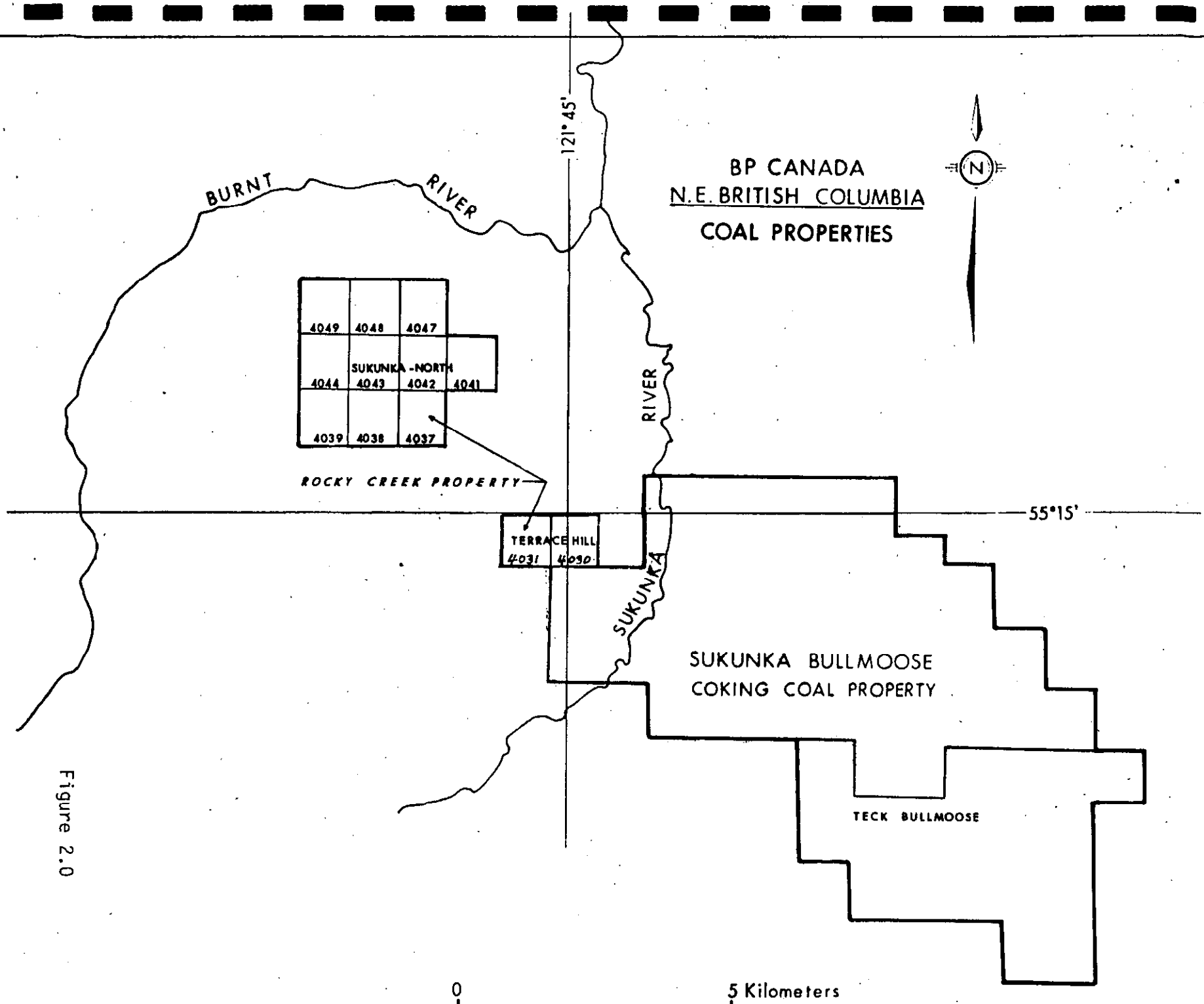

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Figure 2.0

LAS

Group 335 retains the original name of Sukunka North, while Group 332 is now known as the Terrace Hill Block and is where the most recent work has taken place. In September, 1984 a field program consisting of surface mapping, hand trenching and EM-16R Resistivity surveys was conducted to meet the annual work requirements, as documented in the 1984 Rocky Creek Report, "Geology and Coal Reserves, 1984 Exploration Report".

2.2 Physiography of the Rocky Creek Property

The Rocky Creek property lies from immediately west of, and across the Sukunka River from the Sukunka property. Rocky Creek separates the Terrace Hill and Sukunka North blocks. Surface elevations vary from 650m in the Sukunka River valley to 1450m and 1739m on Terrace Hill and Sukunka North blocks respectively. Both licence blocks are characterized by glacially rounded slopes with locally outcropping sandstone cliffs. Numerous relatively flat lying sandstone and conglomerate units in the Upper Jurassic and Lower Cretaceous has resulted in a terraced effect on the south and east flanks of Terrace Hill. Similar effects are found on Sukunka North, however deep incising by local runoff channels has created terraced outliers.

Glacial overburden is generally thin and varied from 0m to 15m (BP8) but is commonly 1 to 2 metres thick. Terrace Hill is entirely forested except for low lying swampy areas that are flat, open, grassy and very wet. Sukunka North ranges from alpine on Mt. Jilg in the southwest to light sub-alpine on the lower hill tops, to sub-boreal forest in the lower lying areas and creek valleys. Large open grassy and very wet swamps are interspersed within the flatter low lying timbered areas. Hillsides exhibit poor drainage with numerous springs and thick growths of alder and willows. Forest vegetation consists of spruce, pine and balsam. The climate in the region is Humid Continental, with short summers, a mean annual temperature of 0°C, and a total annual precipitation ranging from 42 to 69 cm.

2.3 Access

At present neither Terrace Hill or Sukunka North can be accessed by vehicle, therefore a Bell 206B helicopter was used to transport men and equipment to the properties from Chetwynd. Old logging and fire access roads provide very nominal access routes to both the Sukunka North and Terrace Hill blocks. The Sukunka River must be either bridged or forded in order to reach either one of these roads. With improvements, both roads could provide an adequate transport system to the reserve areas, however road extensions would be required.

3.0 THE 1985 EXPLORATION PROGRAM

3.1 Program Objectives

The 1984 exploration program was planned to achieve the following:

i) collect all available outcrop, structural and stratigraphic data,

ii) trench all known coal occurrences, log the coal seams, sample and analyse the coal samples,

iii) utilize EM-16R Resistivity Surveys to locate the coal zones in covered terrain, and

iv) interpret the geology and coal development and provide an estimation of coal reserves and mining ratios.

3.2 Budget and Project Costs

The program budget was designed to be sufficient to satisfy all work requirements for 1984. The actual invoiced costs are shown on Table 2 below.

Table 2
Project Cost Breakdown

Item	Amount
BP Head Office Supervision	$ 6,400
Consulting Fees	43,700
Subcontract Fees - Including Blasting & Trenching Staff	4,900
Helicopter	18,300
Field Costs - Including Transportation, Vehicle Rental, Accommodation, Meals, Field Maps and Materials	11,500
Laboratory Analyses	1,100
Miscellaneous Supplies and Disbursements	1,900
Total:	**$87,800**

3.3 The Program

3.3.1 General

The program was planned and managed by L.A. Smith Consulting & Development, Ltd. of Calgary, Alberta. The other primary contracts used on the program were:

Highland Helicopters, Chetwynd
The OrthoShop, Calgary
Loring Labs Ltd., Calgary
Geonics Ltd., Toronto

The time disbursements of the consulting staff during the field program are tabulated in Table 3 below.

Table 3
Staff Time Spent on Field Program
(Mandays)

Staff Member	Travel	Mapping	Plotting	GP Survey	Trenching
L.A. Smith	2	6	2	5	0
G.F. Lawrence	4	10	3	1	9
J. Green	2	11	4	0	6
E. McKenzie	2	6	4	6	5
B. Warren	0	0	0	0	2.5
C. Pulver	0	0	0	0	1.5
C. Lockerbie	0	0	0	0	1.5
A. McNabb	0	0	0	0	2
H. Pella	0	0	0	0	3
K. Groves	0	0	0	0	3
R. Vipond	0	0	0	0	2
D. Zimmerman	0	0	0	0	2
K. Squires	0	0	0	0	2

Four days were lost to inclement weather when it was impossible to fly to the property, however this time was used to plot and interpret field data. Field activities were postponed for a period of 11 days in early September due to an Arctic front which sent a heavy snow fall over the entire Peace River area.

Eight labourers and a licenced blaster were employed over a 3 day period to assist with the digging of the coal seam outcrop trenches. Overburden depths (1-2m) were greater than anticipated and since the Grizzly Coal Seam could be found anywhere within the coal zones that often exceeded 7m, the trench lengths were quite long (+10m), especially in areas of flat terrain. These trenches took considerable effort to excavate, and the blasting assistance proved to be invaluable.

3.3.2 Geologic Mapping

Geologic mapping concentrated on the Sukunka North and Terrace Hill blocks which have less than than 5% outcrop due to glacial overburden and forest cover. Sixteen geologist days were spent mapping the stratigraphy and orientation of Lower Gething rocks and coal measures. Sandstone terrace and creek gully exposures were mapped and provided the control for the structural interpretation. Approximately 180 rock and coal outcroppings were located and multiple bedding orientations were measured on the two blocks. Closed traverse chain and compass surveys were run in conjunction with scale corrected orthophotos which provided the necessary field control for locating the outcrop stations. Field traverses and structural orientations were recorded on 1:5000 scale topographical base maps (see Figures 3.0 and 4.0 for results of this work).

3.3.3 Resistivity Surveys

An EM-16R Model EM16 VLF-EM Resistivity unit was leased from Geonics Ltd. of Toronto to conduct resisitivity surveys in areas where the coal measures were expected to occur. Concentric horizontal magnetic

fields are transmitted from VLF transmitting stations in the U.S. When these magnetic fields meet conductive fields in the ground, secondary fields radiate from these bodies. The EM16 VLF-EM measures the vertical components of these secondary fields.

In the EM-16R mode, the resistivity of the ground between the electrodes is measured from the secondary vertical magnetic field of the ground, and measurements are in ohm-metres. The phase angle measures how much out of phase the ground induced field is from the transmitting station field. This project used the Cutler, Maine, the Seattle, Washington and Annapolis transmitting station fields. A potential coal anomaly is determined where there is a coincident change in both the phase angle and the resistivity.

A total of 15 surveys were carried out on the Sukunka North property and one was carried out on the Terrace Hill property. The resistivity surveys confirmed coal occurrences in only two areas, one on Terrace Hill and one on Sukunka North. The lack of major response on the remaining 14 surveys on Sukunka North is not known, however the coal seam development is less than 2.0m in many localities and this was probably a factor. Survey Line I, run near trench TR19 with a 2.72m and a 1.2 metre coal seam was the only survey to confirm the presence of coal on Sukunka North. The survey line on Terrace Hill also confirmed coal in an area with thick (+2m) coal seam. Figures 3.0 and 4.0 show the location of the surveys.

3.3.4 Trenching

Coal seam outcrops were trenched in 9 localities (Figure 3.0). In addition, 3 earlier (1980/81) coal seam outcrop trenches were cleaned out, re-measured and sampled. One of the 1985 trenches (TR22) was dug adjacent to and on the opposing side of a gully containing the 1980/81 trench (SNT19). The ninth and last trench (TR58) was left uncompleted because extensive digging and blasting were required to completely expose the +7m coal zone, program time and budget was running out, and the trenching previously carried out confirmed the extension of the same coal zone that had been measured and sampled in nearby trench TR19.

Hand trenching on the selected sites proved to be more involved than originally thought. Overburden cover was quite thick (1-2m) and on the steep hillside locations, slumping necessitated very deep trenches to locate in-place coal seams. In two trenches, TR54 and TR55, depth of colluvium prevented complete exposure. The use of drilling and blasting resolved the problem and permitted ease of digging. After blasting, the remaining loose material was shoveled out and the face of the coal seams dressed in vertically cut steps for measuring and sampling. In at least three of the trenches on the Grizzly coal zone, as much as $20m^3$ of material had been moved by hand.

In order to keep helicopter costs down during the trenching operation, most of the crew was driven as close as possible to the property and airlifted to their respective locations. One geologist was kept very busy with supervising the trenching and measuring and sampling of completed trenches.

4.0 GEOLOGY

4.1 Stratigraphy

The stratigraphy of the Upper Jurassic and Lower Cretaceous in the general Rocky Creek area is well documented in the BP 1981 Rocky Creek Report and other reports in the BP files. Table 4 below, from the BP report, provides the stratigraphic section of rocks in the area.

Table 4
Table of Formations

Unit	Lithology	Thickness(m)
Bullhead Group		
Gething Formation		
Upper	sandstone	+10
Middle	siltstone, mudstone, sst.	104
Lower	sst., siltstone, mudstone, coal, minor conglomerate	320-354
Cadomin Formation	conglomerate, sandstone; minor fine sediments	25-35
Minnes Group		
Bickford Formation	sandstone, mudstone coal, conglomerate	285+
Monach Formation	quartzite; finer sediments as above/below	+-50
Beattie Peaks Formation	sandstone, mudstone thin coals, conglomerate	300+
Monteith Formation	quartzite, sandstone	+-600

Outcrop exposures on the Rocky Creek Property are restricted to the Lower Gething Formation and Cadomin Formation strata. This report will discuss only the relative Bullhead Group stratigraphy.

The **Cadomin Formation** consists of 2 units of thick bedded massive pebble and cobble conglomerates, and associated sandy lenses. The individual units are separated by a thin interval of argillaceous rocks. The common constituents of the pebbles and cobbles is white, black and green chert and red feldspar or granite. Commonly the pebbles are well packed in the conglomerate with sand matrix representing less than 30%, the pebbles and

cobbles +60% and the quartz cement <10%. This unit is, however, very competent and very hard. The Cadomin is commonly 25 to 35m thick (+40m in drill hole BP81-13 on the Terrace Hill Block). Both the upper and lower contacts are locally unconformable and in many places the Cadomin interfingers with the overlying and underlying units.

On the Terrace Hill Block (Figure 4.0), the Cadomin outcrops around much of the mountain top and, in places, forms a vertical cliff that is easily identified.

The Sukunka North Block is likewise encircled by the Cadomin which forms an excellent mapping unit and readily defines the sedimentary basin under study in the area (see Figure 3.0).

The **Gething Formation** is well documented in many BP reports and in public files, thus the detail in this report will be directed towards the stratigraphy of the coal zones. BP has divided the Gething into Lower, Middle and Upper units.

The **Lower Gething** at Rocky Creek is 320 to 345m in total thickness. On the Terrace Hill Block, this unit has been partially eroded with only 275m of strata overlying the Cadomin. On the Sukunka North block at drillhole BP2, there is 420m of strata overlying the Cadomin, indicating that quite possibly there may be Middle Gething strata present. This study, however, addresses only the Lower Gething strata.

The Lower Gething unit consists predominantly of sandstone, siltstone, mudstone, coal seams and minor conglomerates, with the coarser units being more common at the base. BP geologists identified 10 major coal zones in the Lower Gething strata on the Rocky Creek property.

Four coal zones, designated B through C Lower, have been traced north from Bullmoose Creek to the Burnt River property, and occur on the Sukunka property and on Rocky Creek's Terrace Hill

Block (refer to 1984 report, "Rocky Creek Coal Property - Terrace Hill, Geology and Coal Reserves").

On the Sukunka North Block, however, the four coal zones are: B, Pump, Grizzly and Cadomin. It is believed that the Pump and Grizzly zones are the lateral equivalents to the 'D' and 'E' coal zones at the Sukunka mine property, and the Cadomin lies under the other coal zones ("Rocky Creek 1981 Exploration Report").

4.2 Structural Geology

Mount Jilg, located in the southwest corner of the Sukunka North Block, is marked by the chevron-form Jilg Anticline. The west limb of this structure is marked by a tight subsidiary syncline, while the east limb passes into what is known as the Rocky Creek Synclinorium (see Figure 6.0 and Cross-Sections 6000N to 8500N).

This structure is characterized by gentle to moderate limb dips, common subsidiary open folds and one major internal thrust fault, the Rocky Creek Thrust. An ideal dip-slope situation exists on the west limb of the synclinorium where east dipping beds have 10 to 15 degree dips. This has produced attractive mining situations for both the Pump and Grizzly Seams on Hill BP1 and for the Grizzly Seam on the long ridge between BP6 and BP7. Hill BP6 is an example of subsidiary folding which is marked by a plunging open anticline-syncline pair.

From BP7 eastwards to BP2, rock cover becomes much thicker due to topography. The main axis of the synclinorium passes just to the east of BP2. Evidence of subsidiary folding along the main axial trend can be seen in the deeply incised creek gully cutting to the northeast from a point midway between BP7 and BP8.

The major structure on the east limb of the synclinorium, which has gentle to moderate westerly dips, is the Rocky Creek

Thrust. BP10 and BP12 both indicate the northwesterly strike of the thrust from its surface trace on Coal Licence 4041. This is a west-dipping fault estimated to have a vertical throw of 90 to 100m. Associated with the thrust are steep dips and minor tight folds.

The Rocky Creek Thrust and the axis of the Rocky Creek Synclinorium both appear to extend south of Rocky Creek and form the dominant structures on the Terrace Hill Block as well. At Terrace Hill the synclinorium narrows into a tighter fold that changes from asymmetrical in the north to symmetrical in the south. This appears to have been caused by the Rocky Creek Thrust cutting from the east limb across the fold axes into the west limb of the syncline. The east limb of the asymmetric fold is nearly flat-lying, while the western limb is steeply dipping and locally near vertical. The thrust turns westwards away from the synclinal axis area in the south. The syncline becomes symmetrical with both limbs dipping at about 30°. Details on the structure of the Terrace Hill Block are covered in the 1984 Exploration Report for that property.

4.3 Coal Development

Four of the ten major coal zones identified on the Rocky Creek property locally have +1 metre seam development on the Sukunka North Block. These are the Cadomin, Grizzly, Pump and 'B' coal zones.

To date, surface traces of the **Cadomin Seam**, the lower most seam in the Lower Gething, have been locally identified on the east flank of Mt. Jilg only. In subsurface, the Cadomin seam has been recorded in three drill holes, BP6, BP7 and BP15. This indicates a 3000m lateral, down-dip continuation from the outcrop (see Cross-Section 6000N). The Cadomin Seam has been measured in ten outcrop trenches on Mt. Jilg. These measurements, combined with the three drill hole intersections indicate a localized seam

thickness range of 0.43 to 2.14m, averaging 1.26m. The seam thickness appears to deteriorate down-dip from the outcrop.

The **Grizzly Seam** is the major coal zone on the Sukunka North Block and stratigraphically located about 150m above the Cadomin Conglomerate. Two separate mine sections have been identified within the +7 metre coal zone, however they are not consistantly developed throughout the property. Seams can vary within short distances. Twenty-seven data points have been collected on the Grizzly Seams since 1979. The thicknesses range from 0.0 (BP10 and BP12) where the coal zone has completely shaled out, to 2.89m (SNTR18). The average thickness is about 1.66m. Four data points (trenches SNTR31, TR54, TR55 and TR58) have incomplete sections because of excessive overburden cover. One other locality (trench TR56) is believed to be an erosional remnant with the top part of the coal zone missing. The data indicates a deterioration of the Grizzly Seam in an easterly direction, especially on the east limb of the Rocky Creek Synclinorium.

Due to glacial erosion and post-glacial erosion on the Sukunka North Block, the Grizzly Seam (also the seams above the Grizzly) has been split into three separate reserve blocks or outliers, each having a prominent topographical high point. For convenience, the reserve blocks are named according to the drill hole located on each one's highpoint, for example Hill BP1, Hill BP6 and Hill BP7. All Grizzly Seam data points were plotted and a structural contour map of the seam top was made (see Figure 6.0).

The **Pump Seam** is located approximately 30m above the Grizzly coal zone or approximately 180m above the Cadomin Conglomerate. Evidence indicates that the Pump Seam contains mine section thickness (+1m) in one area of the property block, on Hill BP1. There are only four data points for the seam (BP1, SNTR19/TR22 and TR57), three of them located on Hill BP1 where the seam is best developed. BP18 intersected what is believed to be the Pump Seam on Hill BP7. Seam thickness on Hill BP1 ranges from 2.30m to

3.21m and average 2.72m, while the BP18 drill hole intersection was only 0.13m. Due to erosion the Pump Seam does not occur on Hill BP6. As with the Cadomin and Grizzly Seams, the Pump Seam appears to deteriorate to the east.

The 'B' Seams are located in the uppermost coal zone in the Sukunka North Block. The Upper 'B' Seam occurs approximately 70m above the Pump coal zone, in drillhole BP2. Little evidence of the Lower 'B' Seam exists, except on Hill BP1 where a thin muddy coal seam occurs in drillhole BP1 about 30m above the Pump coal zone. The Upper 'B' Seam could not occur here due to erosion.

Three data points have been investigated on the Upper 'B' Seam, SNTR20-30/TR50, SNT29/TR51 and BP2. The 1985 field work shows that the coal seams investigated by BP's 1980/81 trenches SNT20-30 and SNT29 (relogged by LAS as TR50 and TR51 respectively) are not the Grizzly Seam. Cross-Section 7000N shows that the current interpretation indicates this seam to be the Upper 'B' Seam. Both BP trenches, SNT20-30 and SNT29 have thick intersections of coal, 4.01m and 3.17m respectively, however the Upper 'B' Seam intersected in nearby BP2 indicates only 0.88m of coal. The coal seams appear to be severely slumped, in SNT20-30 and SNT29, and since hand trenching does not penetrate deeply, the outcrops logically may be thicker than the seam is in reality. Even if the trench data is valid, the area does not have significant reserve potential and the coal zone will not have significant lateral continuity.

Table 5 below lists the coal seam data points and seam thicknesses used in this report to evaluate the coal reserves, the mining potential and coal quality.

Table 5
Coal Seam Intersections and Thicknesses

Data Location Sukunka North	Coal Seam Thicknesses (m)		
	Pump	Upper Grizzly	Lower Grizzly
Hill BP1			
BP1	2.65	2.42	1.25
SNT18			2.89
TR21			2.76
SNT19	3.21		
TR22	3.05		
SNT28		1.98	1.72
TR19		2.76	1.19
TR57	2.30		
Hill BP6			
BP6		1.26	
SNT12			1.0
SNT14			0.7
SNT16			1.33
SNT17			1.8
Hill BP7			
BP 7		1.25	
BP19		2.30	
SNT23		1.35	
SNT25		1.00	
TR56		1.20	
Terrace Hill	**Seam C**		**Seam B**
Overall Average True Thick.	3.45		5.7

5.0 COAL RESERVES AND MINING POTENTIAL

5.1 Reserve Calculation Methodology

The Pump and Grizzly Seam coal reserves near surface on Sukunka North Block were isopached and reserve measurements were completed on the isopach areas (see Figure 7). Reserves for the Pump Seam on Hill BP1 and for the Terrace Hill reserves were based upon average thicknesses of prevalent data points. The Terrace Hill Seam thicknesses were increased to compensate for apparent thickness rather than true thickness.

The Maximum open pit reserve depth was not limited on Hill BP1 and at Terrace Hill due to the thick seam developments. In the area around Hill BP6 and BP7, however, the limited development of the Grizzly Seam resulted in the overburden thicknesses being limited to 30m of cover. Overburden measurements on the Sukunka North reserve areas were completed on the planimetered area of the isopachs of overburden thicknesses shown on Figure 8. In the Terrace Hill reserve block, overburden isopachs are not available so the 1984 overburden measurements are used. Due to lack of coal quality data, a specific gravity of 1.5 is used for all reserves. It is assumed that mining losses will equal pit dilution and therefore the in-place tonnages will approximate the raw coal tonnages. A maximum overburden depth of 30m is assumed for Reserve Area BP7 because of the thin seam nature of the Grizzly Seam in this area.

5.2 Open Pit Coal Reserves

Table 6 below indicates the Possible and Probable coal reserves available for open pit mining on the Rocky Creek Property. Of the total 17.6 megatonnes, nearly 11 megatonnes occur on Terrace Hill, the remaining 7 megatonnes occur in three scattered localities on the Sukunka North Block. The average mine ratio is 5.3 bcm/trc with none of the areas containing particularly low ratio coal.

Table 6
Coal Reserve Summary

Reserve Area	Coal Seams	In-Place Coal Reserves (tonnes)	Overburden (bcm)	Mine Ratio (bcm/trc)
BP1	Pump	269,000	1,340,000	5.0
	Grizzly	3,656,700	24,834,000	6.8
		3,925,700	26,174,000	6.7
BP6	Grizzly	420,100	2,581,700	6.1
BP7	Grizzly	2,411,100	11,970,500	5.0
Terrace Hill	B	7,442,300)		
	C	3,407,000)		
		10,849,300	53,116,000	4.9
		17,606,200	93,842,200	5.3

5.3 Mining Potential

The bulk of the coal reserves in the defined pit areas lie in dip slope situations and very gradual (<20°) dips. Potentially this could provide an ideal situation for a dragline mining scheme. The major difficulty that the reserves present, however, is access from one reserve block to another. It would be impractical to move a dragline from Terrace Hill to Hill BP1, for example, because of the creek valley between the two reserve blocks. Accordingly a more practical scheme will involve a more mobile equipment fleet with associated higher mining costs.

The mining ratios, at 5 to 6 bcm/trc, are considered to be consistent with metallurgical coal properties but are probably too high for thermal coal deposits in the northeast B.C. coal mining areas.

6.0 COAL QUALITY

6.1 General

The coal quality and rank is determined from drill hole and trench analytic information. The data is tabulated below and shown in detail in the Seam Profiles in Appendix I. The 1985 data is used to supplement the results reported in the 1980 and 1981 Exploration Report. A total of nine new trenches were completed, two in the Pump Seam and seven in the Grizzly Seam.

After a review of the 1984 and the 1981 program analyses, the trench samples were limited to ash and moisture analyses because the previous results indicate that the 1984 trench samples do not provide accurate V.M. %, moisture %, F.C. % or heat content.

6.2 Pump Seam

Data from two 1985 trenches in the Pump Seam on Hill BP1 are combined with previous data and reported in Table 7 below. The data indicates that the Pump Seam has about 20% ash content.

Table 7
Hill BP1 Reserve Area
Pump Seam Quality

Data Point	Thickness (m)	Raw Ash Content
BP1	2.65	22.4
SNT19	3.21	22.64
TR22	3.05	17.24
TR57	2.3	15.49

6.3 Grizzly Seam

Data is available on the Grizzly Seam from three areas, BP1, BP6 and BP7. The 1985 program collected additional information from only two areas, BP1 and BP7. Table 8 below provides the relevant coal quality data for the Hill BP1 area. In this area the coal seam is about 2.7m thick with about 27% ash content.

Table 8
Grizzly Seam Quality

Data Point	Seam Thickness (m)	Raw Ash %
BP1	2.47	21.5
TR53	2.51	16.48
SNT18	2.71	42.6
SNT28	3.75	35.0
TR19*	2.72	21.2
TR58	+2.50	not sampled
Average:	2.775	27.3

* excludes fault repeated material.

The coal ash content for the reserve area under Hill BP7 is listed on Table 9.

Table 9
Grizzly Seam Quality
Hill BP7

Data Point	Seam Thickness (m)	Raw Ash %
BP7	1.25	26.3
BP19	2.3	no data
SNT23	1.35	
TR56	1.2	17.29
SNT25	1.0	30.9
TR55	0.82	23.75
TR54	0.53	22.47
Average:	1.21	24.0%

The data indicates the Grizzly Seam to be of marginal thickness with about 25% ash content in the area around Hill BP7. There was no new data collected at Terrace Hill. For quality data, refer to the 1984 Terrace Hill Report.

It is obvious from the above data that both the Grizzly Seam and the Pump Seam will require beneficiation prior to marketing. BP notes the coal is a thermal coal because of erratic and low Free Swelling Indices. This program collected only surface samples therefore did nothing to address the coke-ability of the coals.

7.0 CONCLUSIONS

1. Rocky Creek property has four potential open pit coal reserve areas as shown in Table 10.

Table 10
Rocky Creek Reserve Summary

Reserve Area	Open Pit Reserves (tonnes)	Mine Ratio (bcm/trc)
BP1	3,925	6.6
BP6	420	6.1
BP7	2,383	5.3
Terrace Hill	10,849	4.9
	17,577	**5.3**

The reserves generally lie in a relatively flat-lying rounded mountaintop environment amenable to dragline mining, however movement of the dragline from Terrace Hill to the other reserves is impractical.

2. Based upon BP data, the coal does not appear to be a superior coking coal, therefore would have to market as a coking blend or a low volatile thermal coal. The 1985 program did not address coal marketability.

3. The 1985 mapping and trenching program identified the coal subcrop areas and trenched and sampled additional localities in the potential reserve area. The data confirmed that the coal seam development at Areas BP6 and BP7 may be too thin to practically consider mining.

4. Coal Licences 4037, 4041 and 4049 do not contain any open pit mineable coal as the coal zones have been eroded in these areas. Coal Licences 4047 and 4048 do contain the Grizzly Seam coal zone, however the coals lie in a scarp slope situation and are unlikely to contain open pit mining potential. Licences 4038, 4039, 4042, 4043 and 4044 all contain dip slope open pit mining potential in the Grizzly Seam and, locally, in the Pump Seam. Licences 4030

and 4031 contain open pit coal reserves in the B and C Coal Zones.

5. The next stage of follow-up exploration program will require a major rotary drilling program, substantial road building, a bridge over the Sukunka River, and a bulk sample program. This will bring the coal reserves to the stage of mine planning and marketing and will be costly to complete.

6. Annual work requirements are no longer required, thus the advancement of the coal reserves on Rocky Creek can easily await more favorable marketing conditions.

8.0 RECOMMENDATIONS

The following recommendations are forwarded for consideration:

1. Licence Surrender

Licences 4037, 4041 and 4049 are recommended for relinquishing because they contain no coal mining potential.

2. Licence Review

Licences 4047 and 4048 contain nominal reserve and mining potential and should be retained and further evaluated to be certain they do not have mining potential.

3. Licence Retention

Licences 4038, 4039, 4042, 4043, 4044, 4030 and 4031 should be retained and further exploration carried out as soon as market circumstances justify the expenditures.

4. Follow-up Exploration

The next phase of exploration should be a major shallow rotary drilling program in the four reserve areas, and a bulk sampling program in B and C Zones at Terrace Hill and Grizzly Seam at Sukunka North. The following budget, although brief, is considered logical:

Proposed Rocky Creek Exploration Budget

1.	Bridge over Sukunka	$150,000
2.	Road upgrade & 30 km new road construction	75,000
3.	Drilling - 100 holes @ average 30m/hole @ $50/m	150,000
4.	Food, accommodation, vehicles, travel	60,000
5.	Three bulk samples - digging & sampling	75,000
6.	Coal tests and analyses	100,000
7.	Supervision, evaluation, report preparation	65,000
8.	Contingency	100,000
		$775,000

9.0 BIBLIOGRAPHY

1. BP Resources Canada Limited, Report to the British Columbia Government on the Rocky Creek 1979 Exploration Program.

2. BP Resources Canada Limited, Report to the British Columbia Government on the Rocky Creek 1981 Exploration Program, Northeast B.C.

3. BP Exploration Canada Limited, Coal Division, Report on the North East B.C. Thermal Coal Exploration Program, 1980.

4. L.A. Smith Consulting & Development, Ltd., Report on the Rocky Creek Coal Property, Terrace Hill Block, 1984 Exploration Report, Geology and Coal Reserves.

10. APPENDICES

1. Application for Work, Approval
2. Analytical Results
3. Seam Logs and Profiles
4. Reserve Calculations
5. Cross-Sections
6. Maps

APPENDIX 1

APPLICATION FOR WORK, APPROVAL

COAL EXPLORATION FORM 6

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

MINERAL RESOURCES BRANCH
INSPECTION AND ENGINEERING DIVISION

NOTICE OF WORK ON A COAL LICENCE

(Sections 6 and 28 of the *Mines Act*)

This notice is to be completed by all companies or individuals carrying out exploration work prior to commencement of work and at cessation of work and forwarded to the Chief Inspector of Mines with a copy to the District Inspector of Mines. If mechanical equipment is used in surface work, Form 7 overleaf must be completed. Items noted * are information collected on behalf of Coal Resources Section, and eliminate the form previously forwarded to the operator for this purpose.

1. NAME OF PROPERTY .. Rocky Creek .....

Coal Licence Numbers .... 4030, 4031, 4037, 4038, 4039, 4041, 4042, 4043, 4044, 4047, 4048, 4049 .....

2. LOCATION ... 5 km west of Sukunka River ..... NTS map sheet no. 93P/5 ...

Lat. .... 55. ° . 17' 30" Long. ... 121. °. 50' ... ' Access via . helicopter for ground crews ..... and the old Rocky Creek Trail for the cat and backhoe, ...

3. OWNER'S NAME . BP Resources Canada Ltd., Selco Division .....

Address 55 University Ave., Suite 1700, Toronto, Ont. M5J 2H7 Telephone no. (416) 361-0794

4. OPERATOR'S NAME ... L. A. Smith Consulting & Development, Ltd. .....

Address . 201, 701-14 St. N. W., Calgary, Alta. T2N 2A4 ..... Telephone no. (403) 270-3254

5. ESTIMATED DURATION OF WORK: From .. August 12, 1985 ..... to September 15, 1985 ....

OR: ACTUAL DATE WORK COMPLETED: From ..... to .....

6. DESCRIPTION OF WORK (Use metric measure — 1 metre = 3.3 feet.) (Show on 1:50 000 scale map.)

Linecutting (distance, width, method) ..... 0 .....

Clearing of timber .....
(requires approval of Ministry of Forests. 'Licence to Cut' or 'Free Use Permit' may be witheld until reclamation program is approved.)

(a) **Road Construction:** Total length . 14,000 m Approximate width ... 5 .... m Area .... 60,000 .... m^2

(b) **Test Pits:** No. 0 ... Maximum dimensions: Width .....m Length .....m Depth ..... m

*Sum total length .....m Total disturbed area of test pits ..... m^2

(c) *Drilling:* *No. of D.D.H.* . 0 .... *Size* ..... *No. of R.D.H.* .....*Size* ..... *Max. hole length* .....

*Sum total depth .....m Total disturbed area of drillsites ..... m^2

*Down hole geophysics: types .....

(d) Adits: No. rising at ..... ° is ..... No. level ..... No. dipping at ..... ° is .....

Maximum length of adit .. 0 ..... m Total disturbance .....

*Sum total length .....

(e) **Trenches:** No. ... 35 .... Maximum dimensions: Width .... 2 . m Length .... 10 .. m Depth .... 2 .. m

*Sum total length .....m Total disturbed area of trenches ..... 700 . m^2

(f) Other (for example, please specify underground work): ..... geological mapping, ...

.. EM-Resistivity Survey .....

*(g) If mapping done, forward description of area and scale to Coal Resources Section, Victoria.

GRAND TOTAL OF AREA DISTURBED 67,000 . m^2

.... ~~6.7~~ ... ha

(h) Approximate number of men employed ..... 8 .....

*7. OTHER: an estimate of approximate exploration expenditure is requested to be forwarded to Coal Resources Section, Victoria, after work is complete .....

.....

SIGNATURE OF APPLICANT .... L.A. Smith, P. Geol. TITLE . Geologist ....

PRINT NAME ..... L. A. Smith ..... DATE . July 3, 1985 .

NOTE: Owner, agent, or manager is responsible for ensuring the Contractor complies with pertinent regulations (*see* section 27(2), *Mines Act*). Pursuant to section 30, of the *Mines Act*, where the employment of mechanical equipment is likely to disturb the surface of the land in clearing, stripping, trenching, or any other operation, the reclamation program on the reverse side is also to be submitted.

COAL EXPLORATION FORM 7

PERMIT NO. C 117

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
MINERAL RESOURCES BRANCH
INSPECTION AND ENGINEERING DIVISION

RECLAMATION PROGRAM

(Sections 7 and 30 of the *Mines Act*)

This form is to be completed when exploration work is done with mechanical equipment. Submission is required prior to commencement of work and at completion of work. One copy is to be sent to each of the following:

- *Senior Reclamation Inspector, Victoria
- *Inspector of Mines and Resident Engineer
- *Inspector of Mines Technician (Reclamation)
- Regional Manager, Fish and Wildlife Branch
- Regional Manager, Ministry of Forests
- Regional Manager, Water Management Branch
- Regional Manager, Lands Branch
- Regional Manager, Ministry of Agriculture and Food

For advice on procedure and reclamation methods, *see* booklet entitled, '*Guidelines for Coal Exploration*.'

1. THIS IS: A proposed reclamation program ☒ a completed reclamation program ☐.

2. PRESENT STATE OF LAND ON WHICH EXPLORATION WILL BE DONE IS:

Canada Land Inventory (where possible) .....

Present Land Use (ranching, timber, etc.) Un-used bush land.

Type of Vegetation Thin light conifer with 10% clearings.

Access Road (present use, condition) Old Rocky Creek Trail - unused (present condition unknown).

3. EQUIPMENT TO BE USED FOR EXPLORATION (List size, capacity, and number.)

(a) Bell 206B helicopter (d) mobile fuel tank for cat & backhoe

(b) D6C widepad dozer (e) EM-16R Resistivity Unit

(c) ½ cu meter crawler backhoe (f) .....

4. RECLAMATION EQUIPMENT TO BE USED (for example, resloping, harrowing, or specialty equipment):

(a) D6 dozer (b) chainsaws (c) seed broadcaster

5. GENERAL DESCRIPTION OF PROTECTIVE MEASURES PURSUANT TO SECTION 7

(Show work and reclamation on 1:50 000 scale map and include with full distribution noted above.) [*For proposed work programs include with submissions to Ministry of Energy, Mines and Petroleum Resources documentation on 1:10 000 (approximate scale) air photograph or air photograph overlay.]

The property will be geologically mapped on 1:5000 scale. EM-16R Resistivity Survey will be run across the coal seam subcrops on more or less 1 km spacing. No line cutting will be necessary. Cat and backhoe access trails will be flagged, avoiding heavy timber whenever possible. Also trench locations will be flagged for subsequent clearing by dozer and trenching by backhoe. Trenches will be logged (mapped), coal seams sampled and then filled in by the dozer. The trench surfaces will be recontoured to natural slope, brush raked back over trench locations and the disturbed area seeded with the recommended grass and legume mix.

6. SUMMARY OF AREA DISTURBANCE AND RECLAMATION

Area disturbed current year 6.7 ha Previous years ..... Total to date .....

Area reclaimed current year 6.7 ha Previous years (final) ..... Total to date .....

7. RECLAMATION MANAGER'S NAME L. A. Smith Consulting & Development, Ltd.

Address #201, 701-14 St. N. W. Calgary, Alta., T2N 2A4

DATE 3 July, 1985 SIGNATURE L. A. Smith, P. Geol.

*When geotechnical and reclamation work have been completed for the calendar year a final reclamation report should be submitted to the three Ministry of Energy, Mines and Petroleum Resources personnel noted at the top of this form. For details *see* the booklet entitled, '*Guidelines to Coal Exploration*.'

APPENDIX 2

ANALYTICAL RESULTS

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY SINK	% RECOVERY FLOAT		REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
1	TR-19	Raw Coal			As Received	24.22	-		7.60					
					Air Dried	-	11.55		8.87					
					Dry Basis	-	-		10.03					
2	TR-19	Raw Coal			As Received	13.27	-		36.52					
					Air Dried	-	4.01		40.42					
					Dry Basis	-	-		42.11					
3	TR-19	Raw Coal			As Received	12.89	-		15.10					
					Air Dried	-	5.29		16.41					
					Dry Basis	-	-		17.33					
4	TR-19	Raw Coal			As Received	17.85	-		21.74					
					Air Dried	-	5.78		24.93					
					Dry Basis	-	-		26.46					
5	TR-19	Raw Coal			As Received	12.55	-		22.16					
					Air Dried	-	3.64		24.42					
					Dry Basis	-	-		25.34					
6	TR-19	Raw Coal			As Received	12.84	-		60.18					
					Air Dried	-	4.35		66.05					
					Dry Basis	-	-		69.05					
7	TR-19	Raw Coal			As Received	13.43	-		53.37					
					Air Dried	-	4.40		58.94					
					Dry Basis	-	-		61.65					

D. Ensley

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY SINK	% RECOVERY FLOAT		REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
8	TR-19	Raw Coal			As Received	13.61	-		24.80					
					Air Dried	-	2.39		28.02					
					Dry Basis	-	-		28.71					
9	TR-19	Raw Coal			As Received	17.73	-		25.48					
					Air Dried	-	2.36		30.24					
					Dry Basis	-	-		30.97					
10	TR-19	Raw Coal			As Received	17.57	-		16.82					
					Air Dried	-	5.41		19.31					
					Dry Basis	-	-		20.41					
11	TR-19	Raw Coal			As Received	14.81	-		45.21					
					Air Dried	-	3.63		51.14					
					Dry Basis	-	-		53.07					
1	TR-21	Raw Coal			As Received	25.40	-		6.48					
					Air Dried	-	12.96		7.56					
					Dry Basis	-	-		8.69					
2	TR-21	Raw Coal			As Received	15.67	-		38.91					
					Air Dried	-	3.78		44.40					
					Dry Basis	-	-		46.14					
3	TR-21	Raw Coal			As Received	15.02	-		10.45					
					Air Dried	-	6.33		11.52					
					Dry Basis	-	-		12.30					

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY SINK	% RECOVERY FLOAT		REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
4	TR-21	Raw Coal			As Received	12.09	-		27.23					
					Air Dried	-	2.09		30.32					
					Dry Basis	-	-		30.97					
5	TR-21	Raw Coal			As Received	13.06	-		22.35					
					Air Dried	-	2.81		24.99					
					Dry Basis	-	-		25.71					
1	TR-22	Raw Coal			As Received	21.81	-		15.71					
					Air Dried	-	6.12		18.86					
					Dry Basis	-	-		20.09					
2	TR-22	Raw Coal			As Received	10.61	-		14.81					
					Air Dried	-	2.30		16.19					
					Dry Basis	-	-		16.57					
3	TR-22	Raw Coal			As Received	11.69	-		20.36					
					Air Dried	-	1.75		22.65					
					Dry Basis	-	-		23.05					
4	TR-22	Raw Coal			As Received	9.57	-		14.88					
					Air Dried	-	1.50		16.20					
					Dry Basis	-	-		16.45					
5	TR-22	Raw Coal			As Received	13.80	-		28.26					
					Air Dried	-	2.01		32.13					
					Dry Basis	-	-		32.79					

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY			REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
			SINK	FLOAT										
6	TR-22	Raw Coal			As Received	9.80	-		23.81					
					Air Dried	-	1.04		26.13					
					Dry Basis	-	-		26.40					
1	TR-50	Raw Coal			As Received	24.55	-		8.30					
					Air Dried	-	9.98		9.90					
					Dry Basis	-	-		11.00					
2	TR-50	Raw Coal			As Received	9.06	-		17.01					
					Air Dried	-	4.72		17.83					
					Dry Basis	-	-		18.71					
3	TR-50	Raw Coal			As Received	17.49	-		35.20					
					Air Dried	-	6.31		39.97					
					Dry Basis	-	-		42.66					
4	TR-50	Raw Coal			As Received	19.17	-		8.55					
					Air Dried	-	11.66		9.35					
					Dry Basis	-	-		10.58					
5	TR-50	Raw Coal			As Received	18.24	-		5.95					
					Air Dried	-	11.05		6.48					
					Dry Basis	-	-		7.28					
6	TR-50	Raw Coal			As Received	8.73	-		72.82					
					Air Dried	-	2.99		77.40					
					Dry Basis	-	-		79.79					

D. Ennis

L.A. SMITH CONSULTING & DEVELOPMENT LTD,
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY			REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
			SINK	FLOAT										
7	TR-50	Raw Coal			As Received	17.80	-		12.50					
					Air Dried	-	9.55		13.76					
					Dry Basis	-	-		15.21					
1	TR-51	Raw Coal			As Received	24.20	-		24.82					
					Air Dried	-	12.89		28.52					
					Dry Basis	-	-		32.74					
2	TR-51	Raw Coal			As Received	16.81	-		8.78					
					Air Dried	-	7.90		9.72					
					Dry Basis	-	-		10.55					
3	TR-51	Raw Coal			As Received	11.59	-		58.01					
					Air Dried	-	3.85		63.09					
					Dry Basis	-	-		65.62					
4	TR-51	Raw Coal			As Received	28.53	-		15.07					
					Air Dried	-	11.85		18.58					
					Dry Basis	-	-		21.08					
5	TR-51	Raw Coal			As Received	27.71	-		11.74					
					Air Dried	-	16.01		13.64					
					Dry Basis	-	-		16.24					
6	TR-51	Raw Coal			As Received	19.82	-		9.69					
					Air Dried	-	9.39		10.95					
					Dry Basis	-	-		12.08					

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY			REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
			SINK	FLOAT										
1	TR-52	Raw Coal			As Received	20.23	-		50.69					
					Air Dried	-	7.68		58.67					
					Dry Basis	-	-		63.55					
2	TR-52	Raw Coal			As Received	20.12	-		61.80					
					Air Dried	-	5.53		73.08					
					Dry Basis	-	-		77.36					
3	TR-52	Raw Coal			As Received	23.34	-		49.00					
					Air Dried	-	7.48		59.14					
					Dry Basis	-	-		63.92					
4	TR-52	Raw Coal			As Received	15.77	-		60.39					
					Air Dried	-	2.16		70.15					
					Dry Basis	-	-		71.70					
5	TR-52	Raw Coal			As Received	21.47	-		34.59					
					Air Dried	-	5.03		41.83					
					Dry Basis	-	-		44.05					
1	TR-53	Raw Coal			As Received	14.41	-		64.36					
					Air Dried	-	5.97		70.71					
					Dry Basis	-	-		75.20					
2	TR-53	Raw Coal			As Received	15.69	-		41.13					
					Air Dried	-	7.17		45.28					
					Dry Basis	-	-		48.78					

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD
CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY SINK	% RECOVERY FLOAT		REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
3	TR-53	Raw Coal			As Received	11.85	-		75.49					
					Air Dried	-	3.90		82.30					
					Dry Basis	-	-		85.64					
4	TR-53	Raw Coal			As Received	27.10	-		8.78					
					Air Dried	-	15.63		10.16					
					Dry Basis	-	-		12.04					
5	TR-53	Raw Coal			As Received	18.40	-		40.07					
					Air Dried	-	4.85		46.72					
					Dry Basis	-	-		49.10					
6	TR-53	Raw Coal			As Received	17.23	-		7.63					
					Air Dried	-	8.88		8.40					
					Dry Basis	-	-		9.22					
7	TR-53	Raw Coal			As Received	26.37	-		23.30					
					Air Dried	-	10.50		28.32					
					Dry Basis	-	-		31.64					
8	TR-53	Raw Coal			As Received	19.48	-		16.06					
					Air Dried	-	8.91		18.17					
					Dry Basis	-	-		19.95					
1	TR-54	Raw Coal			As Received	26.28	-		19.04					
					Air Dried	-	13.00		22.47					
					Dry Basis	-	-		25.83					

D. Ennis

L.A. SMITH CONSULTING & DEVELOPMENT LTD.
ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039
DATE: October 17, 1985
PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY			REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU / LB.	F.S.I.	
			SINK	FLOAT										
1	TR-55	Raw Coal			As Received	27.27	-		19.63					
					Air Dried	-	11.99		23.75					
					Dry Basis	-	-		26.99					
2	TR-55	Raw Coal			As Received	15.69	-		55.71					
					Air Dried	-	6.93		61.50					
					Dry Basis	-	-		66.08					
1	TR-56	Raw Coal			As Received	22.10	-		15.23					
					Air Dried	-	11.58		17.29					
					Dry Basis	-	-		19.55					
2	TR-56	Raw Coal			As Received	14.40	-		61.80					
					Air Dried	-	4.85		68.70					
					Dry Basis	-	-		72.20					
1	TR-57	Raw Coal			As Received	34.37	-		14.68					
					Air Dried	-	17.44		18.47					
					Dry Basis	-	-		22.37					
2	TR-57				As Received	12.95	-		10.67					
					Air Dried	-	5.33		11.61					
					Dry Basis	-	-		12.26					
3	TR-57	Raw Coal			As Received	33.45	-		10.51					
					Air Dried	-	14.75		13.47					
					Dry Basis	-	-		15.80					

L.A. SMITH CONSULTING & DEVELOPMENT LTD

ATTN: L.A. Smith

LORING LABORATORIES LTD

CERTIFICATE of COAL TESTING

FILE NO.: 28039

DATE: October 17, 1985

PROJECT: Rocky Creek

SAMPLE NO.	IDENTIFICATION	SAMPLE TYPE	% RECOVERY SINK	% RECOVERY FLOAT		REC'D % H_2O	% H_2O	% VCL MATTER	% ASH	% FIXED CARBON	% S	BTU /LB.	F.S.I.	
4	TR-57	Raw Coal			As Received	20.86	-		11.59					
					Air Dried	-	5.68		13.82					
					Dry Basis	-	-		14.65					
5	TR-57	Raw Coal			As Received	26.32	-		18.13					
					Air Dried	-	8.80		22.44					
					Dry Basis	-	-		24.61					

D. Embree

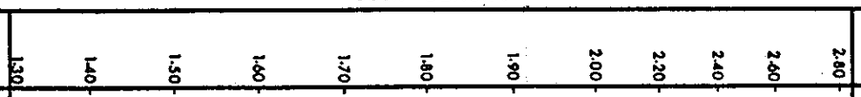
APPENDIX 3

SEAM LOGS AND PROFILES

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY



LOG OF CORE	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M%	A%	VM%	FC%	S%	BTU/lb	S.G.
		.15	SN80 1/1/R			90.6					
46.76		.67	SN80 1/1/1		1.1	24.7	17.8	56.4	.37	10799	1.53
47.43		.27	SN80 1/1/2			58.4					
47.70		.40	SN80 1/1/3	2.24	1.2	6.8	24.2	67.8	.47	14495	1.33
48.10		.45	SN80 1/1/4		1.2	7.5	26.2	65.1	.39	13908	1.32
48.55		.65	SN80 1/1/5			60.3					
49.20											
49.41											
49.58		.17	SN80 1/1/F			63.8					

LEGEND

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

Bright		COAL, C1
Bright Band		COAL, C2
Dull Bright		COAL, C3
Dull Band		COAL, C4
Dull		
		BONEY/STONEY COAL

	COAL & BANDS
C—C—C	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-1

PUMP SEAM

Drawn:		Date:
Checked:	Client App.	Scale: 1:40
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

GEOPHYSICAL LOGS

RESISTIVITY | BULK DENSITY (1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80) | LOG OF CORE | R% | INTERVAL METRES | SAMPLE NO. | SAMPLE COMP. | ANALYTICAL DATA (A.D.B.)

PROXIMATE ANALYSIS

Depth	Interval Metres	Sample No.	M%	A%	VM%	FC%	S%	BTU/lb	S.G.
0.00									
	0.57	TR22-1	6.12	18.86					
0.57									
	0.50	TR22-2	2.30	16.19					
1.00									
1.07	0.26	TR22-3	1.75	22.65					
1.33									
2.00	1.72	TR22-4	1.50	16.20					
3.00									
3.05									

Core log: 30° dip

3.05

LEGEND

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

Bright	COAL, C1
Bright Band	COAL, C2
Dull Bright	COAL, C3
Dull Band	COAL, C4
Dull	
	BONEY/STONEY COAL
	COAL & BANDS
	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 22

PUMP SEAM

Drawn:		Date Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS, A SMITH CONSULTING & DEVELOPMENT LTD.		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS: LOG OF CORE	BULK DENSITY (1.40 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60)	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
3.00		3.05					
				0.68	TR22-5		2.01 32.13
		3.73					
4.00				0.70	TR22-6		1.04 26.13
		4.43 BOTTOM OF TRENCH					
5.00							

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

Bright	COAL, C1	COAL & BANDS
Bright Band	COAL, C2	CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3	MUDSTONE
Dull Band	COAL, C4	BENTONITE
Dull		SANDSTONE
	BONEY/STONEY COAL	SILTSTONE
		CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 22
PUMP SEAM

Drawn:		Date Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No.:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No.:

RESISTIVITY	GEOPHYSICAL LOGS — BULK DENSITY (1.80 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60)	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
0.00	0.00					
			0.60	TR57-1		17.44 18.47
	0.60					
			0.30	TR57-2		5.33 11.61
1.00	0.90					
			0.50	TR57-3	2.30	14.75 13.47
	1.40					
			0.68	TR57-4		5.68 13.82
2.00	2.08					
			0.22	TR57-5		8.80 22.44
	2.30 BOTTOM OF TRENCH					
3.00						

5°

LEGEND

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

Bright — COAL, C1
Bright Band — COAL, C2
Dull Bright — COAL, C3
Dull Band — COAL, C4
Dull — BONEY/STONEY COAL

COAL & BANDS
CARBONACEOUS MUDSTONE
MUDSTONE
BENTONITE
SANDSTONE
SILTSTONE
CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE
TRENCH TR57
PUMP SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS — BULK DENSITY (1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60)	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M%	A%	VM%	FC%	S%	BTU/lb	S.G.
79	79.43		.15	SN80 1/2/R			88.1					
			.72	SN80 1/2/1	2.42m	1.4	4.4	19.6	74.6	.37	14561	
80	80.15		.38	SN80 1/2/2			57.4					
	80.53		.73	SN80 1/2/3		1.1	16.2	22.3	60.4	.36	12741	1.40
81	81.26		.13	1/2/4		1.2	33.5	18.2	47.1	.34	9811	1.55
	81.39		.46	SN80 1/2/5		1.2	23.8	19.6	55.4	.35	11298	1.48
82	81.85											
83				SN80								
	83.58		.17	1/3/R		0.7	43.5	15.0	40.8	.26	8204	1.67
	83.75		.33	SN80 1/3/1		1.1	18.1	21.1	59.7	.39	12355	1.42
84	84.08		.36	SN80 1/3/2			84.8					
	84.44		.56	SN80 1/3/3		1.0	29.9	17.8	51.3	.36	10367	1.54
85	85.00		.56	SN80 1/3/F			51.0					
	85.56											

LEGEND

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

Bright		COAL, C1
Bright Band		COAL, C2
Dull Bright		COAL, C3
Dull Band		COAL, C4
Dull		
		BONEY/STONEY COAL

	COAL & BANDS
-c-c-c-	CARBONACEOUS MUDSTONE
	MUDSTONE
-b-b-b-	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-1

GRIZZLY SEAM

Drawn:		Date:
Checked:	Client App.	Scale: 1:40
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.	Dwg. No:	

GEOPHYSICAL LOGS

RESISTIVITY | LOG OF CORE | BULK DENSITY (1.80 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80) | R% | INTERVAL METRES | SAMPLE NO. | SAMPLE COMP. | ANALYTICAL DATA (A.D.B.)

PROXIMATE ANALYSIS

INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	M%	A%	VM%	FC%	S%	BTU/lb	S.G.
0.00 – 0.84	TR19-1		11.55	8.87					
0.84 – 1.32	TR19-2		4.01	40.42					
1.32 – 2.46		2.72							
1.79 – 2.46	TR19-3		5.29	16.41					
2.46 – 2.76	TR19-4		5.78	24.93					

0.00 | 1.00 | 2.00 | 3.00

10°

Page 1 of 3

LEGEND

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

Bright	COAL, C1	COAL & BANDS
Bright Band	COAL, C2	CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3	MUDSTONE
Dull Band	COAL, C4	BENTONITE
Dull		SANDSTONE
	BONEY/STONEY COAL	SILTSTONE
		CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 19

GRIZZLY SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS — BULK DENSITY	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb SG.
	LOG OF CORE — 1.80 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80					
	2.76					
3.00			1.17	TR19-6		4.35 66.05
	3.93					
4.00			1.29	TR19-7		4.40 58.94
5.00						
	5.22		0.41	TR19-8	1.19	2.39 28.02
	5.63		0.40	TR19-9		2.36 30.24
6.00	6.03					

LEGEND

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

Bright	COAL, C1		COAL & BANDS
Bright Band	COAL, C2		CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3		MUDSTONE
Dull Band	COAL, C4		BENTONITE
Dull			SANDSTONE
	BONEY / STONEY COAL		SILTSTONE
			CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 19

GRIZZLY SEAM

Drawn:		Date Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS: LOG OF CORE	BULK DENSITY (1.60 1.70 1.80 1.90 2.00 2.10 2.20 2.30 2.40 2.50)	R%	INTERVAL: METRES	SAMPLE: NO.	SAMPLE: COMP.	ANALYTICAL DATA (A.D.B.)
							PROXIMATE ANALYSIS: M% A% VM% FC% S% BTU/lb S.G.
6.00		6.03					
				0.38	TR19-10		5.41 19.31
		6.41					
7.00				1.17	TR19-11		3.63 51.14
		7.58					
		BOTTOM OF TRENCH					
8.00							

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

Bright		COAL, C1
Bright Band		COAL, C2
Dull Bright		COAL, C3
Dull Band		COAL, C4
Dull		
		BONEY/STONEY COAL
		COAL & BANDS
		CARBONACEOUS MUDSTONE
		MUDSTONE
		BENTONITE
		SANDSTONE
		SILTSTONE
		CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR.19

GRIZZLY SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS			INTERVAL	SAMPLE		ANALYTICAL DATA (A.D.B.)
	LOG OF CORE	BULK DENSITY 1.80 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60	R%	METRES	NO.	COMP.	PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
0.00		0.00					
				1.27	TR53-1		5.97 70.71
1.00		1.27					
				0.60	TR53-2		7.17 45.28
		1.87					
2.00				0.96	TR53-3		3.90 82.30
		2.80					
3.00							

Page 1 of 2

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

Bright	COAL, C1		COAL & BANDS
Bright Band	COAL, C2		CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3		MUDSTONE
Dull Band	COAL, C4		BENTONITE
Dull			SANDSTONE
	BONEY/STONEY COAL		SILTSTONE
			CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 53

GRIZZLY SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.		Dwg. No:

IVITY	GEOPHYSICAL LOGS — BULK DENSITY	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
	LOG OF CORE; 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80					
	2.80					
3.00			0.75	TR53-4		15.63 10.16
	3.55					
			0.25	TR53-5		4.85 46.72
	3.80					
4.00			0.86	TR53-6	2.51	8.88 8.40
	4.66					
			0.30	TR53-7		10.50 28.32
5.00	4.96					
			0.35	TR53-8		8.91 18.17
	5.31					
	BOTTOM OF TRENCH					
6.00						

Page 2 of 2

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

Bright	COAL, C1		COAL & BANDS
Bright Band	COAL, C2		CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3		MUDSTONE
Dull Band	COAL, C4		BENTONITE
Dull			SANDSTONE
	BONEY/STONEY COAL		SILTSTONE
			CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 53

GRIZZLY SEAM

Drawn:		Date Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.		Dwg. No:

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY

LOG OF CORE	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.20	2.40	2.60	2.80	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M%	A%	VM%	FC%	S%	BTU/lb	S.G.
															BP81.								
21																							
	21.39													.19	6/1/1		1.4	56.3			.25	1.82
	21.58													.12	6/1/2		2.7	73.5			.14	2.14
	21.70													.32	6/1/3		1.7	57.8			.19	1.87
22	22.02													.05	6/1/4		1.3	48.2			.27	1.73
	22.07													.06	6/1/5		1.3	62.7			.14	1.94
	22.13													.23	6/1/6		1.0	22.8	22.4	55.8	.34	1.46
	22.36													.21	6/1/7	1.26m	1.1	49.0			.24	1.74
	22.57													.39	6/1/8		1.1	29.4	18.9	50.6	.28	1.50
23	22.96													.18	6/1/9		1.5	77.5			.10	2.13
	23.14													.36	6/1/10		1.3	47.1			.29	1.67
	23.50													.20	6/1/11		1.6	78.9			.10	2.21
	23.70													.04	6/1/12		1.4	34.8	20.5	43.3	.65	1.53
	23.74													.27	6/1/13		1.4	65.5			.22	1.91
24	24.01																						

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull — BONEY/STONEY COAL

- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-6

GRIZZLY SEAM

Drawn:		Date:
Checked:	Client Appr.	Scale: 1:40
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD	Dwg. No:	

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY

LOG OF CORE	1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M%	A%	VM%	FC%	S%	BTU/lb	S.G.
170				SN80								
	170.48		.15	2/1R		85.0						
	170.60			SN80								
			.34	2/1/1	0.88	.9	4.0	26.1	69.0	.56	14679	1.30
171	170.94			SN80								
			.54	2/1/2		.6	9.1	27.0	63.3	.51	14045	1.32
	171.48		.19	2/1/F		66.2						
	171.67											
172												

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

Bright	COAL, C1
Bright Band	COAL, C2
Dull Bright	COAL, C3
Dull Band	COAL, C4
Dull	
	BONEY/STONEY COAL
	COAL & BANDS
	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-2

UPPER B SEAM

Drawn:		Date:
Checked:	Client App.	Scale: 1:40
Author:	Revised:	File No:
LAS J. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY

LOG OF CORE

1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80

R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
	0.00 – 0.63	TR50-1		9.98 9.90
	0.63 – 0.81	TR50-2		4.72 17.83
	0.81 – 1.01	TR50-3		6.31 39.97
	1.01 – 1.74	TR50-4	4.01	11.66 9.35
	1.74 – 3.19	TR50-5		11.05 6.48

0.00 1.00 2.00 3.00

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull — BONEY/STONEY COAL

- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR50 - RELOG OF SNT 20/30

UPPER 'B' SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD	Dwg. No:	

RESISTIVITY	GEOPHYSICAL LOGS — BULK DENSITY	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
	LOG OF CORE; 1.00 1.50 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80					
	3.19		0.17	TR50-6		2.99 77.40
	3.36		0.65	TR50-7		12.89 28.52
4.00	4.01 BOTTOM OF TRENCH					

LEGEND

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

Bright	COAL, C1
Bright Band	COAL, C2
Dull Bright	COAL, C3
Dull Band	COAL, C4
Dull	
	BONEY / STONEY COAL
	COAL & BANDS
	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE
TRENCH TR50 - RELOG OF SNT 20/30
UPPER 'B' SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.		Dwg. No:

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80

LOG OF CORE	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
0.00					
0.00		0.67	TR51-1	0.67	12.89 28.52
0.67		0.15	TR51-2		7.90 9.72
0.82		0.15	TR51-3		3.85 63.09
2.00 0.97		0.24	n.s.		- -
1.21		0.13	n.s.		- -
1.34		0.19	n.s.		- -
1.53		0.38	TR51-4		11.85 18.58
1.91		0.50	TR51-5		16.01 13.64
3.00 2.41					

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull — BONEY / STONEY COAL

- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 51 - RELOG OF SNT 29

UPPER 'B' SEAM

Drawn:		Date: Nov/85
Checked	Client Appr.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS — BULK DENSITY (1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80)	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.)
	LOG OF CORE					PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
4.00	2.41					
			1.47	TR51-5	2.35	16.01 13.64
5.00	3.88		0.40	n.s.		- -
	4.28		0.48	TR51-6		9.39 10.95
5.00	4.76 BOTTOM OF TRENCH					

LEGEND

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull
- BONEY / STONEY COAL
- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 51 - RELOG OF SNT 29

UPPER 'B' SEAM

Drawn		Date Nov/85
Checked	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS		Dwg. No:

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80

LOG OF CORE	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M%	A%	VM%	FC%	S%	BTU/lb	S.G.
282											
282.22		.33	SN80 2/3/1			58.9					
282.55		.16	2/3/3		1.3	46.1	17.0	35.6	.49	7646	1.70
282.76		.30	2/3/4			75.7					
283											
283.06		.36	SN80 2/3/5		.9	23.0	15.2	60.9	.46	11269	1.53
283.40		.14	2/3/6		1.1	18.4	25.9	54.6	.34	10982	1.53
283.54		.18	2/3/7		1.2	4.8	18.8	75.2	.52	14455	1.35
283.72											
284		.59	SN80 2/3/8	1.55	1.1	9.0	20.3	69.6	.62	13765	1.37
284.31		.15	2/3/9			64.7					
284.46		.15	2/3/10		1.1	36.3	19.1	43.5	.45	9373	1.58
284.61		.23	2/3/11			72.4					
284.84											
285		.37	SN80 2/3/11		1.2	43.7	17.2	37.9	.40	7900	1.67
285.21		.22	2/3/F			70.0					
285.43											

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull
- BONEY / STONEY COAL
- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-2

GRIZZLY SEAM

Drawn:		Date:
Checked:	Client App.	Scale: 1:40
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD	Dwg. No:	

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY 1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80

LOG OF CORE	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M%	A%	VM%	FC%	S%	BTU/lb	S.G.
43.70		.43	1/7/1	1.25	.6	13.3	20.5	65.6	.36		1.40
44 — 44.02											
44.13		.82	1/7/2		.7	12.9	21.5	64.9	.34		1.37
45 — 44.95		.60	1/7/3		.9	54.4			.26		1.79
45.55											
46											

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull
- BONEY/STONEY COAL
- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-7

GRIZZLY SEAM

Drawn:		Date
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No.
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

GEOPHYSICAL LOGS

GAMMA

BULK DENSITY

LOG OF CORE	1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.)
						PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
80.0						
87.0			2.0	n.s.	2.0	no analyses
89.0						
90.0						
100.0						

n.s.: not sampled

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

Bright		COAL, C1
Bright Band		COAL, C2
Dull Bright		COAL, C3
Dull Band		COAL, C4
Dull		
		BONEY/STONEY COAL

	COAL & BANDS
C—C—C	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

DRILL HOLE BP-18

GRIZZLY SEAM

Drawn:		Date:
Checked:	Client App.	Scale: 1:40
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

GEOPHYSICAL LOGS

GAMMA

BULK DENSITY

LOG OF CORE	1.30 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.)
						PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
10.0						
	18.7		2.3		2.3	Not Sampled
20.0	21.1					
30.0						

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

Bright	COAL, C1	COAL & BANDS
Bright Band	COAL, C2	CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3	MUDSTONE
Dull Band	COAL, C4	BENTONITE
Dull		SANDSTONE
	BONEY / STONEY COAL	SILTSTONE
		CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH PROPERTY

SEAM PROFILE

DRILL HOLE BP-19

GRIZZLY SEAM

Drawn:		Date
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No.
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS — LOG OF CORE	BULK DENSITY (1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80)	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
0.00		0.00					
				0.55	TR52-1		7.68* 58.67 20.23**
		0.55					
1.00				0.53	TR52-2		5.53* 73.08 20.12**
		1.08					
				0.52	TR52-3		7.48* 59.14 23.34**
		1.60					
				0.20	TR52-4		2.16* 70.15 15.77**
		1.80					
2.00				0.43	TR52-5		5.03* 41.83 21.47**
		2.23					
		BOTTOM OF TRENCH					

* residual moisture
** as-rec.'d moisture

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

- Bright — COAL, C1
- Bright Band — COAL, C2
- Dull Bright — COAL, C3
- Dull Band — COAL, C4
- Dull
- BONEY / STONEY COAL
- COAL & BANDS
- CARBONACEOUS MUDSTONE
- MUDSTONE
- BENTONITE
- SANDSTONE
- SILTSTONE
- CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 52

ABOVE GRIZZLY SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD.		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS: LOG OF CORE	BULK DENSITY (1.80 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80)	R%	INTERVAL: METRES	SAMPLE: NO.	SAMPLE: COMP.	ANALYTICAL DATA (A.D.B.)
							PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
0.00		0.00					
				0.53	TR54-1	0.53	13.00 22.47
	7°	0.53 BOTTOM OF TRENCH					
1.00							

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

Bright	COAL, C1
Bright Band	COAL, C2
Dull Bright	COAL, C3
Dull Band	COAL, C4
Dull	
	BONEY/STONEY COAL
	COAL & BANDS
	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE
TRENCH TR 54
GRIZZLY SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

GEOPHYSICAL LOGS

RESISTIVITY

BULK DENSITY

1.80 1.40 1.50 1.60 1.70 1.80 1.90 2.00 2.20 2.40 2.60 2.80

LOG OF CORE	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.) PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
0.00 Erosional Contact					
0.00		0.82	TR55-1	0.82	11.99 23.75
0.82		1.17	TR55-2		6.93 61.50
1.00					
2.00					
1.99 BOTTOM OF TRENCH					

RESISTIVITY _____

BULK DENSITY — — — —

RECOVERY - R%

LEGEND

Bright	COAL, C1
Bright Band	COAL, C2
Dull Bright	COAL, C3
Dull Band	COAL, C4
Dull	
	BONEY/STONEY COAL
	COAL & BANDS
	CARBONACEOUS MUDSTONE
	MUDSTONE
	BENTONITE
	SANDSTONE
	SILTSTONE
	CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE

TRENCH TR 55

GRIZZLY SEAM

Drawn:		Date Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

RESISTIVITY	GEOPHYSICAL LOGS — LOG OF CORE	BULK DENSITY	R%	INTERVAL METRES	SAMPLE NO.	SAMPLE COMP.	ANALYTICAL DATA (A.D.B.)
							PROXIMATE ANALYSIS M% A% VM% FC% S% BTU/lb S.G.
	--- Erosional Contact?						
0.00	0.00						
				1.20	TR56-1	1.20	11.58 17.29
1.00	15°						
	1.20						
				0.70	TR56-2		4.85 68.70
	1.90 BOTTOM OF TRENCH						
2.00							

RESISTIVITY _____
BULK DENSITY — — — —
RECOVERY - R%

LEGEND

Bright	COAL, C1		COAL & BANDS
Bright Band	COAL, C2	c-e-c	CARBONACEOUS MUDSTONE
Dull Bright	COAL, C3		MUDSTONE
Dull Band	COAL, C4		BENTONITE
Dull			SANDSTONE
	BONEY / STONEY COAL		SILTSTONE
			CORE LOSS

SELCO INC.

ROCKY CREEK, SUKUNKA NORTH

SEAM PROFILE
TRENCH TR 56
GRIZZLY SEAM

Drawn:		Date: Nov/85
Checked:	Client App.	Scale: 1:20
Author:	Revised:	File No:
LAS L. A. SMITH CONSULTING & DEVELOPMENT LTD		Dwg. No:

APPENDIX 4
OPEN PIT COAL RESERVE CALCULATIONS

Reserve Area	Coal Seam	Average Seam Thickness (m)	Area of Reserve (m^2)	Specific Gravity	In-Place Reserve (bcm)
BP1	Pump	2.2	81,500	1.5	269,000
BP1	Grizzly	3.625	10,000	1.5	54,400
		3.375	30,000	1.5	151,900
		3.125	43,000	1.5	201,600
		2.875	55,500	1.5	239,300
		2.625	182,000	1.5	716,600
		2.375	394,000	1.5	1,403,600
		2.125	279,000	1.5	889,300
			Sub Total:		3,656,700
BP6	Grizzly	0.75	2,125	1.5	2,400
		0.85	8,075	1.5	10,300
		0.95	9,600	1.5	13,700
		1.05	14,250	1.5	22,400
		1.15	17,225	1.5	29,700
		1.25	56,750	1.5	106,400
		1.35	49,500	1.5	100,200
		1.45	32,250	1.5	70,100
		1.55	18,500	1.5	43,000
		1.65	7,500	1.5	18,600
		1.75	1,250	1.5	3,300
			Sub Total:		420,100
BP7	Grizzly	1.05	96,000	1.5	151,200
		1.15	215,000	1.5	370,900
		1.25	118,000	1.5	221,300
		1.35	120,000	1.5	243,000
		1.45	89,000	1.5	193,600
		1.55	78,000	1.5	181,400
		1.65	65,500	1.5	162,100
		1.75	35,000	1.5	91,900
		1.85	36,000	1.5	99,900
		1.95	22,000	1.5	64,300
		2.05	34,000	1.5	104,600
		2.15	34,000	1.5	109,700
		2.25	55,000	1.5	185,600
		2.35	43,000	1.5	151,600
		2.15	8,000	1.5	25,800
		2.05	8,750	1.5	26,900
		1.95	6,750	1.5	19,700
		1.85	2,750	1.5	7,631
			Sub Total:		2,411,000
Terrace Hill C		4.4	426,400	1.5	2,814,200
		3.8	57,200	1.5	326,000

	3.8	46,800	1.5	266,800
				3,407,000
Terrace Hill B	5.7	72,800	1.5	622,000
	6.4	710,450	I.5	6,820,300
				7,442,300
				21,013,200

OPEN PIT OVERBURDEN CALCULATIONS

Reserve Area	Overburden Thickness (m)	Isopach Area (m)	Overburden (bcm)	
BP1 Pump	5	28,000	140,000	
	15	26,250	394,000	
	25	16,250	406,300	
	35	9,250	323,700	
	43.4	1,750	75,900	
				1,339,700
BP1 Grizzly	72	31,500	2,268,000	
	65	38,500	2,502,500	
	55	50,500	2,777,500	
	45	117,500	5,287,500	
	35	110,000	3,850,000	
	25	247,000	6,175,000	
	15	160,000	2,400,000	
	7.5	100,000	750,000	
	2.5	137,000	342,500	
Less Pump overburden & coal seam			<1,339,700>	
				24,834,000
BP6	5	90,500	452,500	
	15	115,250	1,782,700	
	22	15,750	346,500	
				2,581,750
BP7	5	492,500	2,462,500	
	12	10,000	120,000	
	15	554,000	8,310,000	
	22	49,000	1,078,000	
				11,970,500
Terrace Hill				53,116,000*
		Total		**93,841,950**

* From 1984 Report.

APPENDIX 5

CROSS-SECTIONS

ROCKY CREEK
0+00BASE

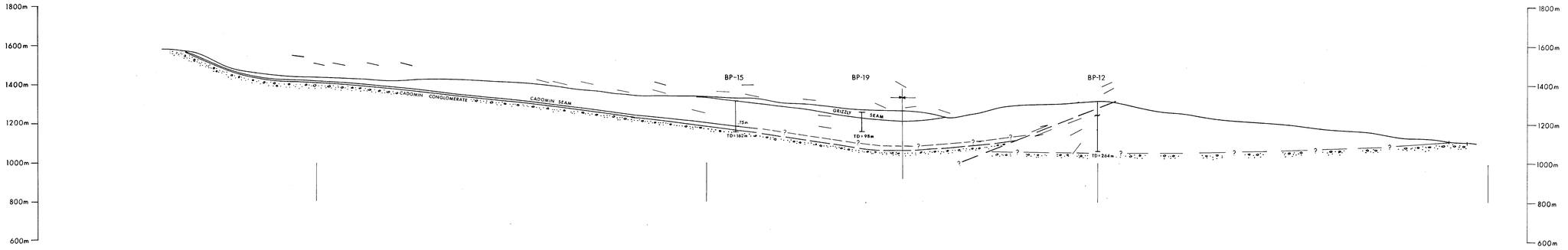
2000 NE

4000 NE

6000 NE

8000NE

SECTION 6000 N



No.	Revision	By	Date

LEGEND

- Observed Structural Orientation
- Fault Zone Location Observed in Drill Core
- Thrust Fault - Arrows Show Direction of Movement
- Conglomerate Rocks
- Location of Syncline Axis
- Location of Anticline Axis
- SNT 16 TR 50 — Coal Seam Outcrop Trench
- BP-12 — Drill Hole

0 500 1000m

Scale 1:10 000

B.P. CANADA LTD.

SELCO DIVISION

Rocky Creek Coal Property - Sukunka North
N.E. British Columbia

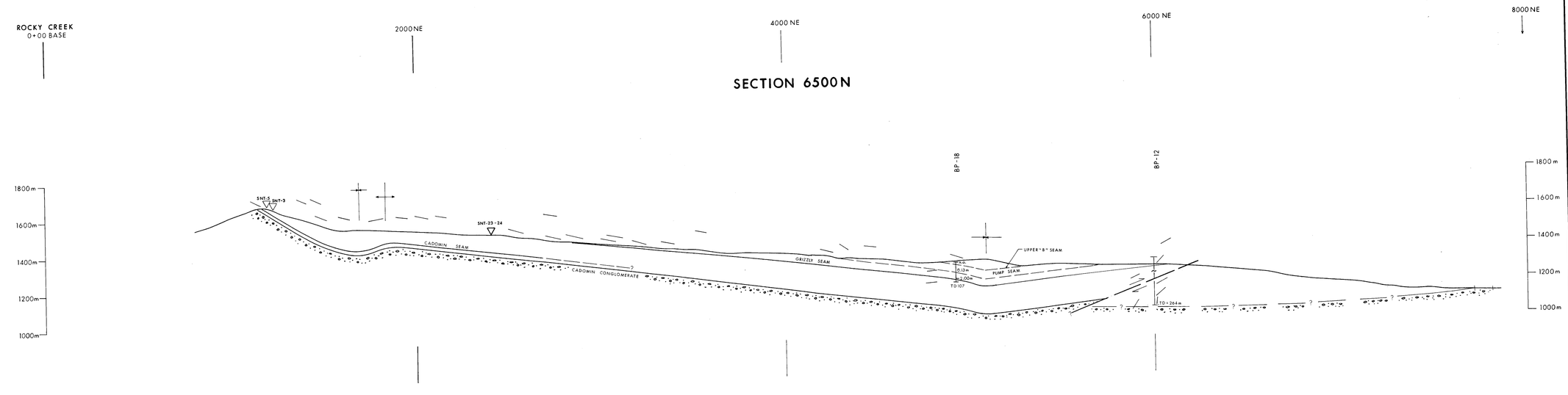
1985 EXPLORATION PROGRAM

CROSS-SECTION 6+000mN

Drawn	Approved	Date
GL/KM		NOV, 1985

Drawing No.	Sheet
APPENDIX 6-1	

L. A. SMITH CONSULTING & DEVELOPMENT LTD.



No.	Revision	By	Date

LEGEND

- Observed Structural Orientation
- Fault Zone Location Observed in Drill Core
- Thrust Fault - Arrows Show Direction of Movement
- Conglomerate Rocks
- Location of Syncline Axis
- Location of Anticline Axis
- SNT18, TR20 — Coal Seam Outcrop Trench
- BP-12 — Drill Hole

0 500 1000m

Scale 1:10 000

B.P. CANADA LTD.

SELCO DIVISION

Rocky Creek Coal Property - Sukunka North
N.E. British Columbia

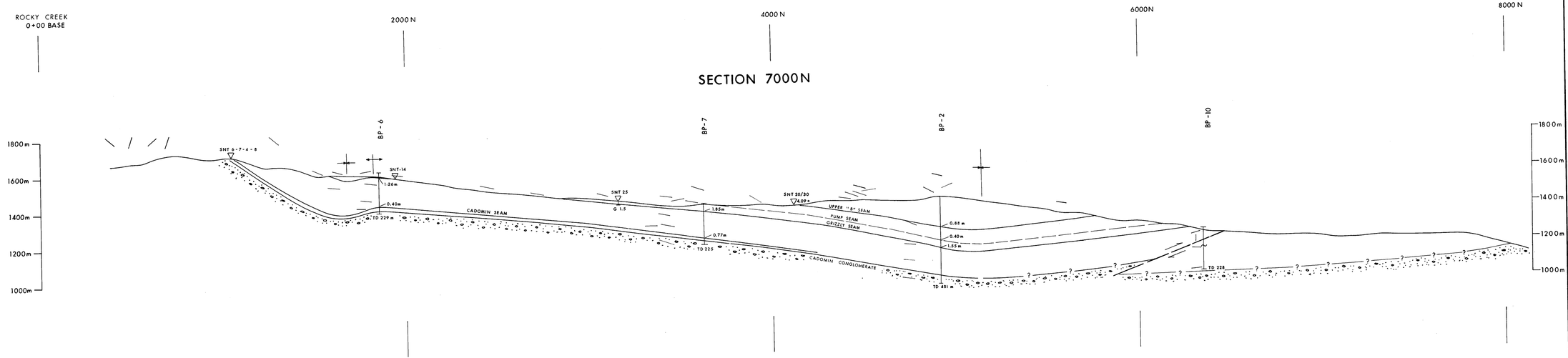
1985 EXPLORATION PROGRAM

CROSS-SECTION 6+500 mN

Drawn	Approved	Date
GL/KM		NOV, 1985

Drawing No.	Sheet
APPENDIX 6-2	

L. A. SMITH CONSULTING & DEVELOPMENT LTD.



No.	Revision	By	Date

LEGEND

- Observed Structural Orientation
- Fault Zone Location Observed in Drill Core
- Thrust Fault - Arrows Show Direction of Movement
- Conglomerate Rocks
- Location of Syncline Axis
- Location of Anticline Axis
- SNT 18 / TR 50 — Coal Seam Outcrop Trench
- BP-2 — Drill Hole

0 500 1000m

Scale 1:10 000

B.P. CANADA LTD.

SELCO DIVISION

Rocky Creek Coal Property - Sukunka North
N.E. British Columbia

1985 EXPLORATION PROGRAM

CROSS-SECTION 7+000mN

Drawn	Approved	Date
GL/KM		NOV, 1985

Drawing No.	Sheet
APPENDIX 6-3	

L.A. SMITH CONSULTING & DEVELOPMENT LTD.

ROCKY CREEK
0+00BASE

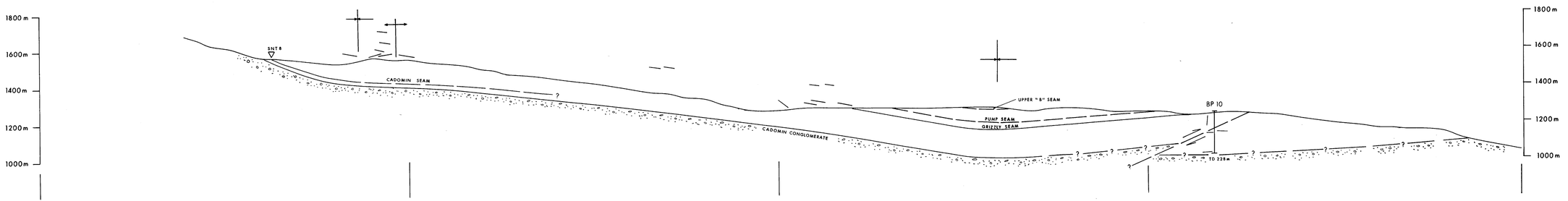
2000NE

4000NE

6000 NE

8000 NE

SECTION 7500 N



No.	Revision	By	Date

LEGEND

- Observed Structural Orientation
- Fault Zone Location Observed in Drill Core
- Thrust Fault - Arrows Show Direction of Movement
- Conglomerate Rocks
- Location of Syncline Axis
- Location of Anticline Axis
- SNT18 / ER50 — Coal Seam Outcrop Trench
- BP-12 — Drill Hole

0 500 1000m

Scale 1:10 000

B.P. CANADA LTD.

SELCO DIVISION

Rocky Creek Coal Property- Sukunka North
N.E. British Columbia

1985 EXPLORATION PROGRAM

CROSS-SECTION 7+500mN

Drawn	Approved	Date
GL/KM		NOV, 1985

Drawing No.	Sheet
APPENDIX 6-4	

L. A. SMITH CONSULTING & DEVELOPMENT LTD.

ROCKY CREEK
0+00 BASE

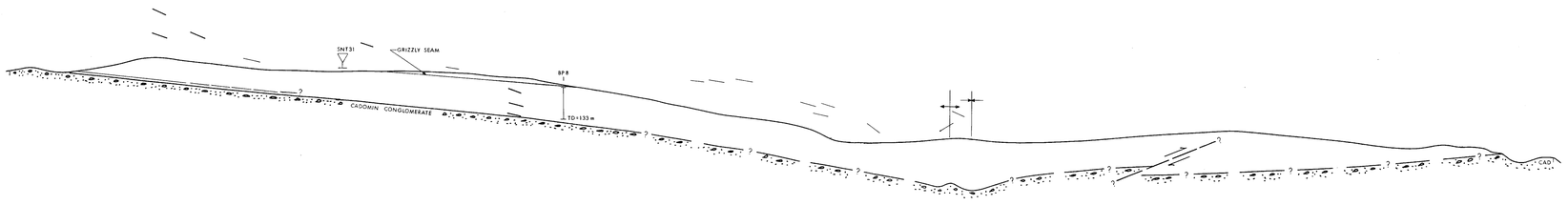
2000 NE

4000 NE

6000 NE

8000 NE

SECTION 8000 N



No.	Revision	By	Date

LEGEND

- Observed Structural Orientation
- Fault Zone Location Observed in Drill Core
- Thrust Fault - Arrows Show Direction of Movement
- Conglomerate Rocks
- Location of Syncline Axis
- Location of Anticline Axis
- SNT18 TR50 Coal Seam Outcrop Trench
- BP12 Drill Hole

0 500 1000m

Scale 1:10 000

B.P. CANADA LTD.
SELCO DIVISION

Rocky Creek Coal Property - Sukunka North
N.E. British Columbia

1985 EXPLORATION PROGRAM

CROSS-SECTION 8+000 mN

Drawn	Approved	Date
GL/KM		NOV, 1985

Drawing No.	Sheet
APPENDIX 6-5	

LAS L.A. SMITH CONSULTING & DEVELOPMENT LTD.

ROCKY CREEK
0+00 BASE

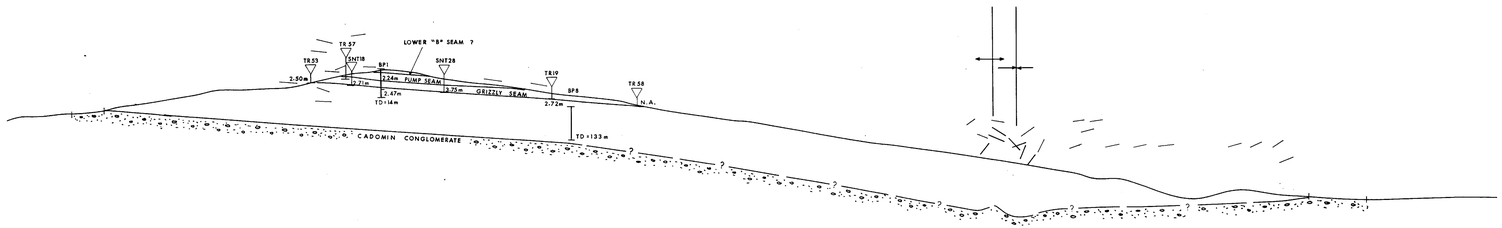
2000 NE

4000 NE

6000 NE

8000 NE

SECTION 8500N



No.	Revision	By	Date

LEGEND

- Observed Structural Orientation
- Fault Zone Location Observed in Drill Core
- Thrust Fault - Arrows Show Direction of Movement
- Conglomerate Rocks
- Location of Syncline Axis
- Location of Anticline Axis
- SNT 18 / TR 50 — Coal Seam Outcrop Trench
- SB-12 — Drill Hole

0 500 1000m

Scale 1:10 000

B.P. CANADA LTD.

SELCO DIVISION

Rocky Creek Coal Property - Sukunka North
N.E. British Columbia

1985 EXPLORATION PROGRAM

CROSS-SECTION 8+500mN

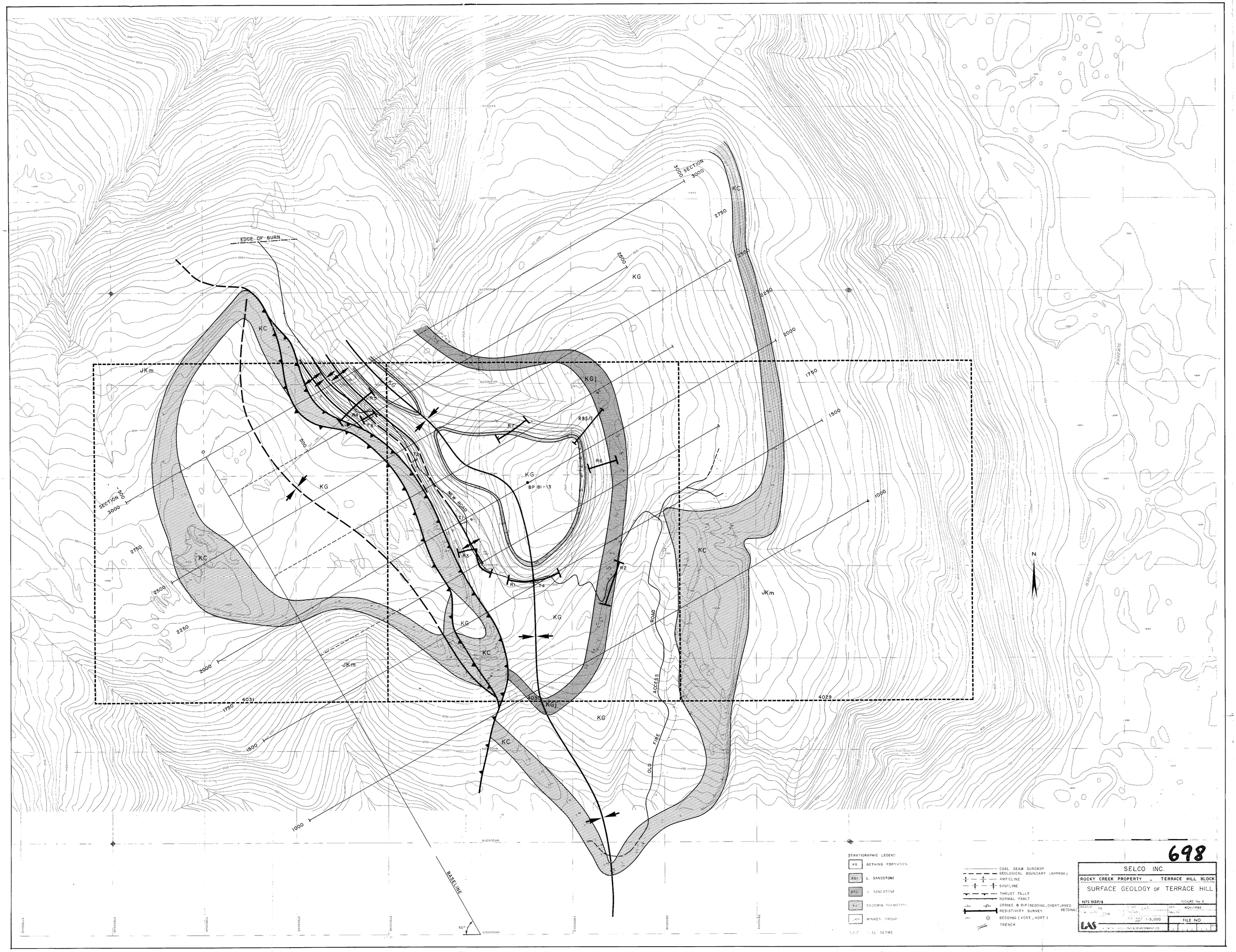
Drawn	Approved	Date
GL/KM		NOV, 1985

Drawing No.	Sheet
APPENDIX 6-6	

L. A. SMITH CONSULTING & DEVELOPMENT LTD.

APPENDIX 6

MAPS



STRATIGRAPHIC LEGEND

- KG — GETHING FORMATION
- KGj — L. SANDSTONE
- KGj — J. SANDSTONE
- KC — CADOMIN FORMATION
- JKm — MINNES GROUP
- COAL SEAM SUBCROP
- GEOLOGICAL BOUNDARY (APPROX.)
- ANTICLINE
- SYNCLINE
- THRUST FAULT
- NORMAL FAULT
- STRIKE & DIP (BEDDING, OVERTURNED BEDDING)
- RESISTIVITY SURVEY
- BEDDING (VERT., HORT.)
- TRENCH

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SELCO INC.

ROCKY CREEK PROPERTY, TERRACE HILL BLOCK

SURFACE GEOLOGY OF TERRACE HILL

NTS 93P/4 — FIGURE No. 4

DRAWN: HB — DATE: NOV/1985

SCALE: AS PER 1:5,000 — FILE NO.

LAS — LAND & SEA DEVELOPMENT LTD.

MINNES GROUP

GETHING Fm.

CADOMIN CONGLOMERATE

BP-14

BP-9

BP-4

BP-10

BP-12

BP-2

BP-11

BP-8

BP-1

BP-18

BP-19

BP-7

BP-15

BP-16

DDH-1

TR58

TR54

TR55

TR57

TR53

TR52

TR56

TR21/STN18

STN19

TR22

TR50/STN20/30

TR51/STN29

SNT 28

SNT 31

SNT 25

SNT 22

SNT 23

SNT 24

SNT 12

SNT 11

SNT 13

SNT 15

SNT 14

SNT-16

SNT-17

SNT8

SNT 9

SNT7

SNT6

SNT4

SNT2

SNT 3

SNT1

SNT 26

SNT 5

SNT 27

SNT 21

GRIZZLY SEAM

RUMP SEAM

CADOMIN SEAM

ROCKY CREEK BASELINE

9+00mN

8+00mN

0+00m

7+00mN

5+00mN

4+00mE

3+00mE

2+00mE

8+00mE

6+00mE

55°16'00"

55°17'00"

55°18'00"

55°19'00"

6130000m N

6129000m N

6128000m N

6127000m N

6126000m N

6125000m N

6124000m N

LEGEND

TRAIL

CONTOURS

SPOT HEIGHT 1500

STREAM, LAKE

TREE LINE

CUT LINE

HORIZONTAL CONTROL

VERTICAL CONTROL

T.N.

17°02'

Grid North

200 0 200 400 600 800 metres

10 METRES FORM LINE INTERVAL

CONTROL TAKEN FROM N.T.S. MAP SHEET 93P/5

LEGEND:

BP10: CORE HOLE

SNT, TR: COAL SEAM OUTCROP TRENCH (LOGGED & SAMPLES)

SNT 31: UNFINISHED COAL SEAM TRENCH (NOT LOGGED & SAMPLED)

SNT19/TR22: BP COAL SEAM TRENCH - RELOGGED 1985

SYNCLINE AXIS

ANTICLINE AXIS

THRUST FAULT (KNOWN), (PROJECTED)

COAL SEAM OUTCROP

COAL LICENCE GROUP BOUNDARY

698

10 METRES FORM LINE INTERVAL

ROCKY CREEK PROJECT

GEOLOGY OF THE ROCKY CREEK PROPERTY
SUKUNKA NORTH BLOCK

U.T.M. ZONE 10 | FIGURE No. 5 | N.T.S. MAP SHEET : 93P/5

DRAWN BY: THE ORTHOSHOP	CHECKED:	DATE: NOV. 1985
COMPILED BY: AERO GEOMETRICS	CLIENT APPL:	DWG. NO.
	SCALE: HORIZ. 1 : 10,000 VERT.	FILE NO.

L. A. SMITH CONSULTING & DEVELOPMENT LTD.

MINNES GROUP

CADOMIN CONGLOMERATE

GETHING Fm.

MINNES GROUP

CADOMIN CONGLOMERATE

GETHING Fm.

GETHING Fm.

MINNES GROUP

CADOMIN CONGLOMERATE

ROCKY CREEK BASELINE

CADOMIN SEAM

MINNES GROUP

CADOMIN CONGLOMERATE

GETHING Fm.

CADOMIN CONGLOMERATE

BP-14 BP-4 BP-9 BP-10 BP-12 BP-11 BP-2 BP-8 BP-1 BP-18 BP-19 BP-7 BP-15 BP-6 DDH-1

TR58 TR19 TR54 TR55 TR50/STN20/30 TR51/STN29 TR21/STN16 STN19 TR22 TR57 TR53 TR52 TR56

SNT 28 SNT 31 SNT 22 SNT 25 SNT 12 SNT 11 SNT 13 SNT 23 SNT 24 SNT 15 SNT 14 SNT 16 SNT 17 SNT 8 SNT 9 SNT 7 SNT 6 SNT 4 SNT 2 SNT 3 SNT 1 SNT 26 SNT 5 SNT 27 SNT 21

W/L 1417 W/L 1408 W/L 1411 W/L 1365 W/L 1332 W/L 1041 W/L 1359

C.L. 5268 C.L. 5275 C.L. 4049 C.L. 4048 C.L. 4047 C.L. 4046 C.L. 4044 C.L. 4043 C.L. 4042 C.L. 4041 C.L. 4039 C.L. 4038 C.L. 4037

9+00mN 8+00mN 7+00mN 6+00mN 5+00mN 4+00mN 3+00mN 2+00mE 4+00mE 5+00mE 6+00mE 7+00mE 8+00mE

55°16'00" 55°17'00" 55°18'00" 55°19'00"

6130000m N 6129000m N 6128000m N 6127000m N 6126000m N 6125000m N 6124000m N

LEGEND

TRAIL
CONTOURS
SPOT HEIGHT 1500
STREAM, LAKE
TREE LINE
CUT LINE
HORIZONTAL CONTROL
VERTICAL CONTROL

T.N. 1°02' Grid North

200 0 200 400 600 800 metres

10 METRES FORM LINE INTERVAL

CONTROL TAKEN FROM N.T.S. MAP SHEET 93P/5

LEGEND:

- BP10: CORE HOLE
- SNT, TR: COAL SEAM OUTCROP TRENCH (LOGGED & SAMPLES)
- SNT 31: UNFINISHED COAL SEAM TRENCH (NOT LOGGED & SAMPLED)
- SNT 19/TR 22: BP COAL SEAM TRENCH - RELOGGED 1985
- SYNCLINE AXIS
- ANTICLINE AXIS
- THRUST FAULT (KNOWN), (PROJECTED)
- COAL SEAM OUTCROP
- 1270 STRUCTURE CONTOUR
- COAL LICENCE GROUP BOUNDARY

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10 METRES FORM LINE INTERVAL

ROCKY CREEK PROJECT

GRIZZLY SEAM STRUCTURE CONTOURS

U.T.M. ZONE 10 — FIGURE No: 6 — N.T.S. MAP SHEET : 93P/6

DRAWN BY: THE ORTHOSHOP	CHECKED:	DATE: NOV/1985
COMPILED BY: AERO GEOMETRICS	CLIENT APP'L	DWG. NO.
	SCALE: HORIZ. 1 : 10,000 VERT.	FILE NO.

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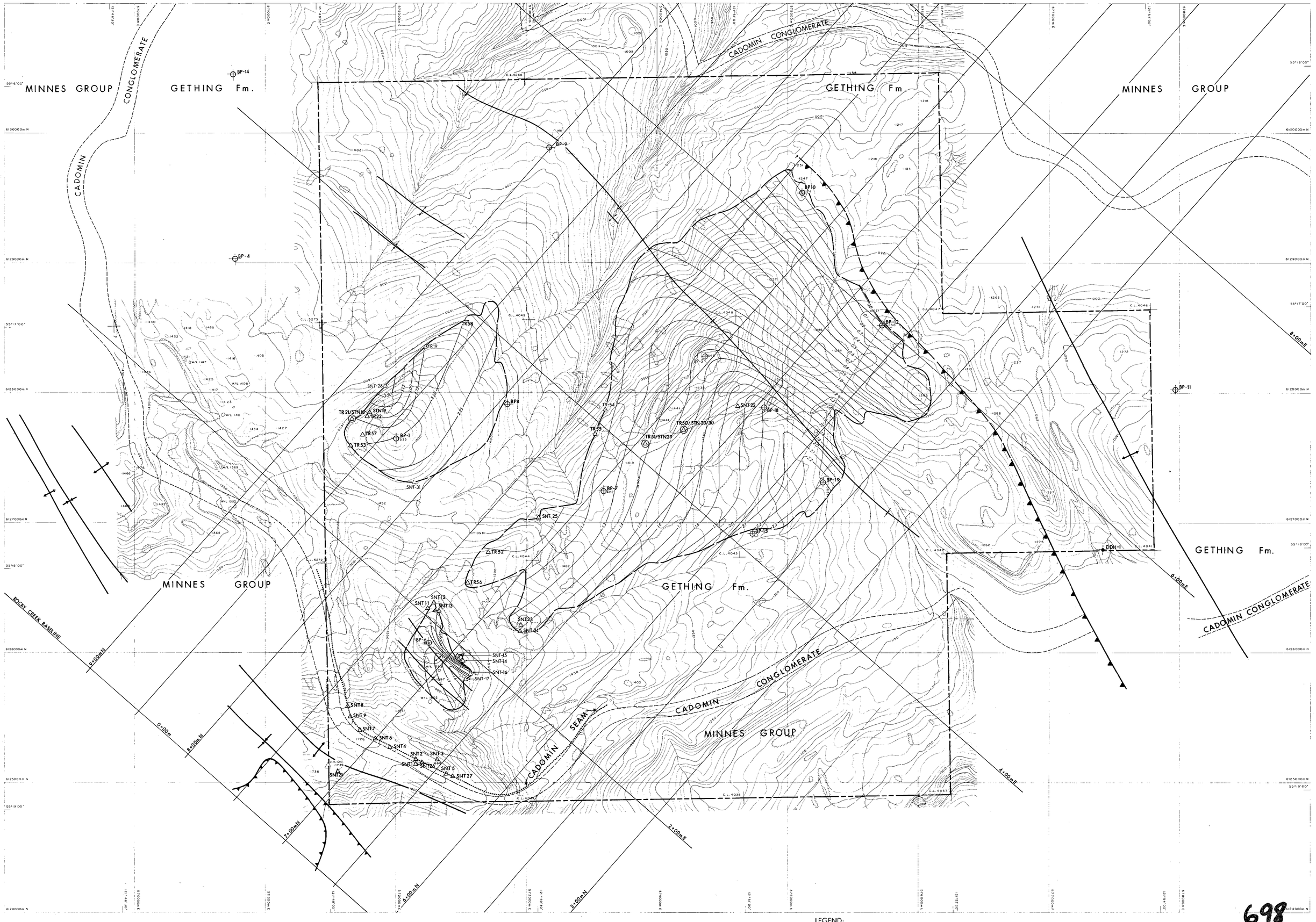

LEGEND

- TRAIL
- CONTOURS
- SPOT HEIGHT 1500
- STREAM, LAKE
- TREE LINE
- CUT LINE
- HORIZONTAL CONTROL
- VERTICAL CONTROL

T.N. 1°02' Grid North

200 0 200 400 600 800 metres

10 METRES FORM LINE INTERVAL

CONTROL TAKEN FROM N.T.S. MAP SHEET 93P/5

LEGEND:

- BP10; CORE HOLE
- SNT, TR; COAL SEAM OUTCROP TRENCH (LOGGED & SAMPLES)
- SNT 31; UNFINISHED COAL SEAM TRENCH (NOT LOGGED & SAMPLED)
- SNT 19 / TR 22; BP COAL SEAM TRENCH - RELOGGED 1985
- SYNCLINE AXIS
- ANTICLINE AXIS
- THRAST FAULT (KNOWN), (PROJECTED)
- COAL SEAM OUTCROP
- 14 COAL ISOTHICNESS CONTOUR
- COAL LICENCE GROUP BOUNDARY

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10 METRES FORM LINE INTERVAL

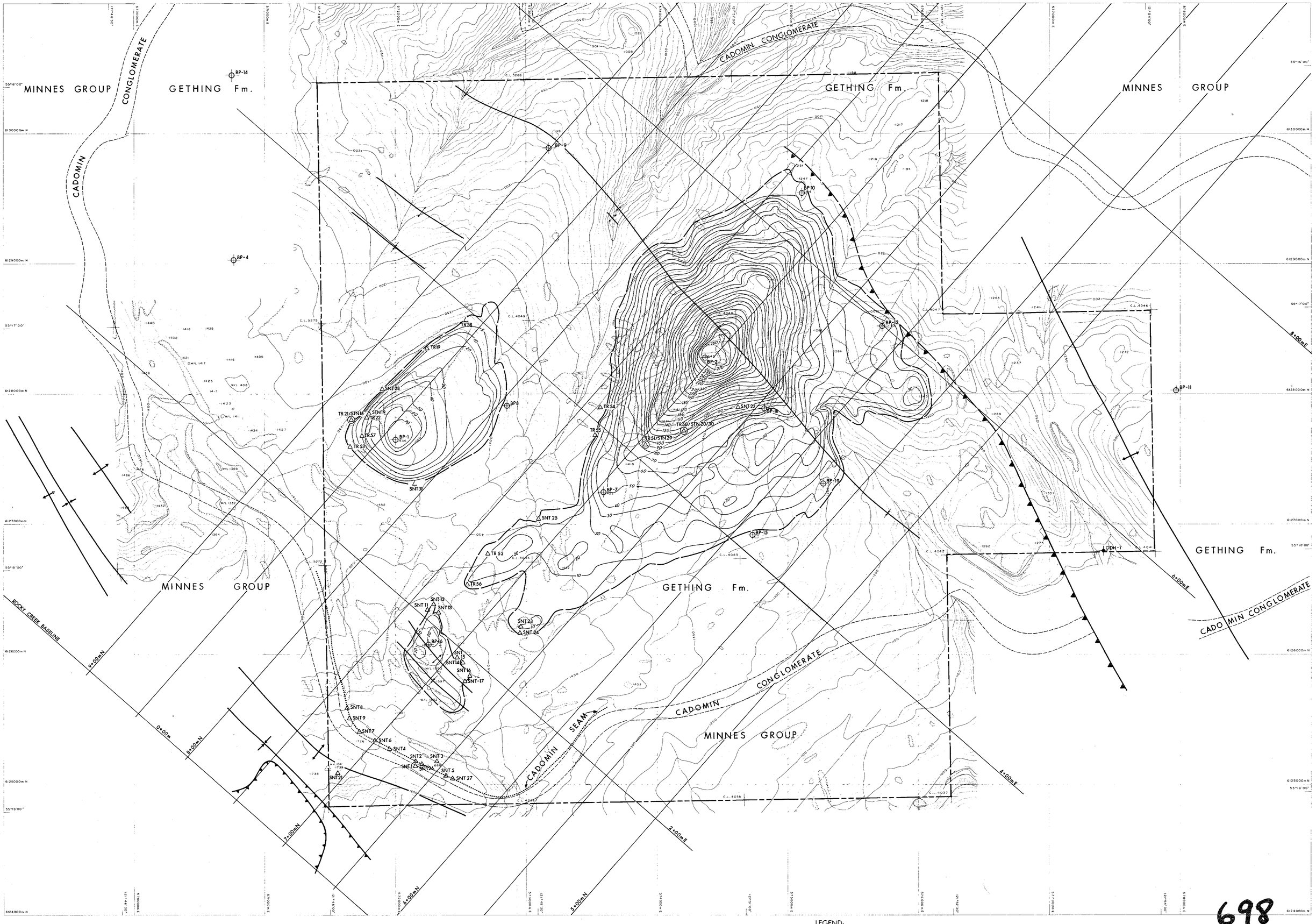
ROCKY CREEK PROJECT

GRIZZLY SEAM ISOPACH

U.T.M. ZONE 10 — FIGURE No. 7 — N.T.S. MAP SHEET : 93P/5

DRAWN BY: THE ORTHOSHOP	CHECKED:	DATE: NOV / 1985
COMPILED BY: AERO-GEOMETRICS	CLIENT APPL:	DWG. NO.
	SCALE: HORIZ. 1 : 10,000 VERT.	FILE NO.

L.A. SMITH CONSULTING & DEVELOPMENT LTD.



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LEGEND

- TRAIL
- CONTOURS
- SPOT HEIGHT 1500
- STREAM, LAKE
- TREE LINE
- CUT LINE
- HORIZONTAL CONTROL △
- VERTICAL CONTROL ⊙

T.N. 1°02' Grid North

200 0 200 400 600 800 metres

10 METRES FORM LINE INTERVAL

CONTROL TAKEN FROM N.T.S. MAP SHEET 93P/5

LEGEND:

- BP10: CORE HOLE
- SNT, TR: COAL SEAM OUTCROP TRENCH (LOGGED & SAMPLED)
- SNT 31: UNFINISHED COAL SEAM TRENCH (NOT LOGGED & SAMPLED)
- SNT 19/TR 22: BP COAL SEAM TRENCH - RELOGGED 1985
- SYNCLINE AXIS
- ANTICLINE AXIS
- THRUST FAULT (KNOWN), (PROJECTED)
- COAL SEAM OUTCROP
- —10— ISOBURDEN CONTOUR
- COAL LICENCE GROUP BOUNDARY

10 METRES FORM LINE INTERVAL

ROCKY CREEK PROJECT

GRIZZLY SEAM ISOBURDEN

U.T.M. ZONE 10 — N.T.S. MAP SHEET : 93P/5

FIGURE No: 8

DRAWN BY: THE ORTHOSHOP	CHECKED:	DATE: NOV/1985
COMPILED BY: AERO GEOMETRICS	CLIENT APP'L:	DWG. NO.
	SCALE: HORIZ. 1 : 10,000 VERT.	FILE NO.

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