PR-RockyCreek 81(1)A

93P/14,5

B.P. Canada

Report on the Rocky Creek 1981 Exploration Program N.E.B.C.

C.L.# 3617, 4029-4032, 4034, 4036-4049, 5244-5278

A. Bowler
Dec 31 1981

620

PR-Rocky Creek
81(1)A

BP EXPLORATION CANADA LIMITED

COAL DIVISION

B. C. Government Report on the

Rocky Creek 1981 Exploration Program, N.E. B.C.

93 P/4,5
121°45' 55°15'

Work for 1981 Field Season
May-August

Coal Licence Numbers:

(TO BE RETAINED)

Group A 3617, 4034, 4036, 4040, 4041, 4045, 4046
Group B 4037, 4038, 4039, 4042, 4043, 4044, 4047, 4048, 4049, 5270, 5272
Group C 4029, 4030, 4031, 4032, 5262, 5263
Group D 5249, 5250, 5252, 5253, 5254, 5255, 5256, 5257, 5258

(TO BE DROPPED)

5268, 5278, 5277, 5276, 5275, 5274, 5273, 5271
5267, 5269, 5244, 5245, 5259, 5260, 5261
5264, 5265, 5266, 5251, 5248, 5247, 5246

Submitted:

December 31, 1981

A. Bowler

BP EXPLORATION CANADA LIMITED

COAL DIVISION

ROCKY CREEK 1981 REPORT

TABLE OF CONTENTS

VOLUME I

FIGURES

TABLES

MAPS (in rear pockets)

Map 1 Rocky Creek Coal Licences, Trenches, Boreholes

Map 1A Merrick Block, Geological Location Plan

Map 1B Rocky Creek Property, Geological Location Plan

Map 2 Rocky Creek Coal Areas with Base Contours

Map 3 Structural Summary Map

Map 4 Grizzly Seam Development

Map 5 Rocky Creek Block Areas

CHARTS (in rear pockets)

Correlation Chart of Lower Gething Coals

VOLUME II

Core Description - BP 6 thru 19

Trench Descriptions

Geological Mapping Stations

Coal Quality Refer to "Confidential Coal Analysis"

VOLUME III

Geophysical Logs BP 6 thru 13

VOLUME IV

Geophysical Logs BP 14 thru 19

Applications to Extend Term of Licence

Applications to Group Licences

1. INTRODUCTION

This report has been prepared for presentation to the Coal Administrator of the British Columbia Ministry of Energy, Mines & Petroleum Resources, Victoria, British Columbia and in compliance with the Regulations under the Coal Act of 1974. It describes the exploration program carried out from May to August, 1981, on BP's Rocky Creek property.

The Rocky Creek Coal Project consists of 55 coal licences. All licences have a renewal date of December 31.

The 1981 Rocky Creek Exploration Program, south of Chetwynd, B.C., was conducted as a helicopter supported mapping and core drilling program. This project employed eight BP personnel and contracts were tendered for helicopter services, drilling, geophysical logging, coal analysis, drill site preparation, reclamation, and staff accommodation.

This report should be read in conjunction with BP's application for work credit on the "Application to Extend the term of Licence" forms for the Rocky Creek property, submitted with this report.

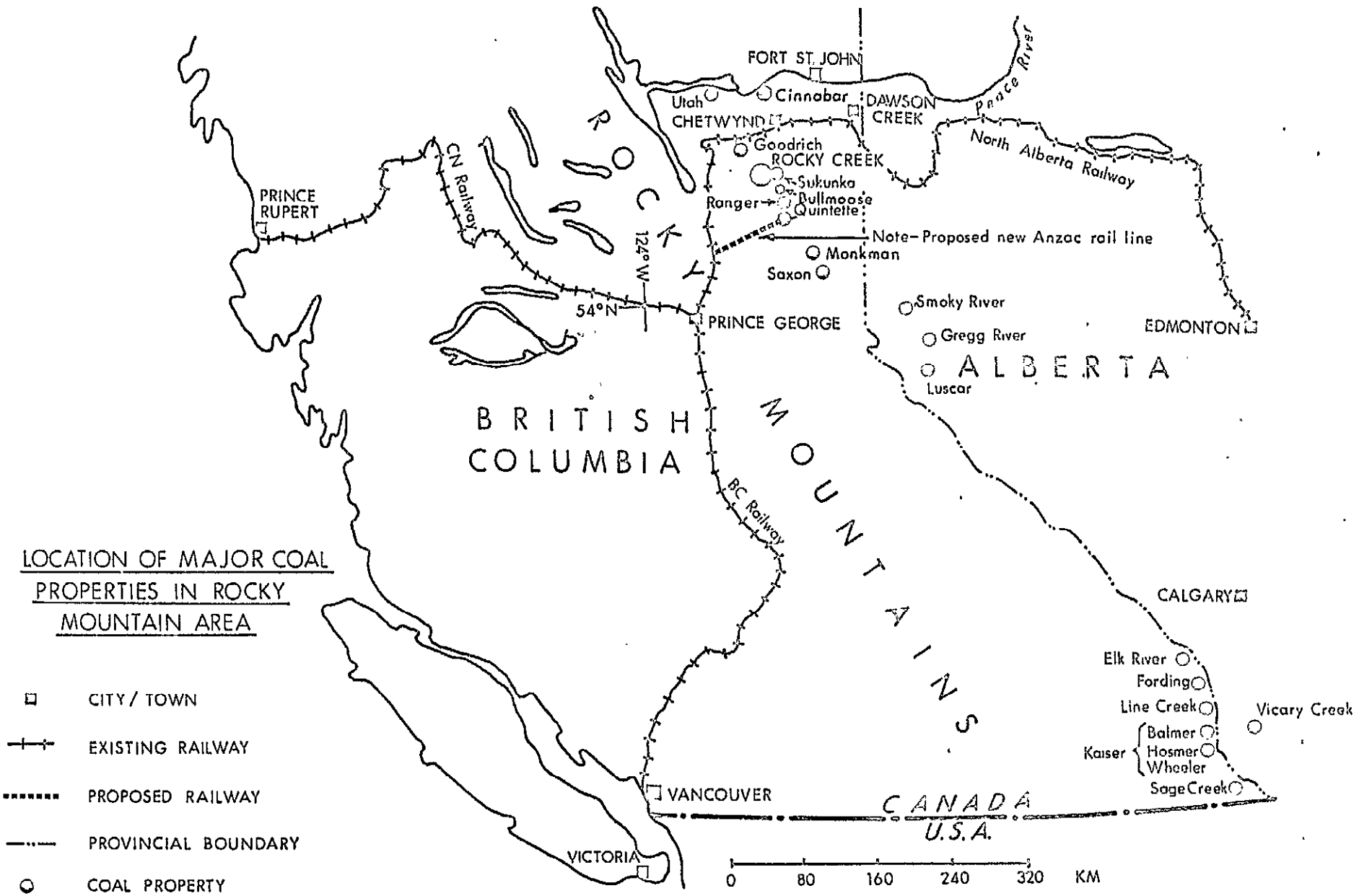

FORT ST. JOHN
Peace River
Utah
Cinnabar
DAWSON CREEK
CHETWYND
Goodrich
ROCKY CREEK
North Alberta Railway
Sukunka
Bullmoose
Quintette
Ranger
PRINCE RUPERT
CN Railway
ROCKY
124° W
Note- Proposed new Anzac rail line
Monkman
Saxon
54° N
PRINCE GEORGE
Smoky River
Gregg River
EDMONTON
ALBERTA
Luscar
BRITISH COLUMBIA
MOUNTAINS
BC Railway
CALGARY
Elk River
Fording
Line Creek
Vicary Creek
Kaiser
Balmer
Hosmer
Wheeler
Sage Creek
VANCOUVER
CANADA
U.S.A.
VICTORIA
0
80
160
240
320
KM
LOCATION OF MAJOR COAL PROPERTIES IN ROCKY MOUNTAIN AREA
CITY / TOWN
EXISTING RAILWAY
PROPOSED RAILWAY
PROVINCIAL BOUNDARY
COAL PROPERTY
ROCKY CREEK PROPERTY

Figure 1

2. LOCATION - ACCESS - TOPOGRAPHY

The Rocky Creek property occupies an area of approximately 16,225 ha located 50 km south of the town of Chetwynd in northeastern British Columbia. Figure 1, illustrates the location of the property, its relationship to other proposed coal developments and to existing and proposed infrastructure in the region.

Access at present is via helicopter from Chetwynd as there is no bridge crossing the Sukunka River south of the Burnt River into the project area. The nearest road access to the property is the Sukunka Valley Rd. located on the east side of the valley, whereas the nearest existing rail line is the British Columbia Railway line which passes through Chetwynd. (Chetwynd is approximately 1,100 km from the ports of Vancouver and Prince Rupert).

The proposed Anzac rail link from near Prince George to the new Tumbler Ridge Townsite will cross the upper Sukunka Valley approximately 60 km south of the Rocky Creek property.

2. LOCATION - ACCESS - TOPOGRAPHY (CONTINUED)

The terrain encompassed by the study area varies from rolling mountains, to the less-rugged valleys of the Burnt and Sukunka Rivers. The surface elevation varies from 650 to 1,500 metres above sea level.

Three vegetation zones are present in the area: the Subboreal White Spruce - Alpine Fir Zone; the Sub-alpine Engelmann Spruce - Alpine Fir Zone: and the Alpine Tundra Zone. A diversity of wildlife is expected on the property, including up to 46 species of mammals and 160 species of birds. The climate of the region is Humid Continental, short summer with a mean annual temperature of 0^{o} C and a total annual precipitation ranging from 42 - 69 cm.

3. LICENCES AND HISTORY OF OWNERSHIP

The Rocky Creek property encompasses 55 British Columbia Department of Energy Mines and Petroleum Resources coal licences for a total hectorage of approximately 16,225 ha. Prior to March 1st, 1981 the Rocky Creek property was made up of four properties as follows:-

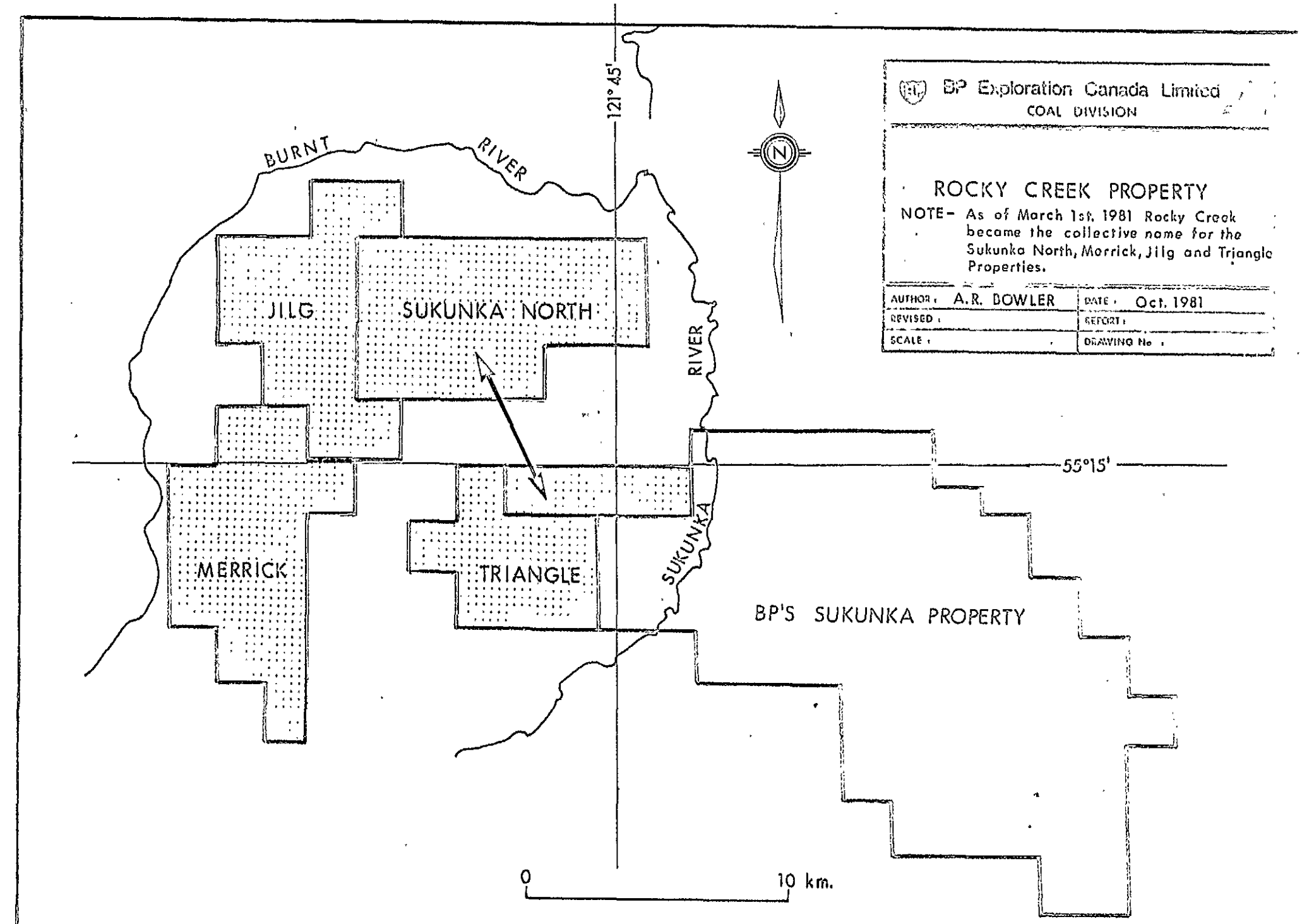

BP Exploration Canada Limited
COAL DIVISION
ROCKY CREEK PROPERTY
NOTE- As of March 1st, 1981 Rocky Creek became the collective name for the Sukunka North, Merrick, Jilg and Triangle Properties.
AUTHOR: A.R. BOWLER
DATE: Oct. 1981
REVISED:
REPORT:
SCALE:
DRAWING No:
121° 45'
55°15'
BURNT
RIVER
RIVER
SUKUNKA
JILG
SUKUNKA NORTH
MERRICK
TRIANGLE
BP'S SUKUNKA PROPERTY
N
0
10 km.

Figure 2

3. LICENCES AND HISTORY OF OWNERSHIP (CONTINUED)

(See Map 1 for location of specific licences)

Property	Licences	Area
Sukunka North	3617, 4029-4032, 4034, 4036-4049 (20)	5,896 ha
Jilg	5267 - 5278 (12)	3,537 ha
Merrick	5244 - 5258 (15)	4,428 ha
Triangle	5259 - 5266 (8)	2,362 ha

Figure 2 illustrates the locations of the four properties which make up the Rocky Creek Property, and their relationship to the BP Sukunka Property.

The licence renewal date for all of these above licences is December 31st, 1981.

The Jilg Merrick and Triangle properties were filed by BP on March 27, 1979, and are held 100% by BP to this day.

The Sukunka North* property was originally filed and held by Masters Exploration (Manalta Coal) in February, 1978. On August 1st, 1979 BP entered an option agreement with Manalta, and as a result of work performed during the 1979 and 1980 field season, BP obtained out right the Sukunka North licences on December 1st, 1980.

* The original Sukunka North property included 35 coal licences, situated on the east bank of the Sukunka River: these licences were surrendered in March, 1980.

3. LICENCES AND HISTORY OF OWNERSHIP (CONTINUED)

Manalta Coal, as a result of this agreement, can claim a royalty on all coal produced and sold from the Sukunka North licences, calculated at the rate of 1% of the gross revenue received by BP for the coal f.o.b. the railcar at the preparation plant.

4. HISTORY OF EXPLORATION AND EXPENDITURE

Prior to the 1979 field season, only regional field mapping had taken place over the four properties. The work was either carried out by consultants, often working for oil companies, or by government geologists.

In 1979 BP initiated a detailed field mapping program of the former Sukunka North property, which at that time was optioned from Manalta Coal. During this helicopter supported program over 500 outcrop stations were plotted described, and a 1:10,000 scale surface geology map produced.

4. HISTORY OF EXPLORATION AND EXPENDITURE (CONTINUED)

Known coal occurences on the former Triangle, Merrick and Jilg properties were substantiated during this program, however, no detailed mapping was carried out. It was during the 1979 that 2 boreholes were drilled and extensive field mapping carried out on the east bank licences of Rocky Creek. These licences were subsequently relinquished due to poor reserve potential.

The 1980 exploration program concentrated on the area now known as Rocky Creek. The main objectives of this program were to define the formations exposed on the property, obtain structural and stratigraphic data on the coals of the Lower Gething Formation as well as the Minnes Group, and to establish the rank and quality of the various coals encountered.

These objectives were accomplished by field mapping and trenching, with over 1,000 outcrop stations being visited and described; and by drilling five diamond drill holes for a total of 1,400 m of core. All field work and drilling was helicopter supported, with a base situated in the town of Chetwynd.

4. HISTORY OF EXPLORATION (CONTINUED)

As a result of the 1980 exploration program two main coal zones, the Pump and Grizzly Zones, (each 3 to 4 m thick) both of thermal coal quality were recognised. Both zones had areas which appeared to have good potential for surface mining, however, each zone exhibited considerable variations in thickness and quality over short distances.

Further drilling, mapping, trenching and sampling was proposed for the 1981 field seasons, so that the objectives outlined in the next chapter (Chapter 5) might be accomplished.

5. 1981 EXPLORATION PROGRAM OBJECTIVES

The main objectives of the 1981 Rocky Creek exploration program were:-

(1) To delineate reserve blocks within the Lower Gething coals, in particular from the Cadomin, Grizzly, Pump, and 'B' Zones.

(2) To obtain more detailed structural, and stratigraphic data on the above coal zones particularly within the mineable reserve blocks.

(3) To establish the rank and quality of the coal zones encountered within each reserve block.

(4) To determine if any coals of mineable thickness exist in the Minnes Formation.

To accomplish the above objectives 7 BP personnel were assigned to the project to supervise and to carry out geological mapping, sampling, and core logging. Originally 20 wireline N.Q. sized boreholes were planned, totalling approximately 3,800 m of drilling, however due to geological factors 6 of the holes were dropped from the program.

6. SERVICING OF PROGRAM

Major considerations in servicing the drilling and mapping programs were accommodations, transportation and field equipment. Several companies were required to service the drilling and mapping including:

Company	Personnel/Service
BP	2 geologists, 2 technologists & 3 summer students
Maple Leaf Helicopters	1 to 2 pilots, 206 & 204 helicopters
Northern Mountain Helicopters	1 pilot, 2 engineers, 205 helicopter
Highland Helicopters	1 pilot, 2 engineers, 212 helicopter
D.W. Coates Enterprises	2 - 4 man drill crews, 1 supervisor 2 - diamond drills
Century Geophysical Corporation	1 borehole logging engineer
Peace Dozing & Contracting	2 to 3 slashers
Northland Storage	core shed facilities
Pine Cone Motor Inn	accommodation BP and Century Engineer
Canuck Truck Rentals	2 - 3/4 ton trucks
Canadian Marconi	Radio communications
Canadian Freightways	Freight transport
Wayne Asleson Trucking	Freight transport
Beaver Lumber	Field equipment
Northern Metalic	Field equipment
Ribtor Sales	Field equipment

6. SERVICING OF PROGRAM (CONTINUED)

6.1 Accommodation

Operations were conducted from field headquarters set up in the Pine Cone Motor Inn in Chetwynd, B.C. Accommodations consisted of 5 to 6 suites being rented for approximately 3 months with one of the larger suites serving as a field office.

The D. W. Coates drill crews stayed at the Pine Cone Motor Inn, as well as the Century Geophysical logger.

All other contractors used in the program operations were local and were able to travel to and from their own homes.

A core shed, serviced with electricity and water, was rented in Chetwynd from Northland Storage.

6. SERVICING OF PROGRAM (CONTINUED)

6.2 Transportation

Transportation in and around Chetwynd and to the BP mine camp, adjacent to the study area, was facilitated by two three-quarter ton trucks. They were especially useful in transporting extra helicopter fuel and supplies to the mine camp, and hauling the core to Chetwynd from the mine area. Because of its proximity to the Rocky Creek property, the BP mine camp became a depot for transporting equipment, drilling supplies and in some cases, crews to and from the field. The trucks were supplied by Canuck Truck Rentals in Chetwynd.

The helicopter transport of field mapping crews to and from the field from Chetwynd and/or the BP mine camp was by a Bell '206' helicopter from Maple Leaf Helicopter Ltd., of Chetwynd.

The Bell '206' was also used to transport drill crews from Chetwynd to the rigs, and back. For drill rig moves, a Bell '204' from Maple Leaf was employed. On several occasions, substitute helicopters were used for rig moves, specifically, a Bell '205' from Northern Mountain Helicopters, and a Bell '212' from Highland Helicopters, both from Chetwynd.

6. SERVICING OF PROGRAM (CONTINUED)

6.3 Field Equipment

Communications for the program was handled very well by tying the BP Coal Division radio systems, into the BP Oil and Gas short-wave system which utilized a repeater at the summit of Bull-moose Mountain. With this system, communication over 60 km was possible with very few problems. The suite of radios used consisted of two 40 watt units mounted in the drill rigs, and seven handheld portable radios for the helicopter dispatched mapping crews, pilots, helicopter base, and BP personnel in Chetwynd.

Field equipment not already on hand was purchased from Ribtor Sales of Calgary or Beaver Lumber and Northern Metalic Sales both of Chetwynd.

6.4 Drilling

Drill site construction was contracted to Peace Dozing and Contracting of Chetwynd. Fourteen drill sites were constructed and used during 1981. The drill pads, approximately 2,500 square metres in size, were, where geologically favourable, built on, or near, natural clearings so that timber damage was kept to a minimum.

6. SERVICING OF PROGRAM (CONTINUED)

6.4 Drilling (Continued)

As the drilling program was helicopter supported no heavy equipment work, road construction or sump preparation was undertaken, therefore reclamation was minimal.

D. W. Coates Enterprises of Vancouver, B.C. was contracted to drill the twenty proposed N.Q. diamond core holes on the Rocky Creek Property. Upon the completion of the first five holes, it was decided because of geological factors, that only fourteen of the proposed core holes should be drilled.

Maps in the rear pocket illustrates the borehole locations at scales of 1:10,000 and 1:50,000, whereas Table I lists the eastings, northings and surface elevations of the 1980 and 1981 drill holes.

D. W. Coates supplied all of the drilling equipment, and the necessary supplies and additives.

TABLE I

BOREHOLE LOCATIONS AND SURFACE ELEVATIONS

	1980 PROGRAM	EASTING	NORTHING	SURFACE ELEVATION	Licence #
	BP-1	572,000 m E	6,127,650 m N	1,525 m	
	BP-2	574,400 m E	6,128,250 m N	1,445 m	
	BP-3	579,120 m E	6,127,740 m N	1,400 m	
	BP-4	570,760 m E	6,129,030 m N	1,395 m	
	BP-5	569,450 m E	6,122,100 m N	1,520 m	
	1981 Program				Licence #
1	BP-6	572,250 m E	6,126,075 m N	1,605 m	4039
2	BP-7	573,590 m E	6,127,245 m N	1,420 m	4043
3	BP-8	572,890 m E	6,127,880 m N	1,390 m	4044
4	BP-9	573,170 m E	6,129,890 m N	1,185 m	4048
5	BP-10	575,110 m E	6,129,540 m N	1,245 m	4047
6	BP-11	577,970 m E	6,128,025 m N	1,300 m	4041
7	BP-12	575,725 m E	6,128,520 m N	1,320 m	4042
8	BP-13	580,250 m E	6,122,460 m N	1,425 m	4030
9	BP-14	570,750 m E	6,130,415 m N	1,430 m	5275
10	BP-15	574,730 m E	6,126,915 m N	1,315 m	4038
11	BP-16	567,450 m E	6,119,075 m N	1,525 m	5253
12	BP-17	569,070 m E	6,120,730 m N	1,515 m	5252
13	BP-18	574,820 m E	6,127,890 m N	1,310 m	4042
14	BP-19	575,275 m E	6,127,310 m N	1,260 m	4042

6. SERVICING OF PROGRAM (CONTINUED)

6.4 Drilling (Continued)

The equipment and supplies consisted of:

- 2 Longyear 38 drills, helicopter transportable
- Auxiliary water pumps and hose
- Mud tanks
- Drill Stem and core barrels.
- Drill bits, core boxes, casing and drilling mud.
- Cement mixer/pump.

BP was responsible for all site preparation and transportation of equipment and drill crews to and from drill sites.

The drilling program commenced with the D. W. Coates rigs arriving on June 1, 1981. Aided by good weather conditions, a plentiful water supply, and good drilling practices and conditions, the program was completed on the 16th of July, 1981.

Tables 2 and 3 give details of the drilling carried out during the 1981 program.

The Geologist core log descriptions can be found in Volume 2.

TABLE 2

BOREHOLE COMPLETION DETAILS

Borehole	Type	Prognosis Depth	Actual Depth	Date Spudded	Date Completed	Type of Drill
BP81-06	Vertical NQ Wireline	250 m	228.6 m	June 2/81	June 7/81	Longyear 38
BP81-07	Vertical NQ Wireline	150 m	224.6 m	June 2/81	June 7/81	Longyear 38
BP81-08	Vertical NQ Wireline	100 m	132.9 m	June 8/81	June 10/81	Longyear 38
BP81-09	Vertical NQ Wireline	350 m	200.3 m	June 9/81	June 13/81	Longyear 38
BP81-10	Vertical NQ Wireline	150 m	227.7 m	June 11/81	June 14/81	Longyear 38
BP81-11	Vertical NQ Wireline	200 m	141.1 m	June 14/81	June 16/81	Longyear 38
BP81-12	Vertical NQ Wireline	250 m	263.9 m	June 15/81	June 20/81	Longyear 38
BP81-13	Vertical NQ Wireline	250 m	401.4 m	June 17/81	June 26/81	Longyear 38
BP81-14	Vertical NQ Wireline	200 m	121.0 m	June 21/81	June 23/81	Longyear 38
BP81-15	Vertical NQ Wireline	120 m	162.5 m	June 24/81	June 27/81	Longyear 38
BP81-16	Vertical NQ Wireline	300 m	306.9 m	June 28/81	July 4/81	Longyear 38
BP81-17	Vertical NQ Wireline	300 m	273.4 m	July 5/81	July 10/81	Longyear 38
BP81-18	Vertical NQ Wireline	100 m	107.3 m	July 11/81	July 14/81	Longyear 38
BP81-19	Vertical NQ Wireline	100 m	98.1 m	July 15/81	July 16/81	Longyear 38
14 - TOTALS-		2,820 m	2,889.7 m			

DRILLING TIME DATA

TABLE 3

BOREHOLE	CASING DEPTH m	TRICONING m	TRICONING DHr	DRILLING m	DRILLING DHr	DRILLING RATE m/hr	TRAVEL TIME MHr.
BP81-6	5.5 m	5.5 m	2 hr	223.1 m	59 hr	3.8 m/hr	26 hr
BP81-7	3.7 m	3.7 m	2 hr	220.9 m	64 hr	3.5 m/hr	29 hr
BP81-8	15.2 m	15.2 m	6 hr	117.7 m	30.5 hr	3.9 m/hr	12 hr
BP81-9	4.3 m	4.3 m	2 hr	196 m	50 hr	3.9 m/hr	24 hr
BP81-10	5.2 m	5.2 m	1 hr	222.5 m	58 hr	3.8 m/hr	24 hr
BP81-11	3.0 m	3.0 m	3 hr	138.1 m	37 hr	3.7 m/hr	10 hr
BP81-12	4.9 m	4.9 m	1 hr	259 m	82 hr	3.2 m/hr	29 hr
BP81-13	13.4 m	13.4 m	6.5 hr	388 m	154 hr	2.5 m/hr	50 hr
BP81-14	13.1 m	13.1 m	5 hr	107.9 m	29 hr	3.7 m/hr	16 hr
BP81-15	9.5 m	9.5 m	5 hr	153 m	40 hr	3.8 m/hr	15 hr
BP81-16	3.4 m	3.4 m	2 hr	303.5 m	81.5 hr	3.7 m/hr	28 hr
BP81-17	3.9 m	3.9 m	2 hr	269.5 m	69 hr	3.9 m/hr	24.5 hr
BP81-18	3.0 m	3.0 m	1 hr	104.3 m	19 hr	5.5 m/hr	16 hr
BP81-19	3.0 m	3.0 m	2 hr	95.1 m	18 hr	5.3 m/hr	10 hr

m - meters

DHr - Drill Hours

m/hr - metres per hour

MHr - Man Hours

6. SERVICING OF PROGRAM (CONTINUED)

6.5 Geophysical Logging (See Volume 3 and 4)

Century Geophysical Corporation of Calgary was contracted to run the geophysical logging program on the Rocky Creek Exploration Program. Century supplied a logging engineer, helicopter transportable logging unit, and the necessary logging sondes. Arrangements were made by BP for the logger to stay in Chetwynd and fly out to the property, where the logging unit was stationed on the next hole to be logged.

Four geophysical sondes were made available to BP by Century throughout the drilling program. These consisted of:-

(1) the 9055 multifunction tool capable of giving gamma, resistance, spontaneous of self potential, neutron, temperature and deviation.

(2) the 9067 slimline, which is a gamma, neutron-neutron tool.

(3) the 9030 coal tool, recording density, gamma, resistivity and hole diameter (caliper) and,

(4) the 9068 slimline, responses for gamma, and uncalibrated density.

Table 4 lists the geophysical logs run in each of the boreholes drilled during the 1981 programs as well as other pertinent data.

GEOPHYSICAL LOGGING DATA

TABLE 4

BOREHOLE	CALIPER	GAMMA	S.P.	RESISTIVITY	NEUTRON	DEVIATION	DENSITY	OPEN HOLE	THRU RODS	DEPTH m	HOUR'S ON SITE	BREAKDOWN HOURS ON SITE	DATE
BPS1-06	X	X	X	X	X	X	X	X		229.8	3	12	6/8/81
BPS1-07	X	X	X	X	X	X	X	X		224.5	8	13	6/8/81
BPS1-08	X	X	X	X	X	X	X	X		132.5	4.5		6/10/81
BPS1-09	X	X	X	X	X	X	X	X		199.7	3		6/12/81
BPS1-10		X			X		X		X	222.5	2.5		6/14/81
BPS1-11	X	X	X	X	X	X	X	X	X	140.6	4		6/16/81
BPS1-12		X			X		X		X	255.5	2		6/20/81
BPS1-13	X	X	X	X	X	X	X	X	X	398.0	7		6/25/81
BPS1-14		X			X		X		X	115.0	2	2	6/23/81
BPS1-15	X	X	X	X	X	X	X	X	X	158.6	4		6/27/81
BPS1-16		X			X		X		X	298.5	8.5		7/4/81
BPS1-17		X			X		X		X	268.7	4		7/10/81
BPS1-18	X	X	X	X	X	X	X	X	X	99.9	6		7/13/81
BPS1-19		X			X		X		X	93.6	3		7/16/81

All holes had casing in whilst loggirg took place.

6. SERVICING OF PROGRAM (CONTINUED)

6.6 Reclamation

Due to the minimal amount of surface disturbance, very little reclamation work was required. In drill site preparation, damaged and cut timber was 'bucked up' and limbed. Since road construction, levelling of drill sites, and sump preparation was not required, no erosion control or backfilling work was necessary. All drilling additives were bio-degradable, and therefore no extra site clean-up was necessary, other than the removal of mud and cement bags, etc. All garbage and refuse was flown from the property area and properly disposed of.

No bulldozer or backhoe trenching work was done on the property in 1981. All trenches were hand dug, however, not all having been backfilled, as work is to be continued on the property in 1982.

The only costs incurred for reclamation was in the form of man hours and helicopter time.

7. FIELD MAPPING

The Rocky Creek coal licences were mapped in detail by one or two field parties supported by helicopter. Each party was made up of an experienced geologist or technologist and a summer student. During the three month program, over 150 outcrop stations were plotted and described, these supplement the over 1,000 stations from 1980. In addition 10 hand trenches were dug, measured, described, and sampled.

Outcrop stations and other general geologic observations were plotted on 1:10,000 base maps, prepared by Hardy and Associates. Thommen altimeters, Brunton compasses, and topofils were used for accurate (± 5 to 10 metres) locations of outcrops and geologic features.

Traverses generally were done along streams, major ridges, some cutlines, and occasionally through the forests as well. Helicopter access to these areas was made possible by the eighteen helicopter pads constructed in 1979, the five abandoned drillsites from 1980, and by the fourteen drillsites prepared in 1981. Enough of the remainder of the Rocky Creek Property is above tree line or has natural clearings, to allow access for helicopter landings.

7. FIELD MAPPING

The 1:50,000 scale map (Map 1) and the 1:10,000 scale maps (Maps 1A and 1B) in the pockets at the rear of the report show the location of outcrop stations and trenches. Map station and trench descriptions are found in Volume II.

8. SAMPLING AND ANALYSIS

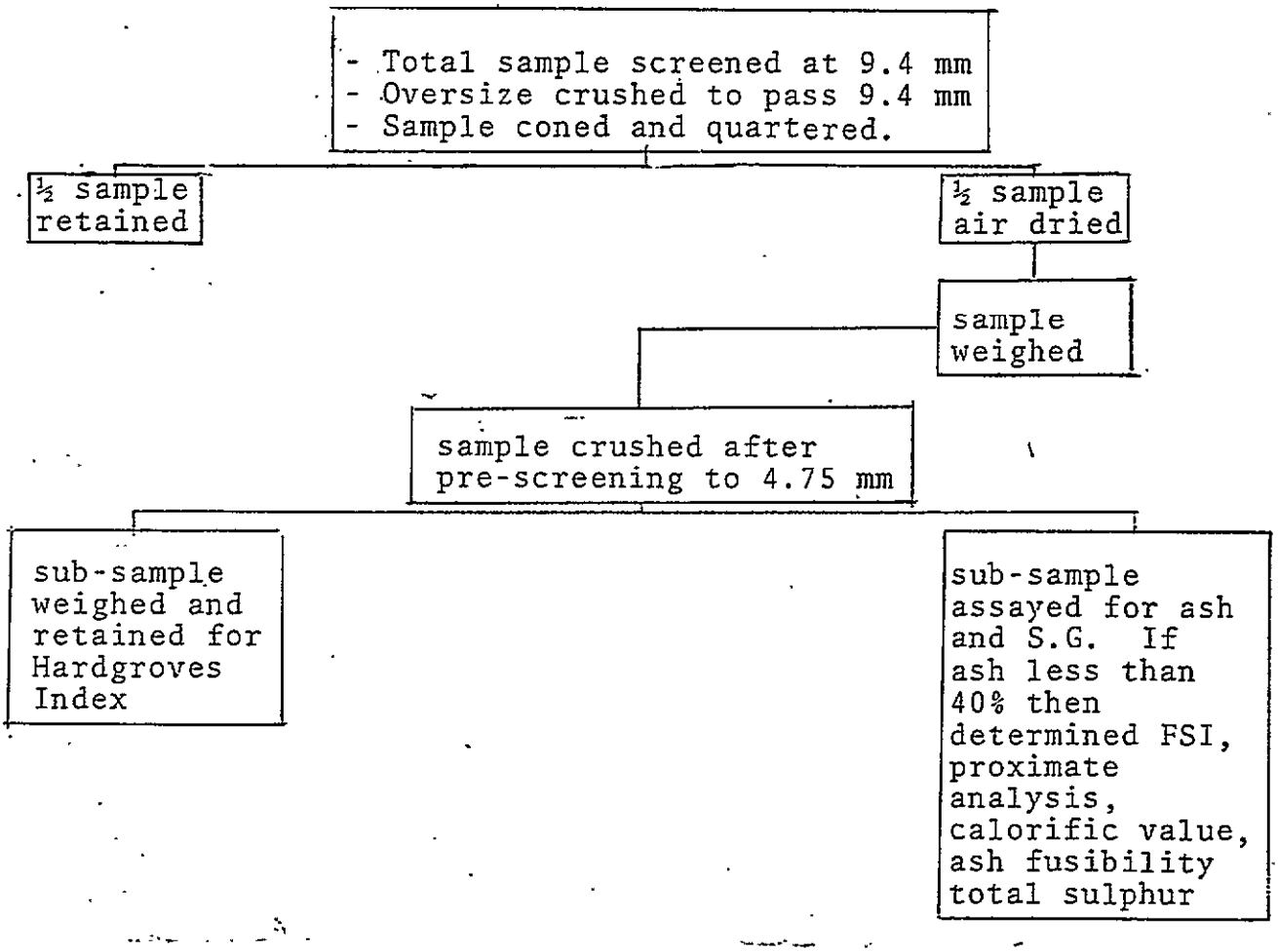
During the 1981 programme, trenching was largely confined to known major coal seams, in order to augment the analytical data. Hand trenches were driven across seam outcrops and logged in detail. Sample plys were taken with regard to visible lithological changes within the seams, and partings greater than 3 cm. were taken as individual plys. Each ply was sampled separately, in order to ensure sufficient sample volumes from the thinner plys. Upon completion of the exploration programme, the major seams were selected for analysis, while the remaining samples were retained for future use.

Core drilling was the major component of the 1981 programme, but the bulk of the holes did not encounter significant thickness of coal. Therefore, the number of coal core samples was small in comparison with last year. Cores from potentially-mineable seams were first described, and the geophysical logs were then consulted by the geologist in order to plan the sampling of each seam. Partings thicker than 3 cm were taken as separate plys, while coal sections were divided into plys on the basis of visible lithological changes and differing geophysical signatures. As with the trench samples, core samples of the major seams were subsequently sent for analysis, while other samples were retained for later use.

8. SAMPLING AND ANALYSIS (Continued)

As a result, core samples from six intersection and three sets of trench samples were sent in for proximate analyses and determinations of sulphur, FSI, Hardgroves grindability, calorific value and specific gravity.

The following analytical procedure was carried out:



Birtley Engineering (Canada) Ltd. were responsible for the analysis of the 1981 samples.

8. SAMPLING AND ANALYSIS (Continued)

Accompanying this report (Chapter 11) are some of the preliminary analytical results from this year's intersections as well as some of last year's results from borehole and trench samples from within the Rocky Creek reserve blocks. In addition to this programme of analysis, petrographic analyses of the major seams encountered were undertaken, as well as wash tests on selected seam sections from boreholes with +90% core recovery.

9. GEOLOGY

The Rocky Creek property is situated on the west side of the Sukunka River, within the Rocky Mountain Foothills, and trending northwesterly along the front ranges of the Rocky Mountains in northeastern British Columbia. The Lower Cretaceous coal-bearing rock successions are sporadically exposed over large areas and special attention was paid to locating economically viable coal seams within these measures.

Regional stratigraphic studies have been carried out by the Geological Survey of Canada (eg. Stott 1968, 1971). In addition, localized stratigraphic mapping projects are currently being undertaken by the British Columbia Department of Energy Mines and Petroleum Resources.

It is generally known that the Cretaceous sediments were deformed during the Laramide Orogeny. The strata have been folded into a series of en echelon anticlines and synclines and locally broken by west-dipping thrust faulting. The major fold structures constitute a regional northwesterly trend. The formations present on the Rocky Creek Property, as well as their thicknesses and lithology are listed in Table 5.

TABLE 5

TABLE OF FORMATIONS

	UNIT	LITHOLOGY	THICKNESS (m)
Bullhead Group	Gething Fm. Upper	sandstone	10+
	Gething Fm. Middle	siltstone, mudstone, sst.	104
	Gething Fm. Lower	sst. siltstone, mudstone, coal; minor conglomerate	320 to 354
	Cadomin Fm.	Conglomerate, sandstone; minor fine sediments	25 to 35
Minnes Group	Bickford Fm.	sandstone, mudstone coal, conglomerate	285+
	Monach Fm.	quartzite; finer sediments as above/below	50±
	Beattie Peaks Fm.	sandstone, mudstone thin coals, conglomerate	300+
	Monteith Fm.	quartzite, sandstone	600±

9. GEOLOGY (CONTINUED)

9.1 Stratigraphy

Minnes Group

These beds range in age from Jurassic to Lower Cretaceous. Four formations are encompassed; from bottom up these are the Monteith, Beattie Peaks, Monach (Mathews, 1947) and Bickford (Stott, 1981) Formations.

The Monteith Formation in the Rocky Creek area consists of quartzites and coarse sandstones. Previous BP mapping (Jones, 1959, 1960) suggests a thickness of 600 m for this unit, which is not known to be coal-bearing. The Monteith was not investigated during 1981.

Overlying the Monteith is the Beattie Peaks Formation, composed of fine sandstones, shales and generally-thin coals. At least 300 m of Beattie Peaks beds are exposed in the high ground northeast of Mount Merrick; several hand trenches, along with holes BP-5, BP-16 and BP-17 are currently thought to be in Beattie Peaks beds, and show a number of coal seams, locally as thick as 2.5 m.

Insufficient work has been done to date, to determine the resource potential of these seams, although it should be noted that areas of moderate dip are of limited extent in the area in question.

9. GEOLOGY (CONTINUED)

9.1 Stratigraphy (Continued)

The Monach Formation follows the Beattie Peaks; it is not well-developed in the Rocky Creek area, being near its southward limit.

It consists of two separate bands of orthoquartzite, each about 5 to 6 m thick, separated by beds similar to those above and below it. The total thickness of the Monach is very approximately set at 50 m. No significant coals are known in this unit.

The youngest unit of the Minnes Group is the Bickford Formation; it consists of medium to coarse sandstones, shales, coals and minor conglomerate. Several thin seams, up to 1 m thick, are known from outcrops and boreholes BP-4 and BP-13. Near Mount Merrick, two seams, each about 2 m thick, occur 30 to 35 m below the top of the Bickford. They are, however dipping at 40 to 60 degrees SW and cannot be traced into less-disturbed areas.

The contact of the Bickford with the overlying Cadomin Formation is abrupt, with channel structures being exposed in several localities; notably east of hole BP-13. According to Stott, the contact is a regional unconformity; however in the Rocky Creek Area, changed dips or lateral bevelling of Minnes beds cannot be demonstrated.

9. GEOLOGY (CONTINUED)

9.1 Stratigraphy (Continued)

Bullhead Group

Cadomin Formation

This unit consists principally of thick-bedded to massive, pebble to boulder - conglomerates, and associated medium to coarse sandstones. Within the Rocky Creek area, the Cadomin commonly consists of two distinct, resistant conglomerate/sandstone zones, separated by an interval of finer, more-argillaceous beds. The Cadomin forms an excellent mapping-unit, as it commonly crops out as two lines of bluffs, separated by a recessive interval. The total thickness of the Cadomin ranges from 25 to 35 m. The contact of the Cadomin with the overlying Gething Formation is interfingering on a regional basis; in the Rocky Creek area it appears to be abrupt although some lateral transgression may have occurred.

9. GEOLOGY (CONTINUED)

9.1 Stratigraphy (Continued)

Bullhead Group (Continued)

Gething Formation

The stratigraphy of the Gething Formation has been dealt with at length in various BP internal reports; a summary will be here presented. Three informal subdivisions (each of member rank) have been established: the Lower, Middle and Upper Gething. These units have been recognised on the surface and in boreholes, on both sides of the Sukunka River.

The Lower Gething consists of sandstones, siltstones, mudstones, coals and minor conglomerate. Sandstones predominate near the top and base of this unit; the basal part locally contains abundant conglomerate and siliceous, coarse sandstone. Coals are present throughout the Lower Gething, but are most abundant in its middle third. The accompanying (Table 6) summarises coal development in the Rocky Creek area. The Chart in the rear pocket presents a correlation of the various coals and formational contacts as seen in selected boreholes.

TABLE 6

COAL DEVELOPMENT IN THE LOWER GETHING, OF THE ROCKY CREEK PROPERTY

COAL ZONE OR HORIZON NAME	INTERVAL ABOVE BASE OF GETHING (m)	RESOURCE POTENTIAL NORTH OF ROCKY CR.	SOUTH OF ROCKY CREEK
'B' Upper	260 m to 285 m	North of Rocky Creek	Four coal zones in BP-13; designated B through C Lower; good
'B' Lower	245 m to 270 m	None	
Pump	150 m to 175 m	Good, near BP-1	None
Grizzly	135 m to 165 m	Good, near BP-1,2,6,7	None
Unnamed Zone	105 m to 145 m	None	None
Meadow	75 m to 115 m	None	None
Bumpy	60 m to 95 m	None	None
Cadomin	15 m	Minimal, near Mt. Jilg	None
Lake	5 m	None	None

9. GEOLOGY (CONTINUED)

9.1 Stratigraphy (Continued)

Bullhead Group (Continued)

Gething Formation (Continued)

The 'B/C' zones are regionally extensive, having been traced from Bullmoose Creek North to Burnt River, on both sides of the Sukunka River. The four major coals in BP-13, south of Rocky Creek, are thought to be correlative to the 'B' and 'C' zones of the Sukunka property. It is probable that the Pump and Grizzly zones of the Rocky Creek property are lateral equivalents to the 'D' and 'E' coal zones at Sukunka.

All three of the major coal zones north of Rocky Creek (Pump, Grizzly and Cadomin zones) show deterioration in an eastward direction. The Grizzly is the most extensively-developed, while the Pump is of interest only near hole BP-1, and the Cadomin coal zone is of significance only in a restricted area near its outcrop on Mount Jilg. South of Rocky Creek, none of these zones are well-developed; the four higher zones ('B' and 'C' group) are of encouraging thickness.

The total thickness of the Lower Gething at Rocky Creek is 320 to 345 m. Its contact with the overlying Middle Gething is marked by an erosional, gritty band, which may represent a local hiatus in sedimentation.

9. GEOLOGY (CONTINUED)

9.1 Stratigraphy (Continued)

Bullhead Group (Continued)

Gething Formation (Continued)

The Middle Gething is a predominantly marine sequence of dark, shelly, calcareous mudstones, siltstones and fine, locally-glauconitic sandstones. Coals are lacking in this unit, which contains abundant Entolium fossils along with fish scales. In the Rocky Creek area it is only present in the high ground near holes BP-3 and BP-2, where it attains a thickness a 104 m.

The Upper Gething is the youngest of the three subdivisions of the Gething Formation. While in the Sukunka area it contains the Sukunka coal deposit, in the Rocky Creek area it is of extremely-limited extent, being confined to an erosional remnant of 10 m of sandstone, at hole BP-2.

9.2 Structure

The Rocky Creek property lies within the Inner Foothills structural province, and as such exhibits complex structural geology. Reference to Map 3 (Structural Summary Map) will be of assistance in the following discussion.

9. GEOLOGY (CONTINUED)

9.2 Structure (Continued)

The southwestern licences near Mount Merrick, are severely deformed, with Palaeozoic carbonates being thrust over Minnes and Bullhead strata. Immediately northeast of Mount Merrick, under the major thrust, the Gething and Cadomin have been folded into the tight, near-isoclinal Merrick Syncline, overturned to the northeast. To the northeast of this structure, steep southwest dips previal in the Minnes Group exposures until a second major thrust is encountered, southwest of BP-16. From here northeast to BP-5 over a distance of 4 km gently-dipping beds of the Minnes are exposed in the broad Grizzly Ridge Syncline. Further to the northeast, Minnes beds again dip steeply to the southwest, up to the notch in the ridge southwest of Mount Jilg where a major thrust is thought to be present.

Mount Jilg is marked by the chevron-form, Jilg Anticline involving Minnes and some Bullhead strata. To the northwest, on Hill 1507, the Jilg Anticline passes to a flat-topped box-form. On both peaks, the west limb is marked by a tight, subsidiary syncline, and the east limb passes into the Rocky Creek Synclinorium.

9. GEOLOGY (CONTINUED)

9.2 Structure (Continued)

The Rocky Creek Synclinorium is characterised by gentle to moderate limb dips, common subsidiary open folds and one major internal thrust, the Rocky Creek thrust. The synclinorium covers the greater part of the northern and eastern Rocky Creek licences, and it is here that the bulk of the exploration has been done, in appreciation of its less intense deformation.

Holes BP-13, BP-3 and BP-11 are situated east of the Rocky Creek Thrust, while holes BP-1, BP-2, BP-4, BP-6 through 10, BP-12, BP-14, BP-15, BP-18 and BP-19, are situated west of the thrust. BP-10 and BP-12 have proven the thrust, which is west-dipping with a vertical throw of 90 to 100 m. Associated with the thrust are steep dips at surface, and minor tight folds.

South of Rocky Creek, the thrust may pass into a monocline in a region of steep to near-vertical eastward dips, along the deep valley immediately west of BP-13. This structure effectively cuts off the westward extension of the thick coals seen in BP-13.

10. COAL RESOURCES

10.1 Methodology

Resource figures quoted in this report are based solely upon data acquired in the 1980 and 1981 Rocky Creek programmes. Both trench and borehole data were available for this study; borehole sections have been adjusted to geophysical log control, since the Lower Gething coals commonly occur as coal zones laterally and vertically gradational boundaries. The following constraints were applied in determining seam sections for resource purposes:-

1) Minimum thickness of 1 m for potential surface- mineable seams; 1.5 m for underground.
2) Minimum coal content, in section to be 60% by thickness.

It was found that in general, the seams thus-defined show consistent sections among measurement points within a given resource block. A plan (Map 4) is enclosed, showing columnar sections of the Grizzly, Seam in its area of development north of Rocky Creek.

10. COAL RESOURCES (CONTINUED)

10.1 Methodology (Continued)

Tables of seam thicknesses and coal contents have been prepared for the following seams:

'B' through 'C' Lower Seams:	Table 7
Pump Seam:	Table 8
Grizzly Seam:	Table 9

The data from these tables was used to construct outcrop and floor elevation maps for the various seams of interest. Where possible, surface geological data was used in the construction of these maps. Maps 2 and 5 present results from north of Rocky Creek, as well as the Terrance Hill area, south of Rocky Creek.

In-situ resources were calculated by planimetry of the outcrop lines for each seam, and multiplication by the average seam section in the given block. This was done in order to take account of the limited data and local variability of seam-sections. A specific gravity of 1.55 was used for calculation of in-situ tonnages. This value was calculated from 1980 results as the 1981 results were still pending.

TABLE 7

'B' AND 'B' LOWER SEAM DATA:

HOLE	SEAM	THICKNESS	FLOOR DEPTH
BP-2	'B'	0.88 m @ 100% coal (Not mineable)	171.48 m
	'B' lower	1.81 m @ 50% coal (not mineable)	185.49 m
BP-3	'B'	1.78 m @ 60% coal (not mineable)	43.42 m
	'B' lower	1.80 m @ 46% coal (not mineable)	58.43 m
BP-13	'B'	2.54 m @ 82% coal	51.40 m
	'B' lower	1.69 m @ 80% coal	62.19 m

'C' AND 'C' LOWER SEAM DATA:

BP-2		(Not recognised)	
BP-3		(Not recognised)	
BP-13	'C'	2.65 m @ 89% coal	74.59 m
	'C' lower	3.13 m @ 85% coal	80.94 m

TABLE 8

PUMP SEAM (BOREHOLE & TRENCH INFORMATION)

Location	Thickness (m)	@ % Coal	Floor Depth	Elevation
SNTR 19	3.12	86	-	1,498 m
BP 1	2.65	87	49.41 m	1,476 m

average (2 points) 2.89 m @ 87% Coal.

Deteriorated sections in these holes:

BP 2	Floor @ 244.48 m;	Elev. 1,201 m
BP 3	Floor @ 129.60 m	Elev. 1,270 m
BP 7	Floor @ 21.33 m	Elev. 1,399 m
BP 18	Floor @ 46.8 m	Elev. 1,263 m
BP 19	Floor near surface	Elev. near 1,260 m

TABLE 9

GRIZZLY SEAM: BOREHOLE AND TRENCH DATA

LOCATION	THICKNESS (m)	% COAL	DEPTH (m)	ELEV. (m)
		BLOCK A		
BP6	2.11	65	23.50	1,582
SNTR 12	2.68	65	N/A	1,570
SNTR 14	1.64	69	N/A	1.581
SNTR 16	1.33	75	N/A	1,580
SNTR 17	1.18	67	N/A	1,588
Average: 5 points:	1.79 m @	68% coal		
SNTR 23	1.60 m @	87% coal		1,518
		BLOCK B		
BP7	1.85	76	45.55	1,374
SNTR 25	1.53	77	N/A	1,420
Average: 2 points:	1.69 m @	77% coal		
		BLOCK C		
BP2	2.23	86	285.29	1,160
SNTR 20	4.41	93	N/A	1,400
SNTR 30	4.09+	(95)	N/A	1,405
Average: 3 points:	3.58 m @	91% coal		
		BLOCK D		
BP1	2.42	77	81.85	1,443
SNTR 18	5.20	66	N/A	1,470
SNTR 31	Trench Not Completed			1,460
SNTR 28	6.93	65	N/A	1,439
Average: 3 points:	4.85 @	69% coal		
		DETERIORATED AREA:		
BP 10 Upper Plate: 14.8 m, el. 1,230; Lower Plate: 108.4 El. 1,137 Horizons only				
BP3	- Horizon at		161.00	1,239
BP18	- Horizon at		96.50	1,214
BP19	- Horizon at		58.30	1,202
BP13	Horizon not recognised			

N/A: Not applicable

10. COAL RESOURCES (CONTINUED)

10.1 Methodology (Continued)

The total volume of rock to be excavated was obtained by the following process:

- Construction of floor elevation structure contour plan for the lowest mineable coal seam in each reserve block.
- Construction of cover contours over the seam floor by subtraction from the present ground surface.
- Planimetry of cover contours and calculation of total volume over seam floor.
- Subtraction of the volume of each mineable coal seam within the reserve block, as obtained in the course of the in-situ resource calculations.
- The remaining volume represents the total rock volume required to be excavated.

Strip ratios were calculated by dividing the total rock volume by the total in-situ tonnage of coal in a given block. The resultant ratios have dimensions of cubic metres per tonne.

10. COAL RESOURCES (Continued)

10.2 Results

The total in-situ tonnage for all five resource blocks is 24.67 MTe. Discounting Block C on grounds of excessive cover, the surface-mineable resource is 19.40 MTe, at strip ratios ranging from 2.9:1 to 5.0 cubic metres per tonne. (If Block C was mined by surface methods it would have a strip ratio of 18.7:1). Table 10 presents in-situ resource data, while Table 11 presents strip and excavation data.

TABLE 10

IN-SITU RESOURCES

BLOCK	SEAM	AREA	THICKNESS	WEIGHT
A	Grizzly	13.58 ha	1.79 m	0.38 MTe
B	Grizzly	93.18 ha	1.69 m	2.44 MTe
C	Grizzly	94.98 ha	3.58 m	5.27 MTe
D	Grizzly	81.28 ha	4.85 m	6.11 MTe
D	Pump	34.08 ha	2.89 m	1.53 MTe
	TOTAL NORTH OF ROCKY CREEK			15.73 MTe
E	B	46.88 ha	2.54 m	1.85 MTe
E	B Lower	51.54 ha	1.69 m	1.35 MTe
E	C	60.18 ha	2.65 m	2.47 MTe
E	C Lower	67.36 ha	3.13 m	3.27 MTe
	TOTAL SOUTH OF ROCKY CREEK			8.94 MTe
	GRAND TOTAL			24.67 MTe

TABLE 11

STRIP RATIO AND EXCAVATION DATA

BLOCK	WEIGHT	EXCAVATION VOLUME	STRIP RATIO
A	0.38 MTe	1.49×10^6 m^3	3.9:1
B	2.44 MTe	12.3×10^6 m^3	5:0:1
C	5.27 MTe	97.9×10^6 m^3	18.7:1
D	7.64 MTe	22.2×10^6 m^3	2.9:1
E	8.94 MTe	25.8×10^6 m^3	2.9:1

RATIO'S Represented are for cubic metres per tonne.

11. COAL QUALITY

Due to the late arrival of the various coal quality results very little manipulation of these results has taken place; however the following table (Table 12) provides the raw ash value of the mining sections of each seam within the five reserve blocks, as well as the proximate, CV, and sulphur, SG, FSI and Hardgrove Index of the coal product.

Table 13 provides sink float information from the three borehole sections which obtained 90%+ core recovery.

The "Birtley Coal and Mineral Testing" results and the D.E. Pearson petrographic results can be found in Volume 2.

TABLE 12: COAL QUALITY DATA

DATA POINT	RAW ASH	CLEAN COAL M	ASH	VM	EC	CV/ BTU	S	S.G.	F.S.I.	H.G.I.
GRIZZLY SEAM										
BP-6	49.9	1.29	40.9	20.1 (for plies 6&7 only)	52.4	5,973	0.27	1.65	1.0	N.S.S
SNT 12	42.4	6.10	26.45	23.12	44.34	8,804	0.35	1.59	N.A.	N.S.S
SNT 17	33.3	6.0	16.6	27.7	49.7	-	0.36	1.58	0	105
Average (Blk. A)	41.9	4.5	28.0	23.6	48.8	7,389	0.33	1.61	-	-
BP-7	26.3	0.67	13.04	21.15	65.14	13,077	0.35	1.38	1.5	103
SNT 25	30.9	1.06	21.60	20.70	56.64	11,534	0.33	1.46	1.0	60
Average (Blk. B)	28.6	0.9	17.3	20.9	60.9	12,306	0.34	1.42	1.25	82
BP2	29.3	1.1	22.96	18.78	57.16	11,318	0.49	1.50	3.8	63
SNT 20	16.9	4.36	12.04	27.67	55.94	10,336	0.33	1.52	N.A	94
Average (Blk. C)	23.1	2.7	17.5	23.2	56.6	10,827	0.41	1.51	3.8	78.5
BP1	21.5	1.24	13.25	20.67	64.84	13,137	0.36	1.39	1.8	53
SNT 18	42.6	3.96	18.29	23.62	54.13	10,473	0.33	1.51	N.A	83
SNT 28	35.0	8.23	27.64	21.60	42.53	8,445	0.36	1.60	0	100
Average (Blk. D)	33.0	4.5	19.7	22.0	53.8	10,685	0.35	1.50	1.8	79
PUMP SEAM										
BP1	22.4	1.17	12.54	23.14	63.15	13,115	0.40	1.39	2.7	55
SNT 19	20.6	5.58	13.48	27.08	53.87	10,378	0.39	1.49	N.A	83
Average (Blk. D)	21.5	3.4	13.0	25.1	58.5	11,747	0.40	1.44	2.7	69
B SEAM										
BP13	21.6	0.72	8.16	25.60	65.52	13,998	0.35	1.31	2.3	105
B LOWER SEAM										
BP13	25.8	0.84	15.11	22.30	61.75	12,797	0.38	1.40	1.49	N.S.S
C SEAM										
BP13	11.4	0.68	5.52	24.62	69.15	14,376	0.34	1.32	2.3	120
C LOWER SEAM										
BP13	21.2	0.67	10.80	22.54	65.99	13,452	0.29	1.37	2.19	91
ALL SEAMS										
Average (Blk. E)	20.0	0.70	9.9	23.8	65.6	13,656	0.34	1.35	2.07	105

Note: All Results on Air-Dried Basis

N.S.S. - Not Sufficient Sample
N.A. - Non Agglomerating

TABLE 13

SINK FLOAT ANALYSIS adb + 28 M

	Composite* Sample No.	S.G. Fraction	CUMULATIVE WT%	CUMULATIVE ASH%
Grizzly	703	1.80	72.1	14.2
B Lower	705	1.80	69.8	13.5
C Lower	707	1.80	75.8	11.2

*Composite Sample No. 703 - 81/7/1/1, 81/7/1/2, 81/7/1/3

705 - 81/13/3/1 thru to 81/13/3/6

707 - 81/13/5/1 thru to 81/13/5/9

12. 1981 FINANCIAL STATEMENTS

The following list illustrates expense category, principal contractors and amounts expended. Note: actual cost figures are subject to minor changes due to updates.

Core Drilling	D. W. Coates Enterprises	307,607.08
Helicopter Services	Maple Leaf Helicopter	148,905.31
	Northern Mountain	11,736.90
	Highland Helicopters	5,843.25
	Fuel	7,567.57
Accommodation & Catering	Pine Cone Motor Inn	30,415.00
Transportation	Canuck Truck Rentals	7,665.00
Communications	Canadian Marconi	2,574.00
Field Equipment	Ribtor's, Caldraft, Barotto Sports, Beaver, Northern Metalic	3,685.00
Geophysical Logging	Century Geophysical Corp.	32,217.69
Drill Site Preparation	Peace Dozing & Contracting	16,107.00
Laboratory	Wayne Asleson	703.50
	Birtley Testing	13,000.00
Petrophysical Analysis	D. Marchioni	1,500.00
	D. Pearson	2,500.00
Travel	Pacific Western Airlines	9,091.50
Reproduction & Photocopying	Alberta Reprographics, Rileys, & West Canadian Color	1,320.00
Contract Personnel	Summer Students	15,950.00

12. 1981 FINANCIAL STATEMENT (Continued)

BP Salaries 'Field'	BP Employees	45,100.00
BP Salaries 'Backup' (to year end)	BP Employees	21,450.00
		$684,938.80

All direct charges relating to the exploration program have a 10% overhead charge extrinsic to them, whereas all indirect costs have a 5% overhead charge applied to them.

13. CONCLUSIONS

The 1981 Rocky Creek coal exploration program has substantiated many of the conclusion put forward after the 1980 program, and has brought the project to a stage where initial mine feasibility studies can be carried out. (See the Preliminary Mining Feasibility Study prepared by Marston & Marston).

The major conclusion drawn from the 1981 program is that there are five blocks where mineable resources of Lower Gething coals are present within the area formerly known as Sukunka North. Blocks A, B, C and D contain resources within the highly variable Grizzly Zone, whilst block E resources are from the 'B' seam, 'B Lower', 'C' seam and 'C Lower'. Block D also contains resources from the Pump Zone.

The in situ resources from Blocks A, B, D and E amount to 19.4 MTe, with all four blocks having the potential of being mined by surface methods. Ratios would be in the 3.0:1 to 5.0:1 range. An additional 5.27 MTe at a ratio of 18.7:1 are available from Block D.

13. CONCLUSIONS (Continued)

Generally the strata within the reserve blocks are gently undulating with dips ranging from 0 to 16°. The structual model put forward after the 1980 program which evoked a N.W. - S.E trending syncline in the Sukunka North area containing possible B seam, Pump and Grizzly Zones has been revised. The syncline is still present but is contained within sub-Grizzly seam strata and as a result eliminates any reserve potential in the northern portion of the Jilg and Sukunka North areas.

The 1981 drilling proved the Cadomin Seam to be a generally thin seam subjected to washout conditions with no reserve potential.

The two holes drilled within the Merrick area into the Minnes Group contained the Hill Seam which might have some underground potential, with thicknesses ranging from 1.5 to 2.5 m. Several thinner seams were also found with thicknesses in the 1.0 to 1.5 range.

14. RECOMMENDATIONS

From the conclusions arrived at as a result of the exploration programs carried out on the Rocky Creek property over the last three years the following recommendations can be made.

14.1 Surrendering of Licences

With reference to the licence map (Map 1) the following licences are recommended for surrender due to the lack of potential mineable coal seams:

Triangle Area	Licence Numbers	5259-5261 5264-5266	(6)
Merrick Area	Licence Numbers	5244-5248 5251	(6)
Jilg Area	Licence Numbers	5267-5269 5271 5273-5278	(10) 22

Upon surrender of the above mentioned 22 coal Licences, the Rocky Creek Property will consist of a total of 33 licences. From these 33 licences, 4 new groupings will be established, with all to be renewed December 31, 1981. The property will now consist of approximately 9,740 hectares.

14. RECOMMENDATION (Continued)

14.2 1982 Rocky Creek Exploration Program

A further exploration program is proposed for the summer of 1982 so as to:

(a) better define the outcrops of the various mineable coal zones by having data points at 100 m spacing.

(b) obtain additional information on the in-seam stratigraphy of the mineable coal zones.

(c) better define the raw coal quality of the six mineable coal zones.

(d) establish the washability characteristics of the six mineable coal zones.

(e) provide more information on the roof and floor material of each mineable coal zone, as well as the overburden found in each site area.

(f) provide additional information on the Minnes coals in the central portion of the Merrick block and the eastern portion of the Sukunka North block.

One way of obtaining the above objectives would be to have a land accessed program comprised of:-

(a) Approx. 7 boreholes totalling 400 m.

(b) Approx. 140 mechanically dug trenches.

(c) 9 Test pits.

14. RECOMMENDATION (Continued)

14.2 1982 Rocky Creek Exploration Program (Continued)

This program would require one, or possibly two, bridges to be built across the Sukunka River and the construction of approx. 20 km of new road. Some of the newly constructed road would be used as a haul road during the mining phase. There are distinct advantages in commencing some of the bridge building and road construction this fall although the exploration work would take place in July, August and September, 1982.

The program would be based out of the Sukunka Gas Plant camp at mile 32 on the Sukunka Rd. with BP staff in charge of the geology and field logistics and contractors handling the bridge and road construction, drilling and analytical aspects.

An air photo survey would also be run at the end of the program so as to locate drillholes, test pits and access roads.

14. RECOMMENDATION (Continued)

14.2 1982 Rocky Creek Exploration Program (Continued)

Various environmental, geotechnical and hydrological studies would also take place during the field program so as to enable the commencement of final mining feasibility studies during the winter of 1982/3.

ROCKY CREEK SAMPLE IDENTIFICATION

BOREHOLE	BP SAMPLE NUMBER	LAB SAMPLE NUMBER	THICKNESS M	DEPTH M	SEAM IDENTIFICATION
BP 81-6	81/6/1/1	635	0.10	21.49	Grizzly
BP 81-6	81/6/1/2	636	0.12	21.70	Grizzly
BP 81-6	81/6/1/3	637	0.17	21.87	Grizzly
BP 81-6	81/6/1/4	638	0.05	22.07	Grizzly
BP 81-6	81/6/1/5	639	0.06	22.13	Grizzly
BP 81-6	81/6/1/6	640	0.23	22.36	Grizzly
BP 81-6	81/6/1/7	641	0.09	22.45	Grizzly
BP 81-6	81/6/1/8	642	0.31	22.76	Grizzly
BP 81-6	81/6/1/9	643	0.18	23.14	Grizzly
BP 81-6	81/6/1/10	644	0.12	23.26	Grizzly
BP 81-6	81/6/1/11	645	0.20	23.70	Grizzly
BP 81-6	81/6/1/12	646	0.04	23.74	Grizzly
BP 81-6	81/6/1/13	647	0.27	24.01	Grizzly
BP 81-6	81/6/1/1 thru to 81/6/1/10; Composite Sample Number 702 - for petrographic analysis.				
BP 81-7	81/1/7/1	622	0.43	44.13	Grizzly
BP 81-7	81/1/7/2	623	0.79	44.95	Grizzly
BP 81-7	81/1/7/3	624	0.53	45.55	Grizzly
BP 81-7	81/1/7/1 thru to 81/7/1/3; Composite Sample Number 703 - for petrographic analysis				
BP 81-13	81/13/1/R	596	0.08	46.82	Above B Seam
BP 81-13	81/13/1/1	597	0.27	47.19	Above B Seam
BP 81-13	81/13/1/2	598	0.15	47.34	Above B Seam
BP 81-13	81/13/2/1	599	0.69	49.55	B Seam
BP 81-13	81/13/2/2	600	0.77	50.32	B Seam
BP 81-13	81/13/2/3	601	0.12	50.55	B Seam
BP 81-13	81/13/2/4	602	0.46	51.06	B Seam
BP 81-13	81/13/2/5	603	0.02	51.40	B Seam
BP 81-13	81/13/2/6	604	0.16	51.56	B Seam
BP 81-13	81/13/2/7	605	0.13	51.89	B Seam
BP 81-13	81/13/2/1 thru to 81/13/2/5: Composite Sample Number 704 - for petrographic analysis.				

BOREHOLES	BP SAMPLE NUMBER	LAB SAMPLE NUMBER	THICKNESS M	DEPTH M	SEAM IDENTIFICATION
BP 81-13	81/13/3/1	574	0.26	61.48	B Lower Seam
BP 81-13	81/13/3/2	575	0.47	61.95	B Lower Seam
BP 81-13	81/13/3/3	576	0.34	62.45	B Lower Seam
BP 81-13	81/13/3/4	577	0.08	62.53	B Lower Seam
BP 81-13	81/13/3/5	578	0.18	62.71	B Lower Seam
BP 81-13	81/13/3/6	579	0.03	62.91	B Lower Seam
BP 81-13	81/13/3/7	580	0.05	62.96	B Lower Seam
BP 81-13	81/13/3/1 thru to 81/13/3/6:				Composite Sample Number 705 - for petrographic analysis
BP 81-13	81/13/4/1	581	0.47	72.53	C Seam
BP 81-13	81/13/4/2	582	0.04	72.57	C Seam
BP 81-13	81/13/4/3	583	0.10	72.67	C Seam
BP 81-13	81/13/4/4	584	0.25	72.92	C Seam
BP 81-13	81/13/4/5	585	0.77	73.69	C Seam
BP 81-13	81/13/4/6	586	0.51	74.59	C Seam
BP 81-13	81/13/4/1 thru to 81/13/4/6:				Composite Sample Number 706 - for petrographic analysis
BP 81-13	81/13/5/1	587	0.69	78.57	C Lower Seam
BP 81-13	81/13/5/2	588	0.67	79.24	C Lower Seam
BP 81-13	81/13/5/3	589	0.44	79.68	C Lower Seam
BP 81-13	81/13/5/4	590	0.19	79.87	C Lower Seam
BP 81-13	81/13/5/5	591	0.18	80.05	C Lower Seam
BP 81-13	81/13/5/6	592	0.28	80.35	C Lower Seam
BP 81-13	81/13/5/7	593	0.13	80.48	C Lower Seam
BP 81-13	81/13/5/8	594	0.29	80.81	C Lower Seam
BP 81-13	81/13/5/9	595	0.16	80.97	C Lower Seam
BP 81-13	81/13/5/1 thru to 813/13/5/9:				Composite Sample Number 707 - for petrographic analysis

ROCKY CREEK SAMPLE IDENTIFICATION

TRENCH	BP SAMPLE NUMBER	LAB SAMPLE NUMBER	THICKNESS M	DEPTH M	SEAM IDENTIFICATION
SNTR 17	SNTR 17/1	710	0.55	0.54	Grizzly
SNTR 17	SNTR 17/2	711	0.64	1.18	Grizzly
SNTR 18	SNTR 18/8	712	0.21	4.20	Grizzly
SNTR 18	SNTR 18/9	713	0.07	3.99	Grizzly
SNTR 18	SNTR 18/10	714	0.45	3.92	Grizzly
SNTR 18	SNTR 18/11	715	0.08	3.47	Grizzly
SNTR 18	SNTR 18/12	716	0.30	3.39	Grizzly
SNTR 25	SNTR 25/1	610	0.08	0.08	Grizzly
SNTR 25	SNTR 25/2	611	0.31	0.39	Grizzly
SNTR 25	SNTR 25/3	612	0.50	0.89	Grizzly
SNTR 25	SNTR 25/4	613	0.32	1.21	Grizzly
SNTR 25	SNTR 25/5	614	0.06	1.27	Grizzly
SNTR 25	SNTR 25/6	615	0.14	1.41	Grizzly
SNTR 25	SNTR 25/7	616	0.10	1.51	Grizzly
SNTR 25	SNTR 25/8	617	0.13	1.64	Grizzly
SNTR 25	SNTR 25/9	618	0.53	2.16	Grizzly
SNTR 25	SNTR 25/10	619	0.05	2.21	Grizzly
SNTR 25	SNTR 25/10A	620	0.05	2.21	Grizzly
SNTR 25	SNTR 25/11	621	0.53	2.74	Grizzly
SNTR 25	SNTR 25/5 thru to SNTR 25/11:				Composite Sample Number 708 - for petrographic analysis.
SNTR 28	SNTR 28/1	625	0.42	6.93	Grizzly
SNTR 28	SNTR 28/2	626	0.14	6.51	Grizzly
SNTR 28	SNTR 28/3	627	1.16	6.37	Grizzly
SNTR 28	SNTR 28/4	628	0.87	5.21	Grizzly
SNTR 28	SNTR 28/5	629	0.19	4.34	Grizzly
SNTR 28	SNTR 28/6	630	0.08	4.15	Grizzly
SNTR 28	SNTR 28/7	631	0.51	4.07	Grizzly
SNTR 28	SNTR 28/8	632	1.12	3.56	Grizzly
SNTR 28	SNTR 28/9	633	0.13	2.44	Grizzly
SNTR 28	SNTR 28/10	634	0.33	2.31	Grizzly
SNTR 28	SNTR 28/11	648	1.22	1.98	Grizzly

TRENCH	BP SAMPLE NUMBER	LAB SAMPLE NUMBER	THICKNESS M	DEPTH M	SEAM IDENTIFICATION
SNTR 28	SNTR 28/12	649	0.76	0.76	Grizzly
SNTR 28	SNTR 28/13	650	0.12+	0.00	Grizzly
SNTR 28	SNTR 28/1 thru to SNTR 28/12:				Composite Sample Number 709 for petrographic analysis.
SNTR 29	SNTR 29/1	651	0.51	1.14	Grizzly
SNTR 29	SNTR 29/2	652	0.33	1.47	Grizzly
SNTR 29	SNTR 29/3	653	0.25	1.72	Grizzly
SNTR 29	SNTR 29/4	654	0.33	2.05	Grizzly
SNTR 29	SNTR 29/5	655	0.63	3.14	Grizzly
SNTR 29	SNTR 29/6	656	0.64	4.17	Grizzly
SNTR 29	SNTR 29/7	657	0.64	4.81	Grizzly
SNTR 29	SNTR 29/8	658	0.49	5.30	Grizzly
SNTR 29	SNTR 29/9	659	0.51	5.81	Grizzly
SNTR 29	SNTR 29/10	660	0.24	6.05	Grizzly
SNTR 29	SNTR 29/11	661	0.18+	6.23+	Grizzly

WM.P.L./djm
November 26, 1981

CLIENT : BP EXPLORATION CANADA
PROJECT: 81/7/1 thru 3 Composite
LAB NO.: 703

SIZE AND RAW ANALYSIS,adb

SIZE Fraction	WT%	RM%	ASH%	VOL%	F.C.%	S%	CV Cal/gm
+28M	92.7	-	-	-	-	-	-
-28M	7.3	0.9	22.8	20.8	55.5	0.37	6390

SINK-FLOAT ANALYSIS,adb + 28M

S.G. FRACTION	WT%	RM%	ASH%	VOL%	FC%	S%	CV Cal/gm	CUMULATIVE WT%	CUMULATIVE ASH%
- 1.50	56.3	0.5	7.6	22.4	69.5	0.38	7815	56.3	7.6
1.50- 1.60	6.9	0.7	30.9	20.3	48.1	0.33	5592	63.2	10.1
1.60- 1.80	8.9	0.9	43.3	18.1	37.7	0.27	4518	72.1	14.2
1.80 +	27.9	0.9	75.3	-	-	0.16	-	100.0	31.3

#703,705,707 were part of a series prepared for petrographic analysis.

Birtley Coal & Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATION CANADA

PROJECT: 81/13/3/1 thru 6 Composite

LAB NO.: 705

SIZE AND RAW ANALYSIS,adb

SIZE Fraction	WT%	RM%	ASH%	VOL%	F.C.%	S%	CV Cal/gm
+28M	94.3	-	-	-	-	-	-
-28M	5.7	1.0	22.5	1.0	75.5	0.38	6388

SINK-FLOAT ANALYSIS,adb + 28M

S:G: FRACTION	WT%	RM%	ASH%	VOL%	FC%	S%	CV Cal/gm	CUMULATIVE WT%	CUMULATIVE ASH%
- 1.50	58.2	0.5	8.5	22.9	68.1	0.42	7734	58.2	8.5
1.50- 1.60	5.3	0.5	29.7	18.5	51.3	0.32	5785	63.5	10.3
1.60- 1.80	6.3	0.4	45.7	16.5	37.4	0.28	4328	69.8	13.5
+1.80	30.2	0.5	71.7	-	-	0.12	-	100.0	31.1

#703,705,707 were part of a series prepared for petrographic analysis.

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATION CANADA

PROJECT: 81/13/5/1 thru 9 Composite

LAB NO.: 707

SIZE AND RAW ANALYSIS,adb

SIZE Fraction	WT%	RM%	ASH%	VOL%	F.C.%	S%	CV Cal/gm
+28M	94.7	-	-	-	-	-	-
-28M	5.3	0.9	31.7	19.4	48.0	0.23	5433

SINK-FLOAT ANALYSIS,adb + 28M

S.G. FRACTION	WT%	RM%	ASH%	VOL%	FC%	S%	CV Cal/gm	CUMULATIVE WT%	CUMULATIVE ASH%
- 1.50	65.3	0.5	7.2	22.6	69.7	0.29	7855	65.3	7.2
1.50- 1.60	4.7	0.7	30.0	20.5	48.8	0.27	5652	70.0	8.7
1.60- 1.80	5.8	0.7	41.5	18.9	38.9	0.20	4504	75.8	11.2
+ 1.80	24.2	0.5	75.8	-	-	0.06	-	100.0	26.9

#703,705,707 were part of a series prepared for petrographic analysis.

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: 81/ 6/1 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO. 635

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2730	2800+		
REDUCING	2690	2800+		

SAMPLE # 4 LAB NO.638

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 2 LAB NO. 636

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2780	2800+		
REDUCING	2740	2800+		

SAMPLE # 5 LAB NO.639

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800			

SAMPLE # 3 LAB NO. 637

MOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 6 LAB NO.640

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: 81/6 /1 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 7 LAB NO. 641

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 11 LAB NO. 645

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2770	2800+		
REDUCING	2680	2760	2780	2800+

SAMPLE # 8 LAB NO. 642

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2780	2800+		

SAMPLE # 12 LAB NO. 646

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2460	2800+		
REDUCING	2290	2720	2780	2800+

SAMPLE # 9 LAB NO. 643

TMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2880 +			
REDUCING	2720	2800+		

SAMPLE # 13 LAB NO. 647

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2660	2800+		
REDUCING	2600	2720	2790	2800+

SAMPLE #10 LAB NO. 644

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2710	2800+		
REDUCING	2700	2800+		

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LTD.

PROJECT: 81/7/1

RAW COAL ANALYSIS, adb

ASH FUSION TEMPERATURES (°F)

LAB NO. 622 SAMPLE NO. 1

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2400	.2620	2720	2760
REDUCING	2380	2640	2690	2760

LAB NO: 623 SAMPLE NO. 2

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2560	2700	2720	2750
REDUCING	2510	2660	2690	2800+

LAB NO. 624 SAMPLE NO. 3

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2580	2750	2760	2800+
RECUCING	2490	2720	2740	2780

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LTD.

PROJECT: 81/13/1

RAW COAL ANALYSIS, adb

ASH FUSION TEMPERATURES (°F)

LAB NO. 597 SAMPLE NO. 1

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2720	2800+		
REDUCING	2630	2800+		

LAB NO. 598 SAMPLE NO. 2

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2740	2800+		
REDUCING	2620	2800+		

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: 81/13/2 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO.599

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2210	2330	2400	2470
REDUCING	2210	2290	2310	2420

SAMPLE # 6 LAB NO. 604

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2630	2750	2770	2800+
REDUCING	2510	2700	2750	2800

SAMPLE # 2 LAB NO.600

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2250	2330	2400	2490
REDUCING	2220	2280	2290	2420

SAMPLE # 7 LAB NO. 605

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2650	2760	2780	2800+
REDUCING	2360	2680	2750	2800

SAMPLE # 4 LAB NO. 602

TMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE #

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: 81/13 / 3 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO.574

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2760	2800+		
REDUCING	2750	2800+		

SAMPLE # 5 LAB NO.578

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2620	2800+		
REDUCING	2600	2780	2790	2800+

SAMPLE # 2 LAB NO.575

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2500	2760	2790	2800+
REDUCING	2230	2760	2780	2800+

SAMPLE # 6 LAB NO.579

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 3 LAB NO.576

TMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2280	2480	2600	2670
REDUCING	2210	2630	2700	2730

SAMPLE # 7 LAB NO.580

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2590	2780	2800+	
REDUCING	2220	2330	2360	2650

SAMPLE # 4 LAB NO.577

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2680	2800+		
REDUCING	2670	2790	2800+	

SAMPLE #

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT.: BP CANADA LIMITED

PROJECT: 81/13/ 4Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO.581

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2240	2340	2380	2660
REDUCING	2220	2330	2360	2650

SAMPLE # 5 LAB NO. 585

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2200	2280	2440	2650
REDUCING	2140	2200	2250	2640

SAMPLE # 2 LAB NO. 582

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2600	2680	2720	2740
REDUCING	2180	2380	2440	2500

SAMPLE # 6 LAB NO. 586

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2250	2280	2320	2480
REDUCING	2180	2250	2270	2470

SAMPLE # 4 LAB NO. 4

ATMOSPHERE	IDT	ST	HT	FT
XIDIZING	2180	2320	2680	2720—
REDUCING	2100	2200	2240	2260

SAMPLE #

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: 81/13/5 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO.587

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2190	2300	2390	2630
REDUCING	2140	2300	2380	2530

SAMPLE # 6 LAB NO.592

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 2 LAB NO. 588

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2360	2630	2660	2700
REDUCING	2200	2580	2610	2690

SAMPLE # 7 LAB NO. 593

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 3 LAB NO. 589

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 8 LAB NO. 594

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2310	2530	2600	2680
REDUCING	2150	2300	2340	2360

SAMPLE # 4 LAB NO.590

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE #

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: SNTR-25 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO. 610

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE #8 LAB NO.617

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 2 LAB NO. 611

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE #9 LAB NO.618

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2520	2740	2760	2800+
REDUCING	2520	2710	2760	2790

SAMPLE # 3 LAB NO.612

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2740	2800+		
REDUCING	2730	2800+		

SAMPLE #10A LAB NO.620

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2360	2700	2740	2770
REDUCING	2350	2400	2420	2440

SAMPLE #7 LAB NO. 616

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE #11 LAB NO.621

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2160	2200	2380	2490
REDUCING	2140	2230	2350	2490

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: SNTR-28 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO.625

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2350	2540	2610	2660
REDUCING	2380	2490	2520	2670

SAMPLE # 5 LAB NO.629

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2410	2520	2560	2690
REDUCING	2380	2460	2490	2630

SAMPLE # 2 LAB NO. 626

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2420	2630	2680	2720
REDUCING	2420	2550	2640	2720

SAMPLE # 6 LAB NO.630

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE # 3 LAB NO. 627

TMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2290	2400	2470	2660
REDUCING	2280	2380	2420	2640

SAMPLE # 7 LAB NO.631

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2470	2690	2730	2760
REDUCING	2430	2480	2600	2750

SAMPLE #4 LAB NO.628

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2430	2650	2680	2740
REDUCING	2430	2550	2590	2740

SAMPLE #8 LAB NO.632

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2590	2680	2740	2800+
REDUCING	2430	2660	2740	2800+

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: SNTR-28 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 9 LAB NO.633

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2260	2320	2340	2500
REDUCING	2200	2300	2310	2380

SAMPLE # 12 LAB NO. 649

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2650	2660	2670	2690
REDUCING	2640	2660	2670	2680

SAMPLE # 10 LAB NO. 634

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2400	2520	2600	2670
REDUCING	2380	2500	2540	2740

SAMPLE # 13 LAB NO.650

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2540	2710	2720	2780
REDUCING	2520	2640	2700	2780

SAMPLE # 11 LAB NO. 648

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2380	2420	2520	2620
REDUCING	2280	2360	2440	2540

SAMPLE #

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP CANADA LIMITED

PROJECT: SNTR-29 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 1 LAB NO. 651

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2620	2800+		-
REDUCING	2600	2760	2780	2800+

SAMPLE # 5 LAB NO.

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2680	2800+		
REDUCING	2560	2720	2800+	

SAMPLE # 2 LAB NO. 652

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2540	2560	2590	2620
REDUCING	2530	2540	2550	2620

SAMPLE #6 LAB NO. 656

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2500	2540	2580	2610
REDUCING	2480	2500	2520	2570

SAMPLE # 3 LAB NO.

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2420	2460	2470	2520
REDUCING	2440	2460	2480	2520

SAMPLE # 7 LAB NO.657

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2200	2270	2380	2480
REDUCING	2100	2250	2290	2410

SAMPLE # 4 LAB NO. 654

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2800+			
REDUCING	2800+			

SAMPLE #8 LAB NO.658

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2600	2770	2790	2800+
REDUCING	2590	2740	2760	2800

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : BP CANADA LIMITED

PROJECT: SNTR-29 Samples

RAW COAL ANALYSIS, air dried basis

ASH FUSION TEMPERATURES (°F)

SAMPLE # 9 LAB NO. 659

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2140	2160	2200	2260
REDUCING	2100	2150	2200	2260

SAMPLE # 11 LAB NO. 661

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2540	2740	2760	2800+
REDUCING	2480	2680	2720	2800

SAMPLE # 10 LAB NO. 660

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING	2330	2620	2720	2740
REDUCING	2310	2480	2520	2550

SAMPLE #

ATMOSPHERE	IDT	ST	HT	FT
OXIDIZING				
REDUCING				

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/6/1 Samples

SAMPLES RECEIVED Oct. 16,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	SG	F.S.I	HGI
635	1	0.6	1.4	56.3	-	-	0.25	-	1.82	1	N.S.S.
636	2	1.4	2.7	73.5	-	-	0.14	-	2.14	0	N.S.S.
637	3	0.9	1.7	57.8	-	-	0.19	-	1.87	1	N.S.S.
638	4	1.4	1.3	48.2	-	-	0.27	-	1.73	1	N.S.S.
639	5	2.1	1.3	62.7	-	-	0.14	-	1.94	0	N.S.S.
640	6	0.9	1.0	22.8	22.4	55.8	0.34	6403	1.46	2	N.S.S.
641	7	0.9	1.1	49.0	-	-	0.24	-	1.74	1	N.S.S.
642	8	0.5	1.1	29.4	18.9	50.6	0.28	5754	1.50	1 1/2	N.S.S.
643	9	0.5	1.5	77.5	-	-	0.10	-	2.13	0	N.S.S.
644	10	1.2	1.3	47.1	-	-	0.29	-	1.67	3	N.S.S.
645	11	0.3	1.6	78.9	-	-	0.10	-	2.21	0	N.S.S.
646	12	1.4	1.4	34.8	20.5	43.3	0.65	5242	1.53	5	N.S.S.
647	13	0.2	1.4	65.5	-	-	0.22	-	1.91	1	56

N.S.S. - Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/7/1 Samples.

SAMPLES RECEIVED Oct. 16,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	S.G.	FSI	HGI
622	1	0.3	0.6	13.3	20.5	65.6	0.36	7240	1.40	1	N.S.S.
623	2	0.3	0.7	12.9	21.5	64.9	0.34	7278	1.37	1	99
624	3	0.3	0.9	54.4	-	-	0.26	-	1.79	2 1/2	110

N.S.S. -Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/13/1 Samples

SAMPLES RECEIVED Oct. 16/81

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	S.G.	F.S.I.	HGI
596	R	0.6	1.1	72.2	-	-	0.17	-	2.05	1	N.S.S.
597	1	1.0	0.7	30.0	23.3	46.0	0.40	5801	1.49	5 1/2	100
598	2	0.8	0.9	25.0	24.1	50.0	0.38	6302	1.46	7 1/2	N.S.S.

N.S.S. = Not sufficient sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/13/2 Samples

SAMPLES RECEIVED Oct. 16, 1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	S.G.	FSI	HGI
599	1	0.3	0.8	5.0	22.6	71.6	0.35	8001	1.32	1 1/2	106
600	2	0.2	0.6	5.3	26.2	67.9	0.34	8053	1.28	4	113
601	3	1.4	0.5	11.8	32.7	55.0	0.33	7582	1.31	8	N.S.S.
602	4	0.5	0.9	76.1	-	-	0.12	-	2.16	0	91
603	5	1.1	1.0	18.6	25.5	54.9	0.39	6826	1.38	8	N.S.S.
604	6	0.4	0.8	82.4	-	-	0.10	-	2.29	0	N.S.S.
605	7	0.9	0.8	64.2	-	-	0.26	-	1.88	1 1/2	N.S.S.

N.S.S. -Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/13/3 Samples
SAMPLES RECEIVED Oct. 16/81
RAW COAL ANALYSIS, a.d.b.

Lab No.	Sample No.	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	C.V. Cal/gm	S.G.	FSI	HGI
574	1	0.7	0.9	55.2	-	-	0.22	-	1.81	1	N.S.S.
575	2	0.6	0.8	11.7	21.6	65.9	0.38	7410	1.37	1	N.S.S.
576	3	0.6	0.9	10.0	23.0	66.1	0.38	7563	1.37	2	N.S.S.
577	4	0.8	0.8	22.9	21.3	55.0	0.36	6532	1.44	3 1/2	N.S.S.
578	5	0.8	1.1	59.2	-	-	0.21	-	1.85	1 1/2	N.S.S.
579	6	1.1	0.8	32.8	22.6	43.8	0.37	5502	1.53	5	N.S.S.
580	7	1.9	1.1	69.7	-	-	0.13	-	2.02	1	N.S.S.

N.S.S. - Not Sufficient Sample

Birtley Coal
& Minerals Testing
A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/13/4 Samples

SAMPLES RECEIVED Oct. 16/81

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No.	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	C.V. Cal/gm	SG	FSI	HGI
581	1	0.7	0.9	7.5	24.9	66.7	0.44	7831	1.34	4	139
582	2	1.3	0.6	40.6	-	-	0.17	-	2.09	0	N.S.S.
583	3	0.9	0.8	4.8	27.0	67.0	0.37	8035	1.32	4	N.S.S.
584	4	0.6	0.3	45.9	-	-	0.10	-	2.28	0	N.S.S.
585	5	0.7	0.6	7.4	23.9	68.1	0.30	7782	1.71	1 1/2	111
586	6	0.8	0.6	2.7	24.8	71.9	0.31	8259	1.32	3	117

N.S.S. -Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: 81/13/5 Samples

SAMPLES RECEIVED Oct. 16,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	C.V. Cal/gm	S.G.	FSI	HGI
587	1	0.7	0.6	6.5	21.5	71.4	0.26	7874	1.34	1	99
588	2	0.6	0.7	6.3	20.7	72.3	0.21	7864	1.35	1	103
589	3	0.5	0.6	18.7	21.6	59.1	0.23	6700	1.45	1 1/2	59
590	4	0.3	0.4	51.7	-	-	0.14	-	1.84	1	N.S.S.
591	5	0.3	0.6	15.1	23.6	60.7	0.34	7048	1.40	4 1/2	N.S.S.
592	6	0.6	0.4	78.9	-	-	0.35	-	2.36	0	N.S.S.
593	7	0.4	0.4	41.6	-	-	0.24	-	1.69	1	N.S.S.
594	8	0.6	0.8	7.7	29.4	62.1	0.49	7832	1.31	9	N.S.S.
595	9	0.3	0.9	32.2	21.3	45.6	0.40	5521	1.52	5 1/2	N.S.S.

N.S.S. -Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: SNTR17 Samples

SAMPLES RECEIVED Oct. 26,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	SG	FSI	HGI
710	1	2.5	6.0	16.6	27.7	49.7	0.36	5093	1.58	0	124
711	2	1.4	3.5	47.3	-	-	0.25	-	1.80	0	89

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: SNTR 18 Samples

SAMPLES RECEIVED Oct. 26,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	SG	FSI	HGI
712	8	0.5	3.4	47.6	-	-	0.25	-	1.78	0	47
713	9	0.3	1.7	34.3	19.4	44.6	0.32	5118	1.58	1/2	64
714	10	0.7	1.6	75.4	-	-	0.09	-	2.11	0	47
715	11	0.2	1.4	37.1	19.7	41.8	0.27	4986	1.57	1	59
716	12	nil	1.5	80.4	-	-	0.06	-	2.22	0	59

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: SNTR -25 Samples

SAMPLES RECEIVED Oct. 16,1981

RAW COAL ANALYSIS, a.d.b.

Lab No.	Sample No.	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	SG	FSI	HGI
610	1	0.2	1.2	41.9	-	-	0.52	-	1.67	1	82
611	2	1.2	1.3	67.1	-	-	0.23	-	1.99	0	47
612	3	0.1	0.6	67.0	-	-	0.24	-	2.00	1	N.S.S.
613	4	1.6	1.6	70.5	-	-	0.16	-	2.10	0	48
614	5	1.1	1.4	36.6	19.6	42.4	0.39	4938	1.60	1	59
615	6	2.5	1.5	73.8	-	-	0.12	-	2.14	0	79
616	7	0.3	1.0	37.5	20.3	41.2	0.33	4983	1.60	2 1/2	110
617	8	0.8	1.6	73.6	-	-	0.08	-	2.19	0	83
618	9	0.4	1.1	18.5	19.7	60.7	0.33	6682	1.43	1 1/2	54
619	10	2.6	1.0	32.3	37.2	29.5	0.29	4824	-	-	N.S.S.
620	10A	0.4	0.4	61.8	-	-	0.10	-	2.93	0	47
621	11	0.4	1.0	20.0	21.9	57.1	0.33	6571	1.44	1	59

N.S.S. -Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATIONS CANADA

PROJECT: SNTR-28 Samples

SAMPLES RECEIVED Oct. 16,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	SG	FSI	HGI
625	1	8.9	4.1	39.3	19.4	37.2	0.24	3885	1.67	0	133
626	2	8.1	4.3	60.9	-	-	0.15	-	2.00	0	83
627	3	6.9	10.1	33.8	19.0	37.1	0.23	3827	1.62	0	133
628	4	5.6	4.3	71.2	-	-	0.07	-	2.15	0	N.S.S.
629	5	9.3	6.2	38.6	20.0	35.2	0.25	3553	1.70	0	N.S.S.
630	6	8.8	3.2	72.1	-	-	0.07	-	2.20	0	N.S.S.
631	7	10.1	6.2	56.8	-	-	0.14	-	1.94	0	81
632	8	12.0	4.0	72.0	-	-	0.08	-	2.15	0	76
633	9	16.2	7.5	23.4	25.1	44.0	0.28	4531	1.61	0	N.S.S.
634	10	10.1	6.3	49.3	-	-	0.18	-	1.82	0	98
648	11	10.1	7.1	14.3	24.4	54.2	0.40	5828	1.44	0	90
649	12	23.9	11.7	12.4	27.9	48.0	0.32	4835	1.56	0	N.S.S.
650	13	6.9	2.1	88.9	-	-	0.05	-	2.44	0	N.S.S.

N.S.S. -Not Sufficient Sample

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : BP EXPLORATIONS CANADA

PROJECT: SNTR-29 Samples

SAMPLES RECEIVED Oct. 16,1981

RAW COAL ANALYSIS, a.d.b.

Lab No	Sample No	ADM%	MOIST%	ASH%	VOL%	F.C.%	S%	CV Cal/gm	SG	FSI	HGI
651	1	7.7	3.5	74.7	-	--	0.09	-	2.19	0	66
652	2	18.2	6.1	22.4	24.9	46.6	0.22	4666	1.64	0	N.S.S.
653	3	6.8	4.2	6.4	27.7	61.7	0.31	6599	1.41	0	98
654	4	1.4	1.9	72.3	-	-	0.07	-	2.15	0	95
655	5	27.6	6.8	25.7	25.9	41.6	0.15	4100	1.69	0	100
656	6	24.7	9.9	21.0	25.8	43.3	0.18	4447	1.61	0	83
657	7	17.7	7.6	15:5	25.8	51.1	0.18	5222	1.54	0	75
658	8	6.6	1.6	89.5	-	-	0.01	-	2.48	0	N.S.S.
659	9	9.1	10.1	8.3	26.3	55.3	0.25	5743	1.46	0	79
660	10	11.4	4.4	50.5	-	-	0.15	-	1.87	0	72
661	11	2.5	2.3	78.7	-	-	0.11	-	2.28	0	N.S.S.

N.S.S. - Not Sufficient Sample

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : BP EXPLORATION CANADA LIMITED

PROJECT : SNTR SAMPLES Received Sept. 2/80

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5833	12-1	14.3	4.7	59.3	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 12/1		18.3	50.8	-	-	-	-	-		-	-	a.r.b.
				62.2	-	-	-	-	-		-	-	d.b.
5834	12-2	12.0	7.2	25.5	23.3	44.0	0.32	N.A.	8329		75	1.60	a.d.b.
	SNTR 12/2		18.3	22.4	20.5	38.8	0.28	-	7330		-	-	a.r.b.
				27.5	25.1	47.4	0.34	-	8975		-	-	d.b.
5835	12-3	8.6	1.7	80.4	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 12/3		10.2	73.5	-	-	-	-	-		-	-	a.r.b.
				81.8	-	-	-	-	-		-	-	d.b.
5836	12-4	12.1	3.5	45.2	18.4	32.9	0.34	N.A.	6353		74	1.75	a.d.b.
	SNTR 12/4		15.2	39.7	16.2	28.9	0.30	-	5584		-	-	a.r.b.
				46.8	19.1	34.1	0.35		6583		-	-	d.b.

NSS - Not Sufficient Sample

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

A DIVISION OF [illegible]

CLIENT : BP EXPLORATION CANADA LIMITED

PROJECT : SNTR SAMPLES Received Sept. 2/80

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5837	12-5	7.5	1.9	82.0	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 12/5		9.3	75.9	-	-	-	-	-		-	-	a.r.b.
				83.6	-	-	-	-	-		-	-	d.b.
5838	12-6	8.2	3.6	28.6	22.7	45.1	0.42	N.A.	9308		65	1.56	a.d.b.
	SNTR 12/6		11.5	26.3	20.8	41.4	0.39	-	8545		-	-	a.r.b.
				29.7	23.5	46.8	0.44		9656		-	-	d.b.
5839	12-7	7.8	3.5	53.2	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 12/7		11.0	49.1	-	-	-	-	-		-	-	a.r.b.
				55.1	-	-	-	-	-		-	-	d.b.
5841	18-1	6.7	1.8	39.0	18.4	40.8	0.34	N.A.	8360		65	1.66	a.d.b.
	SNTR 18/1		8.4	36.4	17.2	38.0	0.32	-	7800		-	-	a.r.b.
				39.7	18.7	41.6	0.35		8513		-	-	d.b.
5842	18-2	4.0	2.0	74.1	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 18/2		5.9	71.1	-	-	-	-	-		-	-	a.r.b.
				75.6	-	-	-	-	-		-	-	d.b.
5843	18-3	10.4	2.1	39.6	17.9	40.4	0.31	1/2	8350		99	1.65	a.d.b.
	SNTR 18/3		12.3	35.5	16.0	36.2	0.28	-	7482		-	-	a.r.b.
				40.4	18.3	41.3	0.32	-	8529		-	-	d.b.

NSS - Not Sufficient Sample

air dried basis - a.d.b.
s received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : BP EXPLORATION CANADA LIMITED

PROJECT : SNTR SAMPLES Received Sept. 2/80

LAB NO.	SAMPLE I.D.	ADM%	MOIST%	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC * BASIS
5844	18-4	8.3	1.7	73.2	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 18/4		9.9	67.1	-	-	-	-	-		-	-	a.r.b.
				74.5	-	-	-	-	-		-	-	d.b.
5845	18-5	8.4	2.0	40.4	18.1	39.5	0.33	1/2	8174		NSS	1.66	a.d.b.
	SNTR 18/5		10.2	37.0	16.6	36.2	0.30	-	7487		-	-	a.r.b.
				41.2	18.5	40.3	0.34	-	8341		-	-	d.b.
5846	18-6	8.3	2.0	81.5	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 18/6		10.1	74.7	-	-	-	-	-		-	-	a.r.b.
				83.2	-	-	-	-	-		-	-	d.b.
5847	18-7	8.1	1.8	45.9	16.8	35.5	0.33	N.A.	7329		61	1.73	a.d.b.
	SNTR 18/7		9.8	42.2	15.4	32.6	0.30	-	6735		-	-	a.r.b.
				46.7	17.1	36.2	0.34	-	7463		-	-	d.b.
5848	19-1	1.2	1.1	62.1	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 19/1		2.3	61.4	-	-	-	-	-		-	-	a.r.b.
				62.8	-	-	-	-	-		-	-	d.b.
5849	19-2	8.5	3.8	20.0	25.2	51.0	0.49	N.A.	10403		74	1.51	a.d.b.
	SNTR 19/2		12.0	18.3	23.1	46.6	0.45	-	9519		-	-	a.r.b.
				20.8	26.2	53.0	0.51	-	10814		-	-	d.b.
5850	19-3	10.8	2.5	65.0	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 19/3		13.0	58.0	-	-	-	-	-		-	-	a.r.b.
				66.7	-	-	-	-	-		-	-	d.b.

NSS - Not Sufficient Sample

* air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : BP EXPLORATION CANADA LIMITED

PROJECT : SNTR SAMPLES Received Sept. 2/80

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC * BASIS
5851	19-4	9.8	2.9	7.8	29.9	59.4	0.36	N.A.	11894		90	1.41	a.d.b.
	SNTR 19/4		12.4	7.0	27.0	53.6	0.32	-	10728		-	-	a.r.b.
				8.0	30.8	61.2	0.37	-	12249		-	-	d.b.
5852	19-5	9.9	2.8	60.6	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 19/5		12.4	54.6	-	-	-	-	-		-	-	a.r.b.
				62.3	-	-	-	-	-		-	-	d.b.
5853	19-6	9.5	3.5	18.5	25.6	52.4	0.42	N.A.	10163		74	1.50	a.d.b.
	SNTR 19/6		12.7	16.7	23.2	47.4	0.38	-	9198		-	-	a.r.b.
				19.2	26.5	54.3	0.44	-	10532		-	-	d.b.
5854	19-7	12.2	6.7	7.3	29.1	56.9	0.36	N.A.	10862		98	1.46	a.d.b.
	SNTR 19/7		18.1	6.4	25.5	50.0	0.32	-	9537		-	-	a.r.b.
				7.8	31.2	61.0	0.39	-	11642		-	-	d.b.
5855	19-8	16.6	6.0	38.6	21.7	33.7	0.20	N.A.	6071		94	1.82	a.d.b.
	SNTR 19/8		21.6	32.2	18.1	28.1	0.17	-	5063		-	-	a.r.b.
				41.1	23.1	35.8	0.21	-	6459		-	-	d.b.
5856	19-9	10.9	7.4	14.8	26.2	51.6	0.38	N.A.	9700		97	1.52	a.d.b.
	SNTR 19/9		17.5	13.2	23.3	46.0	0.34	-	8643		-	-	a.r.b.
				16.0	28.3	55.7	0.41		10475		-	-	d.b.
5857	19-10	10.8	2.9	67.2	-	-	-	-	-		78	-	a.d.b.
	SNTR 19/10		13.4	59.9	-	-	-	-	-		-	-	a.r.b.
				69.2	-	-	-	-	-		-	-	d.b.

NSS - Not Sufficient Sample

* air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

A DIVISION OF GREAT NESTSTELL INDUSTRIES LTD

CLIENT : BP EXPLORATION CANADA LIMITED

PROJECT : SNTR - SAMPLES Received Sept. 2/80

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC * BASIS
5858	20-1	12.0	2.2	74.5	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 20/1		13.9	65.6	-	-	-	-	-		-	-	a.r.b.
				76.2	-	-	-	-	-		-	-	d.b.
5859	20-2	12.8	6.8	14.7	27.6	50.9	0.27	N.A.	9316		122	1.56	a.d.b.
	SNTR 20/2		18.7	12.8	24.1	44.4	0.24	-	8124		-	-	a.r.b.
				15.8	29.6	54.6	0.29	-	9996		-	-	d.b.
5860	20-3	28.0	4.8	14.2	28.8	52.2	0.25	N.A.	10544		NSS	1.63	a.d.b.
	SNTR 20/3		31.5	10.2	20.7	37.6	0.18	-	7592		-	-	a.r.b.
				14.9	30.3	54.8	0.26		11076		-	-	d.b.
5861	20-4	17.5	5.1	6.0	28.7	60.2	0.40	N.A.	11161		109	1.50	a.d.b.
	SNTR 20/4		21.7	5.0	23.7	49.6	0.33	-	9208		-	-	a.r.b.
				6.3	30.2	63.5	0.42	-	11761		-	-	d.b.
5862	20-5	8.3	2.3	6.6	30.1	61.0	0.31	N.A.	12531		74	1.41	a.d.b.
	SNTR 20/5		10.4	6.1	27.6	55.9	0.28	-	11491		-	-	a.r.b.
				6.8	30.8	62.4	0.32	-	12826		-	-	d.b.
5863	20-6	2.2	1.9	32.3	23.9	41.9	0.27	N.A.	9050		49	1.61	a.d.b.
	SNTR 20/6		4.1	31.6	23.7	40.6	0.26	-	8851		-	-	a.r.b.
				32.9	24.4	42.7	0.28	-	9225		-	-	d.b.
5864	20-7	13.0	5.5	25.8	23.5	45.2	0.21	N.A.	8257		110	1.65	a.d.b.
	SNTR 20/7		17.8	22.5	20.4	39.3	0.18	-	7184		-	-	a.r.b.
				27.3	24.9	47.8	0.22	-	8738		-	-	d.b.

NSS - Not Sufficient Sample

* air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : BP EXPLORATION CANADA LIMITED

PROJECT : SNTR SAMPLES Received Sept. 2/80

AB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC * BASIS
5865	20-8	16.1	5.4	21.5	24.1	49.0	0.22	N.A.	8665		99	1.64	a.d.b.
	SNTR 20/8		20.6	18.0	20.2	41.2	0.18	-	7270		-	-	a.r.b.
				22.7	25.5	51.8	0.23	-	9160		-	-	d.b.
5866	20-9	16.7	7.0	5.0	28.1	59.9	0.29	N.A.	11014		NSS	1.45	a.d.b.
	SNTR 20/9		22.5	4.2	23.4	49.9	0.24	-	9174		-	-	a.r.b.
				5.4	30.2	64.4	0.31		11843		-	-	d.b.
5867	20-10	14.6	3.1	6.0	29.6	61.3	0.23	N.A.	11078		NSS	1.48	a.d.b.
	SNTR 20/10		17.2	5.1	25.3	52.4	0.20	-	9461		-	-	a.r.b.
				6.2	30.5	63.3	0.24	-	11432		-	-	d.b.
5868	20-11	7.1	1.8	78.3	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 20/11		8.8	72.7	-	-	-	-	-		-	-	a.r.b.
				79.7	-	-	-	-	-		-	-	d.b.
5869	20-12	18.0	3.7	12.3	27.1	56.9	0.31	N.A.	10744		NSS	1.48	a.d.b.
	SNTR 20/12		21.0	10.1	22.2	46.7	0.25	-	8810		-	-	a.r.b.
				12.8	28.1	59.1	0.32	-	11157		-	-	d.b.
5870	20-13	9.4	2.1	72.7	-	-	-	-	-		NSS	-	a.d.b.
	SNTR 20/13		11.3	65.9	-	-	-	-	-		-	-	a.r.b.
				74.3	-	-	-	-	-		-	-	d.b.

NSS - Not Sufficient Sample

* air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

A DIVISION OF [illegible]

CLIENT : BP EXPLORATION CANADA

PROJECT : SNTR/B SAMPLES RECEIVED OCT.30;1980 Service W.O.# 63205

LAB NO.	SAMPLE I.D.	ADH%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	BTU/LB	HGI	S.G.	CALC * BASIS
6381	Sample 13	0.8	1.0	38.0	15.9	45.1	0.40	8920	49	1.63	a.d.b.
	SNTR 18/13		1.8	37.7	15.8	44.7	0.40	8849	-	-	a.r.b.
				38.4	16.1	45.5	0.40	9010	-	-	d.b.
6382	Sample 14	2.4	1.5	12.0	20.7	65.8	0.50	12601	70	1.42	a.d.b.
	SNTR 18/14		3.9	11.7	20.2	64.2	0.49	12299	-	-	a.r.b.
				12.2	21.0	66.8	0.51	12793	-	-	d.b.
6383	Sample 15	5.7	1.9	23.3	25.5	49.3	0.40	10535	86	1.49	a.d.b.
	SNTR 18/15		7.5	22.0	24.0	46.5	0.38	9935	-	-	a.r.b.
				23.8	26.0	50.2	0.41	10739	-	-	d.b.
6384	Sample 16	6.0	2.5	6.4	26.7	64.4	0.43	12739	78	1.38	a.d.b.
	SNTR 18/16		8.4	6.0	25.1	60.5	0.40	11975	-	-	a.r.b.
				6.6	27.4	66.0	0.44	13066	-	-	d.b.
6385	Sample 17	8.3	3.4	8.4	26.9	61.3	0.35	12060	91	1.40	a.d.b.
	SNTR 18/17		11.4	7.7	24.7	56.2	0.32	11059	-	-	a.r.b.
				8.7	27.8	63.5	0.36	12484	-	-	d.b.
6386	Sample 18	10.0	4.9	13.9	26.3	54.9	0.28	10433	96	1.49	a.d.b.
	SNTR 18/18		14.4	12.5	23.7	49.4	0.25	9390	-	-	a.r.b.
				14.6	27.7	57.7	0.29	10971	-	-	d.b.
6387	Sample 19	4.8	2.7	61.4	13.0	22.9	0.17	-	61	1.98	a.d.b.
	SNTR 18/19		7,4	58.5	12.4	21.7	0.16	-	-	-	a.r.b.
				63.1	13.4	23.5	0.17	-	-	-	d.b.

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : BP EXPLORATION CANADA

PROJECT : SNTR 18 SAMPLES RECEIVED OCT. 30,1980 Service W.O.# 63205

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%		BTU/LB		HGI	S.G.	CALC * BASIS
6388	Sample 20	13.1	7.6	9.9	25.3	57.2	0.21		10327		95	1.51	a.d.b.
	SNTR 18/20		19.7	8.6	22.0	49.7	0.18		8974		-	-	a.r.b.
				10.7	27.4	61.9	0.23		11176		-	-	d.b.

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : B.P. EXPLORATION (ADA LTD.

PROJECT : SN-80 CORE SAMPLES RECEIVED JULY 31, 1980

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5548	1/1/1	0.9	1.1	24.7	17.8	56.4	0.37	1	10799		64	1.53	a.d.b.
	BP80-01/1/1		2.0	24.5	17.6	55.9	0.37	-	10702		-	-	a.r.b.
				25.0	18.0	57.0	0.37	-	10919		-	-	d.b.
5549	1/1/2	1.2	1.3	58.4	-	-	-	-	-		53	-	a.d.b.
	BP80-01/1/2		2.5	57.7	-	-	-	-	-		-	-	a.r.b.
				59.2	-	-	-	-	-		-	-	d.b.
5550	1/1/3	1.5	1.2	6.8	24.2	67.8	0.47	2	14495		54	1.33	a.d.b.
	BP80-01/1/3		2.7	6.7	23.8	66.8	0.46	-	14278		-	-	a.r.b.
				6.9	24.5	68.6	0.48	-	14671		-	-	d.b.
5551	1/1/4	2.3	1.2	7.5	26.2	65.1	0.39	5	13908		57	1.32	a.d.b.
	BP80-01/1/4		3.5	7.3	25.6	63.6	0.38	-	13588		-	-	a.r.b.
				7.6	26.5	65.9	0.39	-	14077		-	-	d.b.
5552	1/1/5	1.2	1.7	60.3	-	-	-	-	-		58	-	a.d.b.
	BP80-01/1/5		2.9	59.6	-	-	-	-	-		-	-	a.r.b.
				61.3	-	-	-	-	-		-	-	d.b.
5553	1/1/F	1.3	1.5	63.8	-	-	-	-	-		50	-	a.d.b.
	BP80-01/1/F		2.8	63.0	-	-	-	-	-		-	-	a.r.b.
				64.8	-	-	-	-	-		-	-	d.b.
5554	1/1/R	1.0	1.4	90.6	-	-	-	-	-		NSS	-	a.d.b.
	BP80-01/1/R		2.4	89.7	-	-	-	-	-		-	-	a.r.b.
				91.9	-	-	-	-	-		-	-	d.b.

N.S.S. - Not sufficient sample

a.d.b. - air dried basis
a.r.b. - as received basis
d.b. - dry basis

Birtley Coal & Minerals Testing

CLIENT : B.P. EXPLORATION CANADA LIMITED

PROJECT : SN-80 CORE SAMPLES RECEIVED JULY 31, 1980.

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5555	1/2/1	0.9	1.5	4.4	19.9	74.2	0.44	1/2	14451		57	1.33	a.d.b.
	BP80-01/2/1		2.4	4.4	19.7	73.5	0.44	-	14321		-	-	a.r.b.
				4.5	20.2	75.3	0.45	-	14671		-	-	d.b.
5556	1/2/1	1.5	1.3	4.3	19.4	75.0	0.30	1/2	14432		56	1.33	a.d.b.
	BP80-01/2/1		2.8	4.2	19.1	73.9	0.30	-	14216		-	-	a.r.b.
				4.4	19.7	75.9	0.30	-	14622		-	-	d.b.
5557	1/2/2	5.3	1.1	57.4	-	-	-	-	-		63	-	a.d.b.
	BP80-01/2/2		6.3	54.4	-	-	-	-	-		-	-	a.r.b.
				58.0	-	-	-	-	-		-	-	d.b.
5558	1/2/3	1.3	1.1	16.2	22.3	60.4	0.36	3	12741		58	1.40	a.d.b.
	BP80-01/2/3		2.4	16.0	22.0	59.6	0.36	-	12575		-	-	a.r.b.
				16.4	22.5	61.1	0.36	-	12883		-	-	d.b.
5559	1/2/4	0.6	1.2	33.5	18.2	47.1	0.34	1	9811		54	1.55	a.d.b.
	BP80-01/2/4		1.8	33.3	18.1	46.8	0.34	-	9752		-	-	a.r.b.
				33.9	18.4	47.7	0.34	-	9930		-	-	d.b.
5560	1/2/5	1.1	1.2	23.8	19.6	55.4	0.35	1 1/2	11298		58	1.48	a.d.b.
	BP80-01/2/5		2.3	23.5	19.4	54.8	0.35	-	11174		-	-	a.r.b.
				24.1	19.8	56.1	0.35	-	11435		-	-	d.b.
5561	1/2/R	2.7	1.5	88.1	-	-	-	-	-		NSS	-	a.d.b.
	BP80-01/2.R		4.2	85.7	-	-	-	-	-		-	-	a.r.b.
				89.4	-	-	-	-	-		-	-	d.b.

N.S.S. - not sufficient sample

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : B.P. EXPLORATIO ANADA LIMITED

PROJECT : SN-80 CORE SAMPLES RECEIVED JULY 31, 1980

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5562	1/3/1	1.4	1.1	18.1	21.1	59.7	0.39	3 1/2	12355		63	1.42	a.d.b.
	BP80-01/3/1		2.5	17.8	20.8	58.9	0.38	-	12182		-	-	a.r.b.
				18.3	21.3	60.4	0.39	-	12492		-	-	d.b.
5563	1/3/2	0.8	1.6	84.8	-	-	-	-	-		NSS	-	a.d.b.
	BP80-01/3/2		2.4	84.1	-	-	-	-	-		-	-	a.r.b.
				86.2	-	-	-	-	-		-	-	d.b.
5564	1/3/3	0.7	1.0	29.9	17.8	51.3	0.36	1	10367		63	1.54	a.d.b.
	BP80-01/3/3		1.7	29.7	17.7	50.9	0.36	-	10294		-	-	a.r.b.
				30.2	18.0	51.8	0.36	-	10472		-	-	d.b.
5565	1/3/F	1.1	1.4	51.0	-	-	-	-	-		53	-	a.d.b.
	BP80-01/3/F		2.5	50.4	-	-	-	-	-		-	-	a.r.b.
				51.7	-	-	-	-	-		-	-	d.b.
5566	1/3/R	0.8	0.7	43.9	15.0	40.8	0.26	1	8244		48	1.67	a.d.b.
	BP80-01/3/R		1.5	43.2	14.9	40.4	0.26	-	8178		-	-	a.r.b.
				43.8	15.1	41.1	0.26	-	8302		-	-	d.b.

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : B.P. EXPLORATION CANADA LIMITED

PROJECT : SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5570	2-1-1	0.6	0.9	4.0	26.1	69.0	0.56	6 1/2	14679		64	1.30	a.d.b.
	BP80-02/1/1		1.5	4.0	25.9	68.6	0.56	-	14591		-	-	a.r.b.
				4.0	26.3	69.7	0.57	-	14812		-	-	d.b.
5571	2-1-2	0.5	0.6	9.1	27.0	63.3	0.51	8 1/2	14045		88	1.32	a.d.b.
	BP80-02/1/2		1.1	9.1	26.9	62.9	0.51	-	13975		-	-	a.r.b.
				9.2	27.2	63.6	0.51	-	14130		-	-	d.b.
5572	2-1-F	0.6	1.3	66.2	-	-	-	-	-		50	-	a.d.b.
	BP80-02/1/P		1.9	65.8	-	-	-	-	-		-	-	a.r.b.
				67.1	-	-	-	-	-		-	-	d.b.
5573	2-1-R	0.6	1.2	85.0	-	-	-	-	-		46	-	a.d.b.
	BP80-02/1/R		1.8	84.5	-	-	-	-	-		-	-	a.r.b.
				86.0	-	-	-	-	-		-	-	d.b.
5574	2-2-1	1.4	0.9	31.8	16.5	50.8	0.39	1	9823		73	1.59	a.d.b.
	BP80-02/2/1		2.3	31.4	16.3	50.0	0.38	-	9685		-	-	a.r.b.
				32.1	16.6	51.3	0.39	-	9912		-	-	d.b.
5575	2-2-2	1.4	0.3	63.7	-	-	-	-	-		88	-	a.d.b.
	BP80-02/2/2		1.7	62.8	-	-	-	-	-		-	-	a.r.b.
				63.9	-	-	-	-	-		-	-	d.b.
5576	2-2-3	0.5	1.0	18.2	21.2	59.6	0.47	2 1/2	12153		62	1.43	a.d.b.
	BP80-02/2/3		1.5	18.1	21.1	59.3	0.47	-	12092		-	-	a.r.b.
				18.4	21.4	60.2	0.47	-	12276		-	-	d.b.

* air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : B.P. EXPLORATION CANADA LIMITED

PROJECT : SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASI
5577	2-2-4	0.9	1.6	74.9	-	-	-	-	-		50	-	a.d.b.
	BP80-02/2/4		2.5	74.2	-	-	-	-	-		-	-	a.r.b.
				76.1	-	-	-	-	-		-	-	d.b.
5578	2-2-5	0.8	1.0	24.0	19.4	55.6	0.36	1	11324		59	1.49	a.d.b.
	BP80-02/2/5		1.8	23.8	19.2	55.2	0.36	-	11233		-	-	a.r.b.
				24.2	19.6	56.2	0.36	-	11438		-	-	d.b.
5579	2-2-6	0.6	1.5	79.0	-	-	-	-	-		NSS	-	a.d.b.
	BP80-02/2/6		2.1	78.5	-	-	-	-	-		-	-	a.r.b.
				80.2	-	-	-	-	-		-	-	d.b.
5580	2-2-7	0.6	1.1	8.6	26.5	63.8	0.43	8	13959		66	1.32	a.d.b
	BP80-02/2/7		1.7	8.5	26.3	63.5	0.43	-	13875		-	-	a.r.b.
				8.7	26.8	64.5	0.43	-	14114		-	-	d.b.
5581	2-2-F	0.7	1.4	63.5	-	-	-	-	-		51	-	a.d.b.
	BP80-02/2/F		2.1	63.1	-	-	-	-	-		-	-	a.r.b.
				64.4	-	-	-	-	-		-	-	d.b.
5582	2-2-R	0.7	1.3	69.7	-	-	-	-	-		53	-	a.d.b.
	BP80-02/2/R		2.0	69.2	-	-	-	-	-		-	-	a.r.b.
				70.6	-	-	-	-	-		-	-	d.b.
5583	2-3-1	0.7	1.2	58.9	-	-	-	-	-		53	-	a.d.b.
	BP80-02/3/1		1.9	58.5	-	-	-	-	-		-	-	a.r.b.
				59.6	-	-	-	-	-		-	-	d.b.

N.S.S. - not sufficient sample

* air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : B.P. EXPLORATION CANADA LIMITED

PROJECT : SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5584	2-3-2	0.6	1.2	78.1	-	-	-	-	-		46	-	a.d.b.
	BP80-02/3/2		1.8	77.6	-	-	-	-	-		-	-	a.r.b.
				79.0	-	-	-	-	-		-	-	d.b.
5585	2-3-3	0.6	1.3	46.1	17.0	35.6	0.49	4 1/2	7646		60	1.70	a.d.b.
	BP80-02/3/3		1.9	45.8	16.9	35.4	0.49	-	7600		-	-	a.r.b.
				46.7	17.2	36.1	0.50	-	7747		-	-	d.b.
5586	2-3-4	1.1	1.6	75.7	-	-	-	-	-		46	-	a.d.b.
	BP80-02/3/4		2.7	74.9	-	-	-	-	-		-	-	a.r.b.
				76.9	-	-	-	-	-		-	-	d.b.
5587	2-3-5	0.5	0.9	23.0	15.2	60.9	0.46	1	11269		70	1.53	a.d.b.
	BP80-02/3/5		1.4	22.9	15.1	60.6	0.46	-	11212		-	-	a.r.b.
				23.2	15.3	61.5	0.46	-	11371		-	-	d.b.
5588	2-3-6	0.5	1.1	18.4	25.9	54.6	0.34	NA	10982		80	1.53	a.d.b.
	BP80-02/3/6		1.6	18.3	25.8	54.3	0.34	-	10927		-	-	a.r.b.
				18.6	26.2	55.2	0.34	-	11104		-	-	d.b.
5589	2-3-7	0.8	1.2	4.8	18.8	75.2	0.52	1 1/2	14455		72	1.35	a.d.b.
	BP80-02/3/7		2.0	4.8	18.6	74.6	0.52	-	14339		-	-	a.r.b.
				4.9	19.0	76.1	0.53	-	14631		-	-	d.b.
5590	2-3-8	0.5	1.1	9.0	20.3	69.6	0.62	1 1/2	13765		78	1.37	a.d.b.
	BP80-02/3/8		1.6	9.0	20.2	69.2	0.62	-	13696		-	-	a.r.b.
				9.1	20.5	70.4	0.63	-	13918		-	-	d.b.

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : B.P. EXPLORATION / CANADA LIMITED

PROJECT : SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.	SAMPLE I.D.	ADM%	MOIST	PROXIMATE ASH %	PROXIMATE VOL%	PROXIMATE F.C.%	S%	FSI	BTU/LB		HGI	S.G.	CALC BASIS
5591	2-3-9	1.3	1.1	64.7	-	-	-	-	-		50	-	a.d.b.
	BP80-02/3/9		2.4	63.9	-	-	-	-	-		-	-	a.r.b.
				65.4	-	-	-	-	-		-	-	d.b.
5592	2-3-10	0.8	1.1	36.3	19.1	43.5	0.45	5 1/2	9373		62	1.58	a.d.b.
	BP80-02/3/10		1.9	36.0	18.9	43.2	0.45	-	9298		-	-	a.r.b.
				36.7	19.3	44.0	0.46	-	9477		-	-	d.b.
5593	2-3-11	0.9	1.6	72.4	-	-	-	-	-		50	-	a.d.b.
	BP80-02/3/11		2.5	71.7	-	-	-	-	-		-	-	a.r.b.
				73.6	-	-	-	-	-		-	-	d.b.
5594	2-3-12	0.8	1.2	43.7	17.2	37.9	0.40	4 1/2	7900		58	1.67	a.d.b.
	BP80-02/3/12		2.0	43.4	17.1	37.5	0.40	-	7837		-	-	a.r.b.
				44.2	17.4	38.4	0.40	-	7996		-	-	d.b.
5595	2-3-F	0.9	1.5	70.0	-	-	-	-	-		51	-	a.d.b.
	BP80-02/3/F		2.4	69.4	-	-	-	-	-		-	-	a.r.b.
				71.1	-	-	-	-	-		-	-	d.b.

air dried basis - a.d.b.
as received basis - a.r.b.
dry basis - d.b.

Birtley Coal & Minerals Testing

CLIENT : BP EXPLORATION CANADA

PROJECT: SN-80 COMPOSITE RAW COAL

LAB NO. 6614 SAMPLE NO. 1/1 - PG1

RM%	ASH%	CALC BASIS
1.1	9.3	a.d.b.
	9.4	d.b.

BP-1
PUMP SEAM

MINERAL ANALYSIS OF ASH										
SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Undet.
60.06	26.06	0.94	1.39	2.08	0.79	1.21	1.19	3.29	1.10	- 1.89

LAB NO. 6615 SAMPLE NO. 1/2 - PG2

RM%	ASH%	CALC BASIS
1.1	10.6	a.d.b.
	10.7	d.b.

BP-1
GRIZZLY SEAM

MINERAL ANALYSIS OF ASH										
SiO2	Al2O3	TiO2	Fe2O3	CaO	MgO	Na2O	K2O	P2O5	SO3	Undet.
66.84	21.73	1.28	1.18	0.89	0.63	1.04	1.13	2.69	0.63	- 1.96

Birtley Coal & Minerals Testing

PROJECT: SN-80 CORE SAMPLE Received July 31, 1980

LAB NO.: 5548 SAMPLE I.D. 1/1/1

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2800+			
REDUCING	2790	2800+		

LAB NO.: 5550 SAMPLE I.D. 1/1/3

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2260	2410	2520	2610
REDUCING	2200	2370	2480	2570

LAB NO.: 5551 SAMPLE I.D. 1/1/4

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2560	2680	2750	2800
REDUCING	2320	2580	2690	2780

Birtley Coal
& Minerals Testing

PROJECT: SN-80 CORE SAMPLE Received July 31, 1980

LAB NO.: 5555 SAMPLE I.D. 1/2/1

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2600	2760	2800+	
REDUCING	2520	2720	2760	2800+

LAB NO.: 5556 SAMPLE I.D. 1/2/2

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2370	2520	2640	2750
REDUCING	2320	2480	2570	2710

LAB NO.: 5558 SAMPLE I.D. 1/2/3

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2690	2800+		
REDUCING	2570	2800	2800+	

Birtley Coal
& Minerals Testing

PROJECT: SN-80 CORE SAMPLI Received July 31, 1980

LAB NO.: 5559 SAMPLE I.D. 1/2/4

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2720	2800+		
REDUCING	2590	2800+		

LAB NO.: 5560 SAMPLE I.D. 1/2/5

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2680	2800+		
REDUCING	2560	2780	2800+	

LAB NO.: 5562 SAMPLE I.D. 1/3/1

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2620	2770	2800+	
REDUCING	2550	2720	2770	2800+

Birtley Coal
& Minerals Testing

PROJECT: SN-80 CORE SAMPLE Received July 31, 1980

LAB NO.: 5564 SAMPLE I.D. 1/3/3

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2570	2710	2780	2800+
REDUCING	2520	2680	2740	2800+

LAB NO.: 5566 SAMPLE I.D. 1/3/R

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2690	2800+		
REDUCING	2640	2800+		

LAB NO.: _____ SAMPLE I.D. _____

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.

Birtley Coal
& Minerals Testing

CLIENT : BP EXPLORATION CA DA

PROJECT: SN-80 COKE SAMPLES Received August 5, 1980

LAB NO.: 5570 SAMPLE I.D. 2/1/1

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2290	2420	2530	2700
REDUCING	2250	2390	2450	2620

LAB NO.: 5571 SAMPLE I.D. 2/1/2

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2260	2450	2560	2720
REDUCING	2220	2400	2480	2650

LAB NO.: 5574 SAMPLE I.D. 2/2/1

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2800+			
REDUCING	2780	2800+		

Birtley Coal
& Minerals Testing

PROJECT: SN-80 CORE SAMPLES Received Aug.5, 1980

LAB NO.: 5576 SAMPLE I.D. 2/2/3

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2800+			
REDUCING	2800+			

LAB NO.: 5578 SAMPLE I.D. 2/2/5

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2480	2700	2800+	
REDUCING	2430	2630	2720	2800+

LAB NO.: 5580 SAMPLE I.D. 2/2/7

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2600	2790	2800+	
REDUCING	2440	2750	2780	2800+

Birtley Coal
& Minerals Testing

CLIENT : BP EXPLORATION CANADA

PROJECT: SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.: 5585 SAMPLE I.D. 2/3/3

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2800+			
REDUCING	2730	2800+		

LAB NO.: 5587 SAMPLE I.D. 2/3/5

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	- 2790	2800+		--
REDUCING	2750	2800+	---	

LAB NO.: 5588 SAMPLE I.D. --- 2/3/6 ---

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2420	2430	2440	2460
REDUCING	2140	2230	2260	2330

Birtley Coal
& Minerals Testing

CLIENT : BP EXPLORATION (CANADA)

PROJECT; SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.: 5589 SAMPLE I.D. 2/3/7

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2200	2280	2380	2520
REDUCING	2160	2240	2320	2470

LAB NO.: 5590 SAMPLE I.D. 2/3/8

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2320	2550	2640	2760
REDUCING	2180	2260	2340	2440

LAB NO.: 5592 SAMPLE I.D. 2/3/10

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2620	2800+		
REDUCING	2570	2780	2800+	

Birtley Coal
& Minerals Testing

CLIENT : BP EXPLORATION (ALASKA)

PROJECT: SN-80 CORE SAMPLES Received August 5, 1980

LAB NO.: 5594 SAMPLE I.D. 2/3/12

ASH FUSION TEMPERATURES (°F)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2690	2800+		
REDUCING	2570	2760	2790	2800+