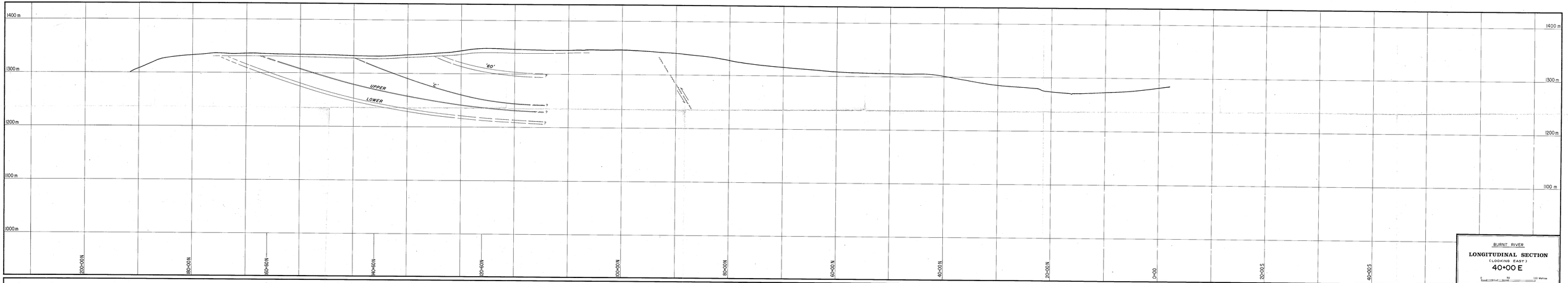


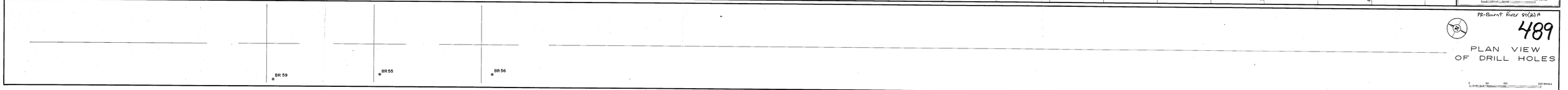
BURNT RIVER

LONGITUDINAL SECTION

(LOOKING EAST)

40+00 E

0 50 100 Metres

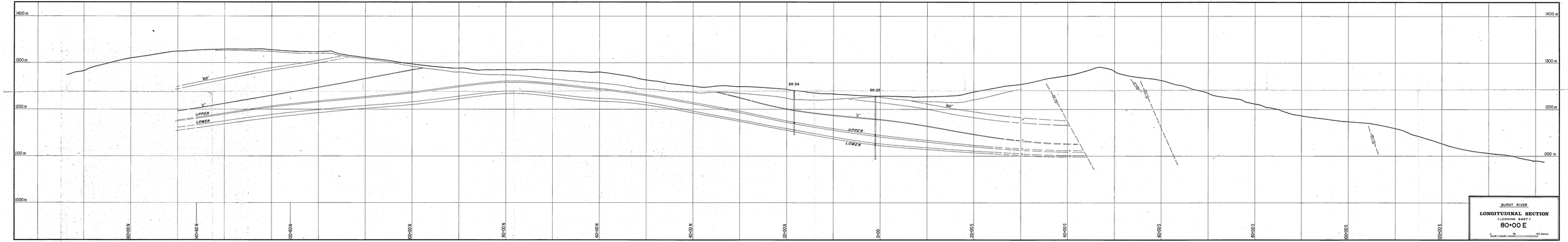


PR-Burnt River 80(23)A

489

PLAN VIEW
OF DRILL HOLES

0 50 100 200 Metres



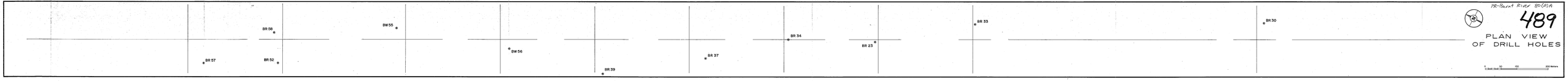
BURNT RIVER

LONGITUDINAL SECTION

(LOOKING EAST)

80+00 E

0 50 100 Metres



PR-Burnt River 80(P)A

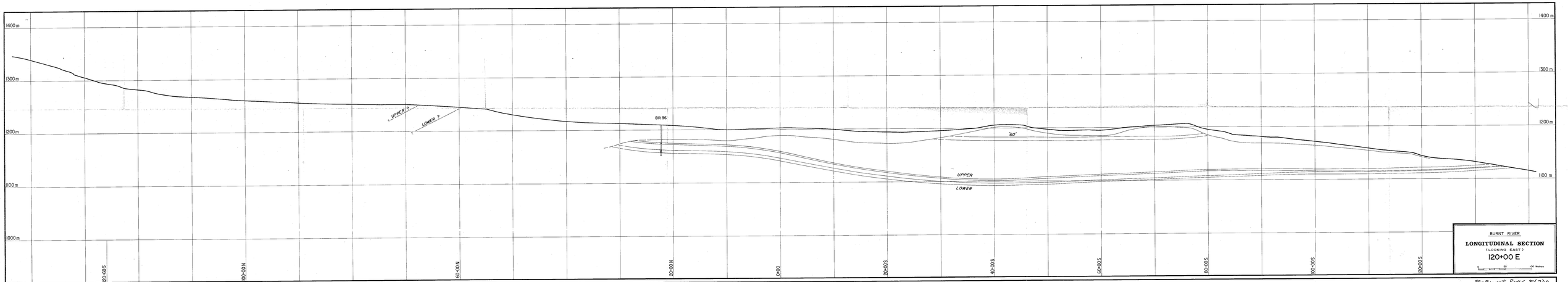
489

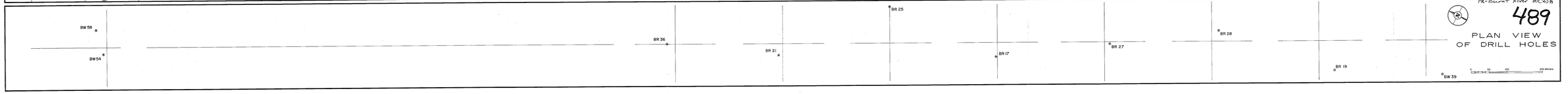
PLAN VIEW
OF DRILL HOLES

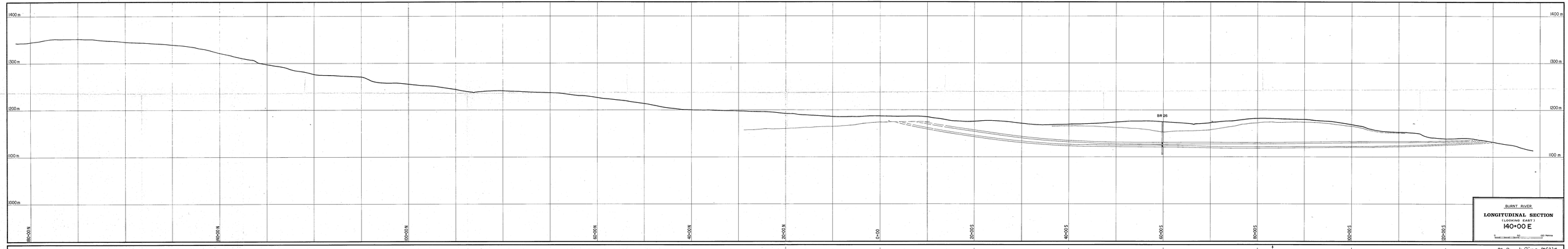
0 50 100 200 Metres

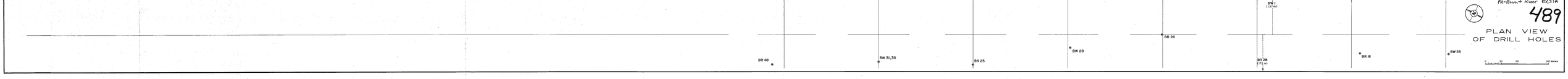

1400 m
1300 m
1200 m
1100 m
1000 m
UPPER
LOWER
UPPER
LOWER
BURNT RIVER
LONGITUDINAL SECTION
(LOOKING EAST)
60+00 E
0 50 100 Metres
BR 39
BR 53
BR 45
BR 46 & 47
BR 24
BR 54
BR 51
BR 42
BR 44
PR-Burnt River 80(2)A
489
PLAN VIEW
OF DRILL HOLES
0 50 100 200 Meters


1400 m
1300 m
1200 m
1100 m
1000 m
'60'
UPPER
LOWER
BR 35
BR 22
'60'
UPPER
LOWER
160+60 N
140+60 N
120+60 N
100+00 N
80+00 N
60+00 N
40+00 N
20+00 N
0+00
20+00 S
40+00 S
60+00 S
80+00 S
100+00 S
120+00 S
BURNT RIVER
LONGITUDINAL SECTION
(LOOKING EAST)
100+00 E
0 50 100 Metres
PR-Burnt River 80 (2) A
BW 39
489
PLAN VIEW
OF DRILL HOLES
BW 49
BW 50
BW 51
(125 m)
BR 40
BR 38
BR 35
BR 22
BR 31
BR 32
BR 29
BR 16
BW 47
BR 49
0 50 100 200 Meters


1400 m
1300 m
1200 m
1100 m
1000 m
UPPER ?
LOWER ?
BR 36
60°
UPPER
LOWER
180+00 S
160+00 N
60+00 N
20+00 N
0+00
20+00 S
40+00 S
60+00 S
80+00 S
100+00 S
120+00 S
BURNT RIVER
LONGITUDINAL SECTION
(LOOKING EAST)
120+00 E
0 50 100 Metres


BW 58
BW 54
BR 36
BR 21
BR 25
BR 17
BR 27
BR 28
BR 19
BW 39
FR-Burnt River 30(23) A
489
PLAN VIEW
OF DRILL HOLES
0 50 100 200 Metres

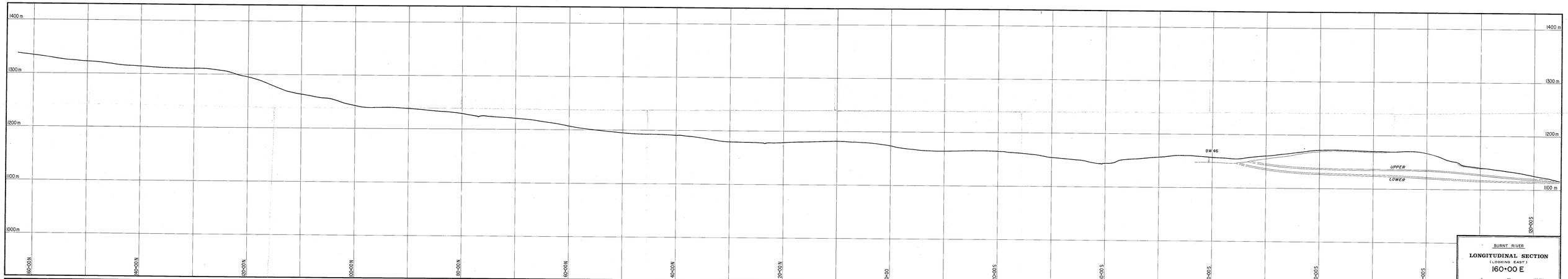


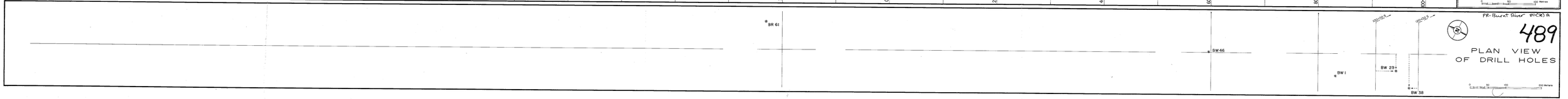


PE-Burnt River 80(21)A

489

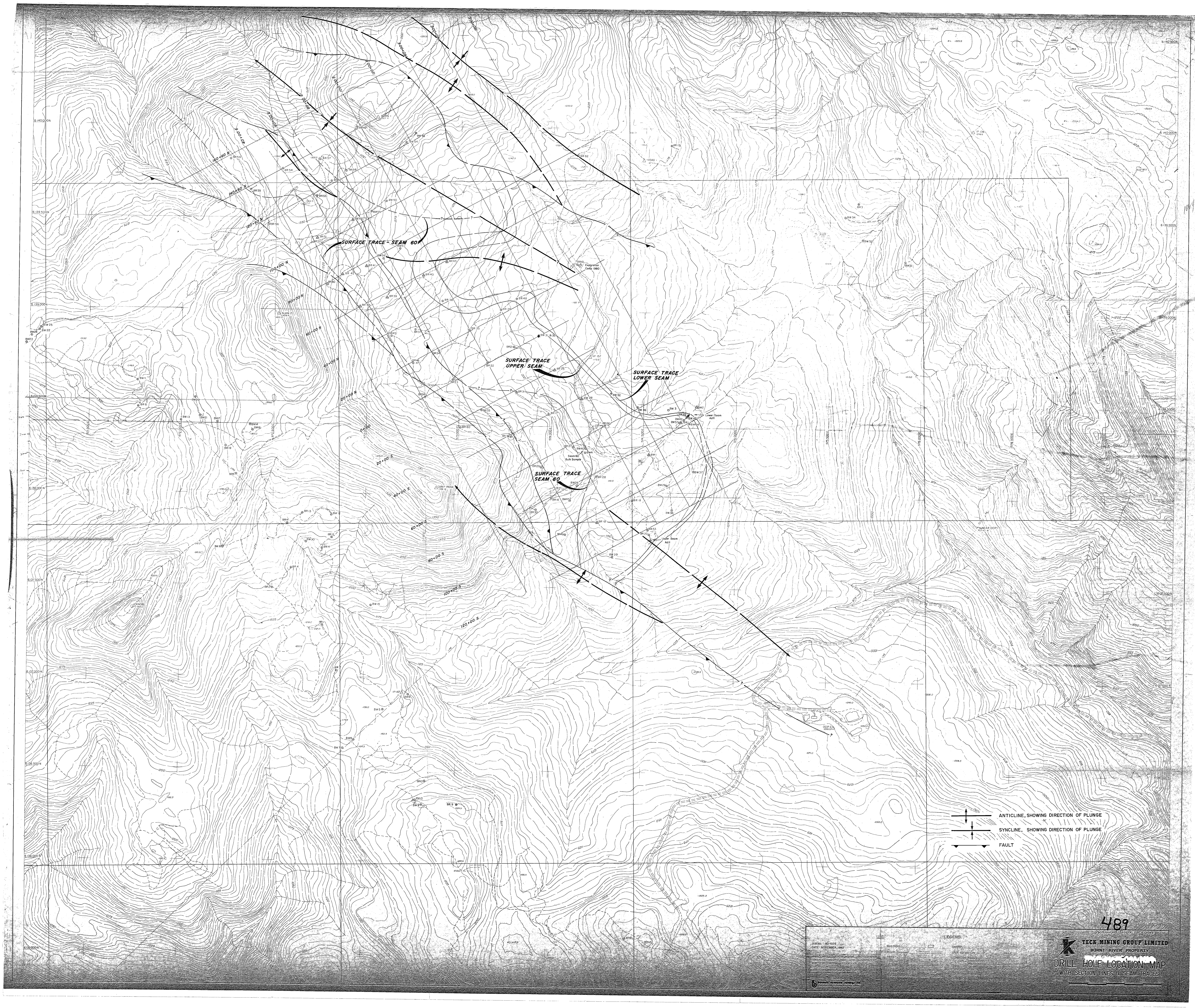
PLAN VIEW
OF DRILL HOLES

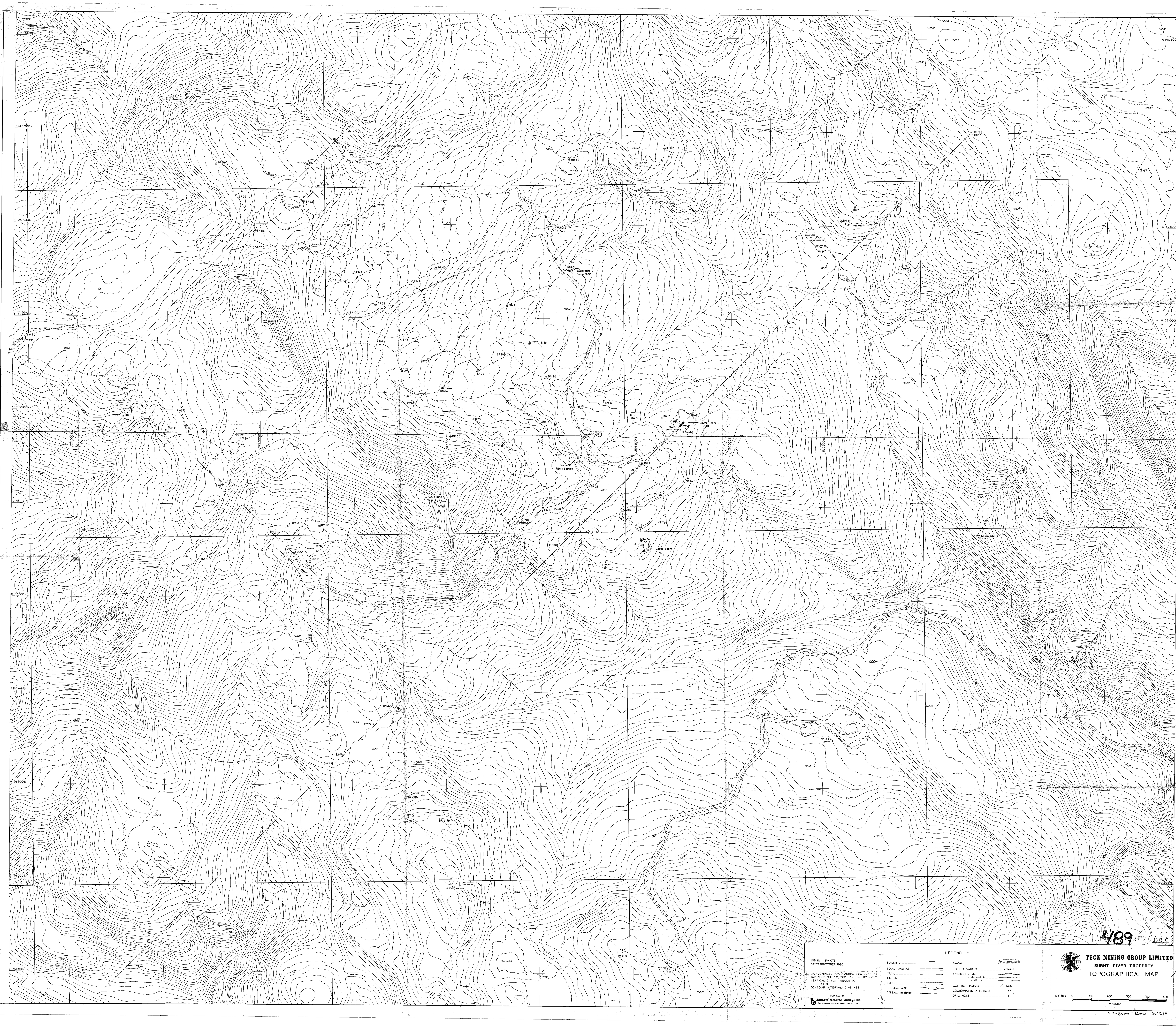

1400 m
1300 m
1200 m
1100 m
1000 m
BW 46
UPPER
LOWER
160+00 N
140+00 N
120+00 N
100+00 N
80+00 N
60+00 N
40+00 N
20+00 N
0+00
20+00 S
40+00 S
60+00 S
80+00 S
100+00 S
120+00 S
BURNT RIVER
LONGITUDINAL SECTION
(LOOKING EAST)
160+00 E
0 50 100 Metres


BR 61
BW 46
BW 1
BW 29
BW 38
PF-Burnt River ROCK) A
489
PLAN VIEW
OF DRILL HOLES
0 50 100 200 Metres

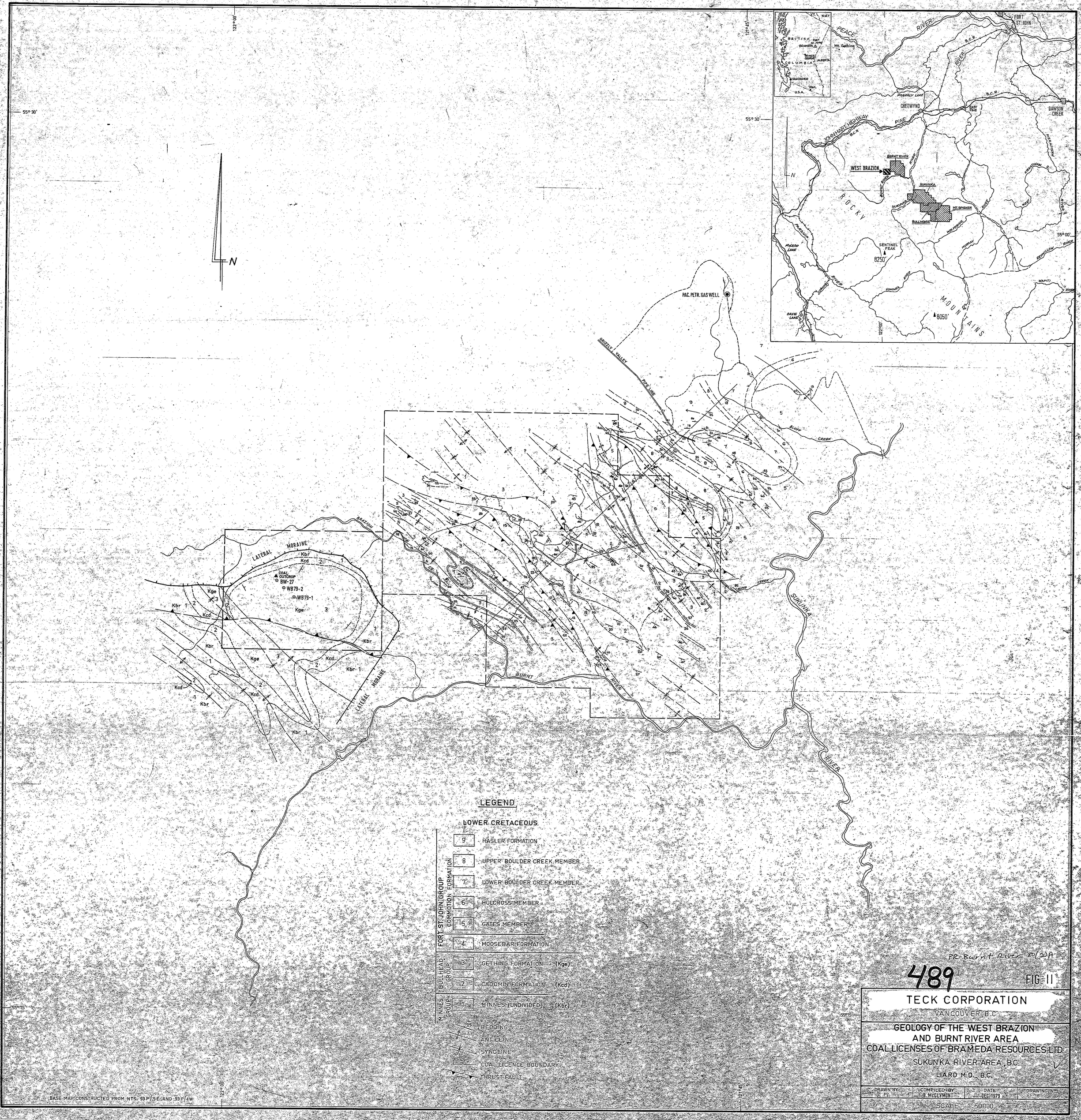
BURNT RIVER
LONGITUDINAL SECTION
(LOOKING EAST)
180+00 E
PR-Burnt River 80(4)A
489
PLAN VIEW
OF DRILL HOLES
1400 m
1300 m
1200 m
1100 m
1000 m
160+00 N
120+00 N
80+00 N
40+00 N
0+00
20+00 S
40+00 S
60+00 S
80+00 S
100+00 S
120+00 S
BW 42
BW 44
BW 37
UPPER
LOWER


LEGEND
LOWER CRETACEOUS
FORT ST. JOHN GROUP
COMMOTION FORMATION
BC BOULDER CREEK MEMBER
Hul HULCROSS MEMBER
Ga GATES MEMBER
Mbr MOOSEBAR FORMATION
BULLHEAD GROUP
Ge GETHING FORMATION
Cd CADOMIN FORMATION
UNCONFIRMITY
MINNES GROUP
Mi MINNES UNDIVIDED
BR-18 DRILL HOLE
12 COAL SEAM OUTCROP
BEDDING (HORIZONTAL, INCLINED, VERTICAL, OVERTURNED)
ANTICLINE, SHOWING DIRECTION OF PLUNGE
SYNCLINE, " " " "
U D FAULT
FORMATION BOUNDARIES
APPROXIMATE POSITION OF CADOMIN HORIZON
SEISMIC LINES AND TRAILS
BR NQ DRILL HOLE
BW WINKIE DRILL HOLE
BULK SAMPLING LOCATIONS
PROPOSED ADIT
489
FIG. 5
PL - BURNT RIVER 80(2)A
BRAMEDA RESOURCES LIMITED
VANCOUVER, B.C.
1980 EXPLORATION PROGRAM
OF THE BURNT RIVER PROPERTY
SUKUNKA RIVER AREA
LIARD M.D., B.C.
PROBABLE HIGH WALL
CAMP
TOP OF BR-1 SEAM
UPPER SEAM ADIT
BURNT


SURFACE TRACE - SEAM 60
SURFACE TRACE UPPER SEAM
SURFACE TRACE LOWER SEAM
SURFACE TRACE SEAM 60
Exploration Camp 1980
Seam 60 Bulk Sample
Lower Seam Adit
Upper Seam Adit
ANTICLINE, SHOWING DIRECTION OF PLUNGE
SYNCLINE, SHOWING DIRECTION OF PLUNGE
FAULT
489
FIG 8
PR-Burnt River 80(2)A
JOB No.: 80-1075
DATE: NOVEMBER, 1980
MAP COMPILED FROM AERIAL PHOTOGRAPHS TAKEN OCTOBER 2, 1980 ROLL No. BR 80057
VERTICAL DATUM: GEODETIC
GRID: U.T.M.
CONTOUR INTERVAL: 5 METRES
COMPILED BY
burnett resource surveys ltd.
CARTOGRAPHERS PHOTOGRAMMETRISTS SURVEYORS
LEGEND
BUILDING
ROAD - Unpaved
TRAIL
CUTLINE
TREES
STREAM - LAKE
STREAM - Indefinite
SWAMP
SPOT ELEVATION
1344.6
CONTOUR - Index
1200
Intermediate
Indefinite
CONTROL POINTS
KNOB
COORDINATED DRILL HOLE
DRILL HOLE
TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY
DRILL HOLE LOCATION MAP
(WITH SECTION LINES & SEAM TRACES)
METRES 0 100 200 300 400 500



PR-Burnt River 80(2)A



LEGEND

LOWER CRETACEOUS

- FORT ST. JOHN GROUP
  - COMMOTION FORMATION
    - 9 HASLER FORMATION
    - 8 UPPER BOULDER CREEK MEMBER
    - 7 LOWER BOULDER CREEK MEMBER
    - 6 HULCROSS MEMBER
    - 5 GATES MEMBER
  - 4 MOOSEBAR FORMATION
- BULLHEAD GROUP
  - 3 GETHING FORMATION (Kge)
  - 2 CADOMIN FORMATION (Kcd)
- MINNES GROUP
  - 1 MINNES (UNDIVIDED) (Kbr)

25 BEDDING

ANTICLINE

SYNCLINE

COAL LICENCE BOUNDARY

THRUST FAULT

PR-Burnt River 80(30)A

489

FIG II

TECK CORPORATION

VANCOUVER, B.C.

GEOLOGY OF THE WEST BRAZION AND BURNT RIVER AREA

COAL LICENSES OF BRAMEDA RESOURCES LTD.

SUKUNKA RIVER AREA, B.C.

LIARD M.D., B.C.

DRAWN BY	COMPILED BY	DATE	DRAWING No.
P.V.	B. McCLYMONT	DEC. 1979	

SCALE 50000

LEGEND

BUILDING
ROAD - Unpaved
TRAIL
CUTLINE
TREES
STREAM - LAKE
STREAM - Indefinite
SWAMP
SPOT ELEVATION 1944.6
CONTOUR - Index 1950
- Intermediate
- Indefinite
CONTROL POINTS ..... △ KNOB
COORDINATED DRILL HOLE .....
DRILL HOLE .....

COMPILED BY
bennett resource surveys ltd.
VANCOUVER PHOTOGRAMMETRIC AND SURVEY CONSULTANTS

100 0 200 400 600 800 1000 METRES

MAP COMPILED FROM AERIAL PHOTOGRAPHS
TAKEN: OCTOBER 21, 1980. ROLL No. BR 80052
VERTICAL DATUM - GEODETIC
GRID - UTM
CONTOUR INTERVAL - 10 METRES

FIG. 7

TECK MINING GROUP LIMITED

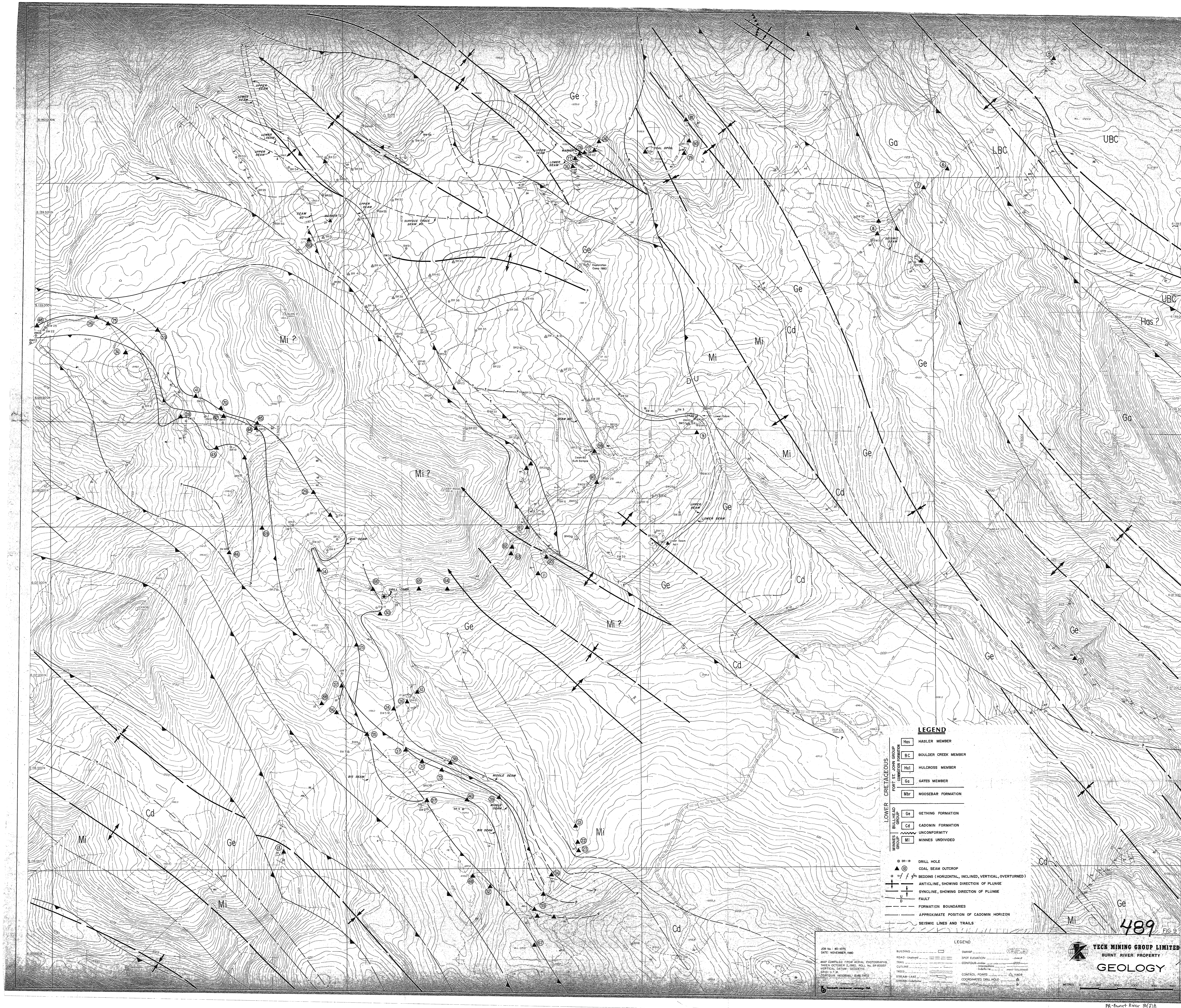
BURNT RIVER PROPERTY

TOPOGRAPHICAL MAP

DATE: MARCH 1981 JOB No: 80-1075

489

BR-Burnt River 80(2)A



LEGEND
LOWER CRETACEOUS
FORT ST. JOHN GROUP
COMMOTION FORMATION
Has HASLER MEMBER
BC BOULDER CREEK MEMBER
Hul HULCROSS MEMBER
Ga GATES MEMBER
Mbr MOOSEBAR FORMATION
BULLHEAD GROUP
Ge GETHING FORMATION
Cd CADOMIN FORMATION
UNCONFORMITY
MINNES GROUP
Mi MINNES UNDIVIDED
BR-18 DRILL HOLE
12 COAL SEAM OUTCROP
BEDDING (HORIZONTAL, INCLINED, VERTICAL, OVERTURNED)
ANTICLINE, SHOWING DIRECTION OF PLUNGE
SYNCLINE, SHOWING DIRECTION OF PLUNGE
FAULT
FORMATION BOUNDARIES
APPROXIMATE POSITION OF CADOMIN HORIZON
SEISMIC LINES AND TRAILS
Ge
Ga
LBC
UBC
Has ?
Mi ?
Cd
Mi
UPPER SEAM
LOWER SEAM
MIDDLE SEAM
BIG SEAM
SEISMIC SEAM
COAL SPOIL
DRILL CAMP
Exploration Camp 1980
489
FIG. 9
LEGEND
JOB No.: 80-1075
DATE: NOVEMBER, 1980
MAP COMPILED FROM AERIAL PHOTOGRAPHS TAKEN OCTOBER 2, 1980. ROLL No. BR 80057
VERTICAL DATUM: GEODETIC
GRID: U.T.M.
CONTOUR INTERVAL: 5 METRES
COMPILED BY
burnett resource surveys ltd.
CARTOGRAPHERS PHOTOGRAMMETRISTS SURVEYORS
BUILDING
ROAD - Unpaved
TRAIL
CUTLINE
TREES
STREAM-LAKE
STREAM-Indefinite
SWAMP
SPOT ELEVATION 1344.6
CONTOUR - Index 1200
- Intermediate
- Indefinite
CONTROL POINTS KNOB
COORDINATED DRILL HOLE
DRILL HOLE
TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY
GEOLOGY
METRES 0 100 200 300 400 500
1:5000
PR-Burnt River 80(2)A

LEGEND

LOWER CRETACEOUS	FORT ST. JOHN GROUP GETHING FORMATION	Has — HASLER FORMATION
		BC — BOULDER CREEK MEMBER
		Hul — HULCROSS MEMBER
		Ga — GATES MEMBER
		Mbr — MOOSEBAR FORMATION
	BULLHEAD GROUP	Ge — GETHING FORMATION
		Cd — CADOMIN FORMATION
		UNCONFORMITY
	MINNES GROUP	Mi — MINNES UNDIVIDED

- DRILL HOLE
- COAL SEAM OUTCROP
- BEDDING (HORIZONTAL, INCLINED, VERTICAL, OVERTURNED)
- ANTICLINE, SHOWING DIRECTION OF PLUNGE
- SYNCLINE, SHOWING DIRECTION OF PLUNGE
- FAULT
- FORMATION BOUNDARIES
- APPROXIMATE POSITION OF CADOMIN HORIZON
- SEISMIC LINES AND TRAILS

MAP COMPILED FROM AERIAL PHOTOGRAPHS
TAKEN OCTOBER 3, 1980, ROLL No. BR 80057
VERTICAL DATUM : GEODETIC
GRID : UTM
CONTOUR INTERVAL : 10 METRES

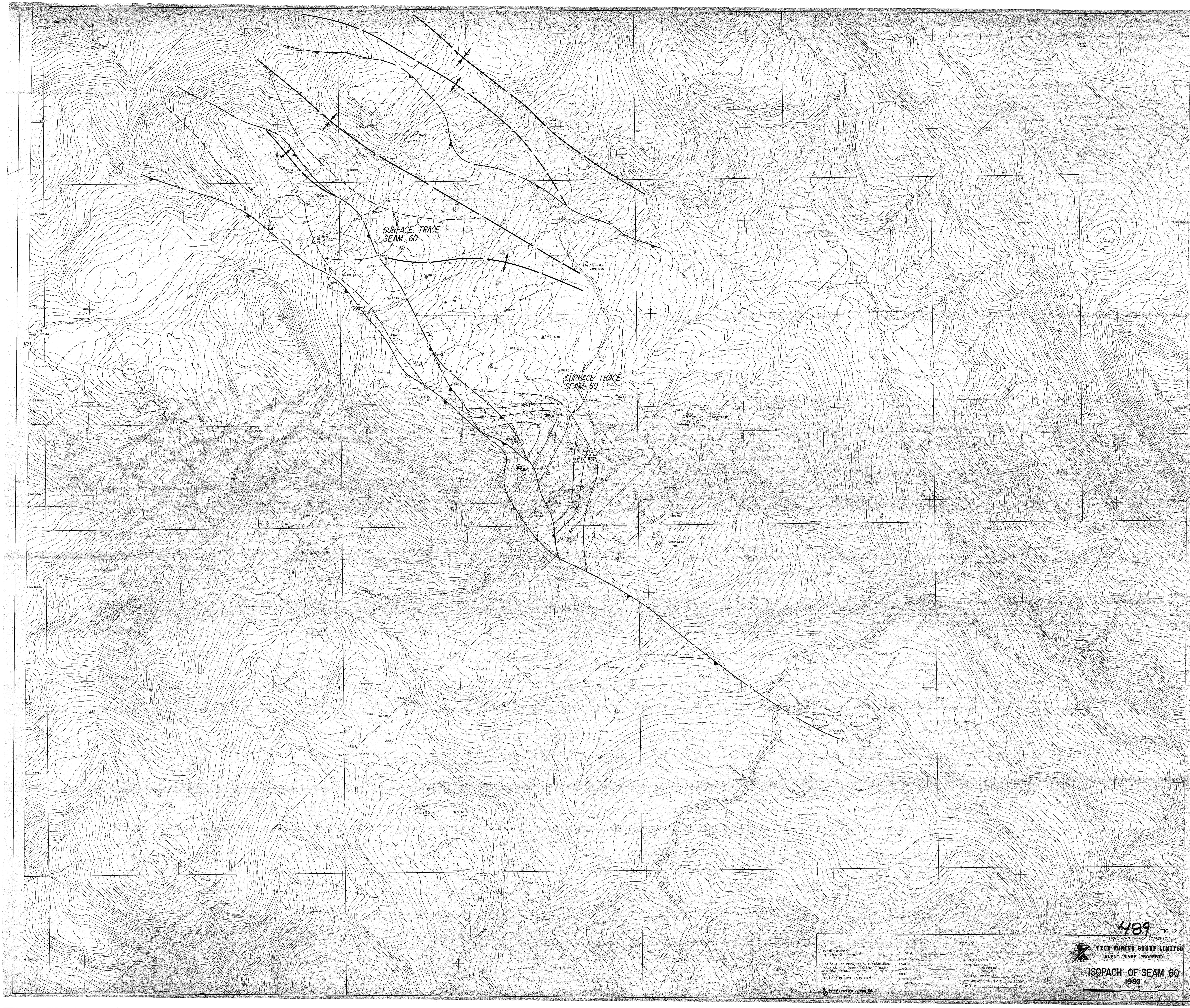
1:10000

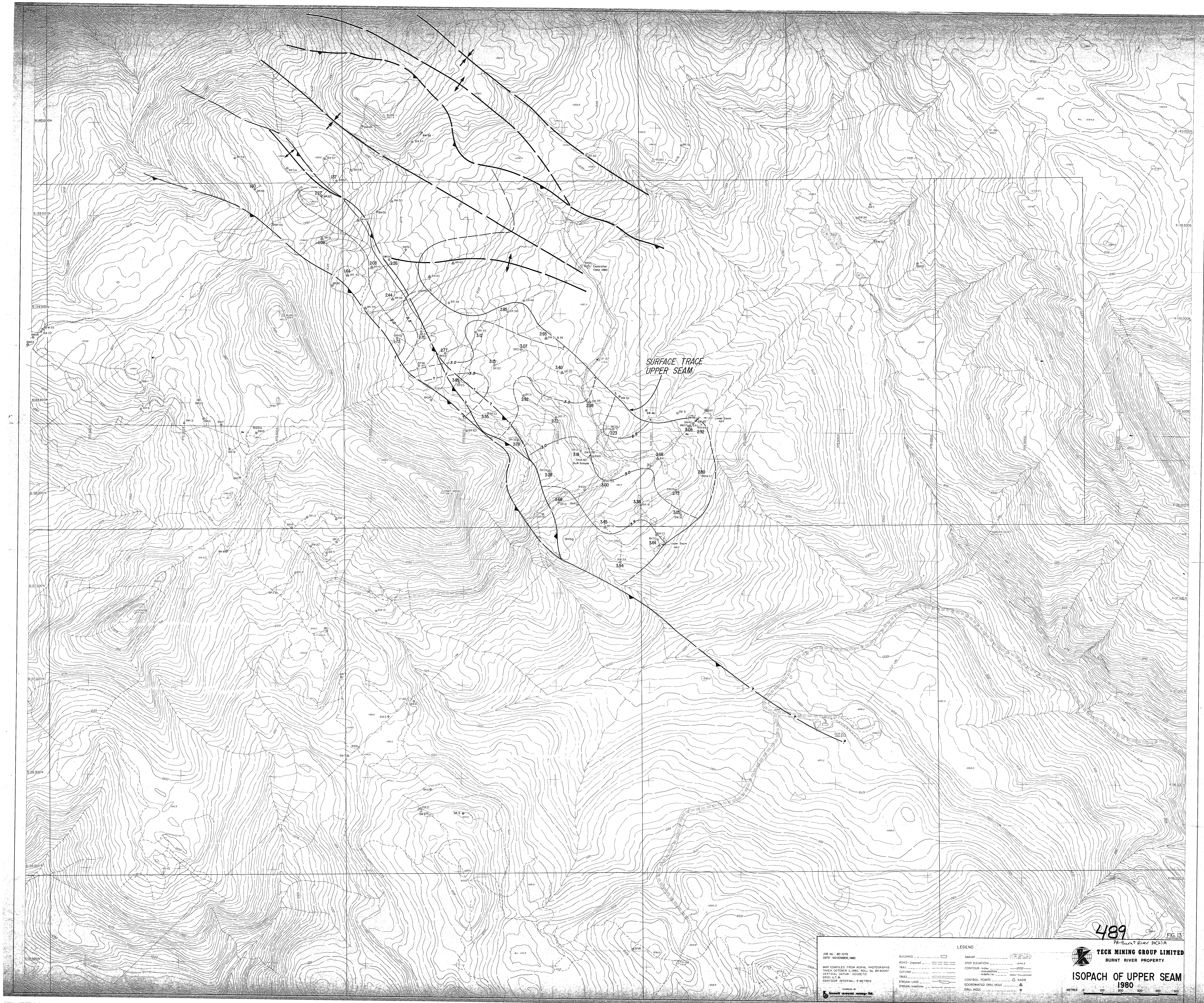
FIG. 10

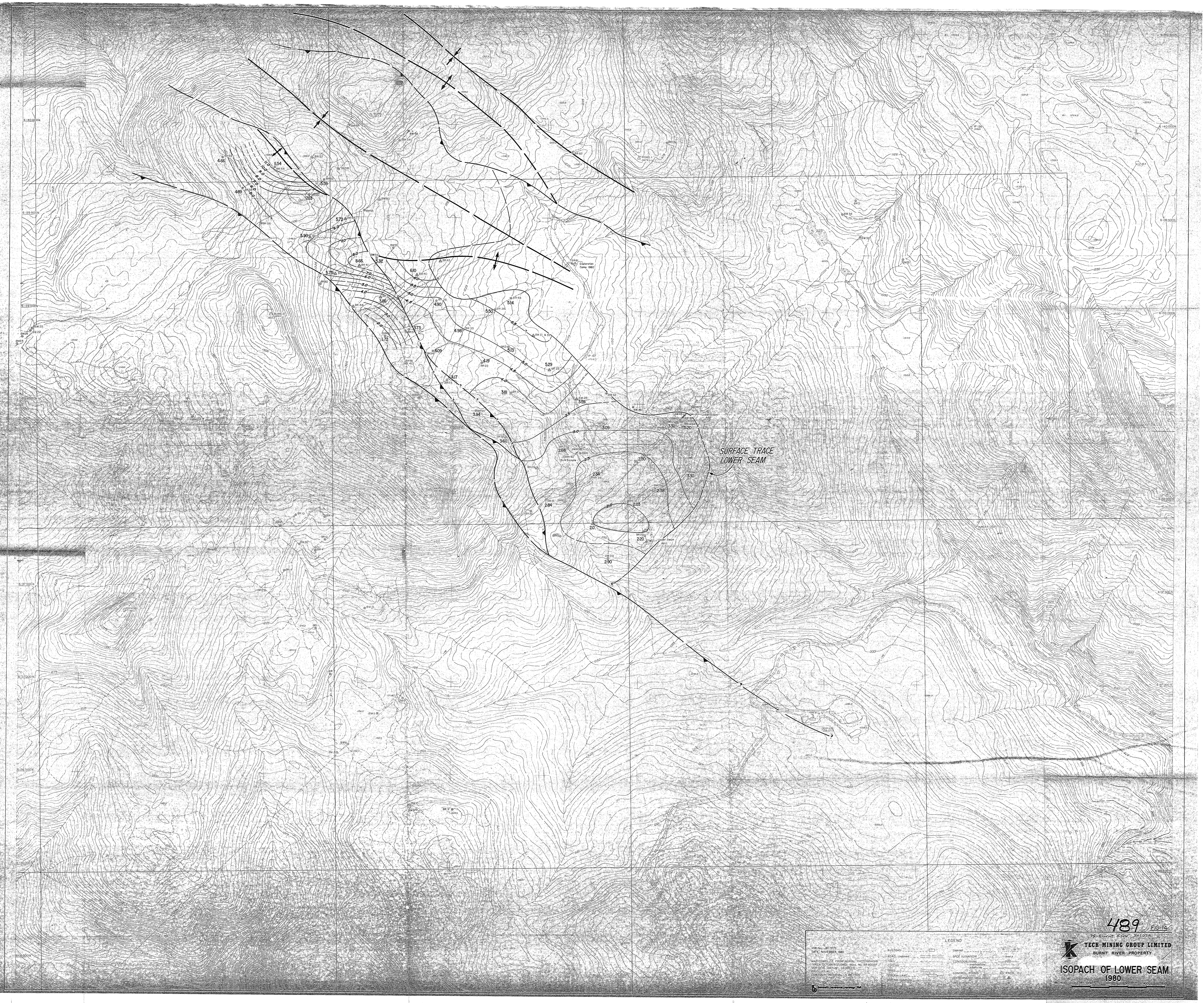
TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY

GEOLOGY 489

PE-Burnt River 80(2) A


SURFACE TRACE SEAM 60
SURFACE TRACE SEAM 60
489
FIG. 12
PR-Burnt River 80(2)A
LEGEND
JOB No. 80-1075
DATE NOVEMBER, 1980
MAP COMPILED FROM AERIAL PHOTOGRAPHS TAKEN OCTOBER 2, 1980. ROLL No. BR 80057
VERTICAL DATUM: GEODETIC
GRID: U.T.M.
CONTOUR INTERVAL: 5 METRES
COMPILED BY
burnett resource surveys ltd.
CARTOGRAPHERS PHOTOGRAMMETRISTS SURVEYORS
BUILDING
ROAD - Unpaved
TRAIL
CUTLINE
TREES
STREAM-LAKE
STREAM-Indefinite
SWAMP
SPOT ELEVATION 1344.6
CONTOUR - Index 1200
Intermediate
Indefinite
CONTROL POINTS KNOB
COORDINATED DRILL HOLE
DRILL HOLE
P1C
TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY
ISOPACH OF SEAM 60
1980
METRES 0 100 200 300 400 500


SURFACE TRACE
UPPER SEAM
Exploration Camp 1980
Lower Seam Adit
Upper Seam Adit
Seam 60 Bulk Sample
LEGEND
JOB No.: 80-1075
DATE: NOVEMBER, 1980
MAP COMPILED FROM AERIAL PHOTOGRAPHS
TAKEN OCTOBER 2, 1980. ROLL No. BR 80057
VERTICAL DATUM: GEODETIC
GRID: U.T.M.
CONTOUR INTERVAL: 5 METRES
COMPILED BY
burnett resource surveys ltd.
CARTOGRAPHERS PHOTOGRAMMETRISTS SURVEYORS
BUILDING
ROAD - Unpaved
TRAIL
CUTLINE
TREES
STREAM-LAKE
STREAM - Indefinite
SWAMP
SPOT ELEVATION
CONTOUR - Index
- Intermediate
- Indefinite
CONTROL POINTS
KNOB
COORDINATED DRILL HOLE
DRILL HOLE
TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY
ISOPACH OF UPPER SEAM
1980
METRES 0 100 200 300 400 500
489
FIG. 13
PR-Burnt River 80(2)A



SURFACE TRACE
LOWER SEAM
489
FIG. 14
PR-Burnt River 80(2)A
LEGEND
JOB No. 80-1075
DATE: NOVEMBER, 1980
MAP COMPILED FROM AERIAL PHOTOGRAPHS
TAKEN OCTOBER 2, 1980 ROLL No. BR 80057
VERTICAL DATUM GEODETIC
GRID U.T.M.
CONTOUR INTERVAL 5 METRES
COMPILED BY
burnett resource surveys ltd.
BUILDING
ROAD Unpaved
TRAIL
CUTLINE
TREES
STREAM LAKE
STREAM Indefinite
SWAMP
SPOT ELEVATION
CONTOUR Index
Intermediate
Indefinite
CONTROL POINTS
KNOB
COORDINATED DRILL HOLE
DRILL HOLE
TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY
ISOPACH OF LOWER SEAM
1980
METRES 0 100 200 300 400 500

UPPER SEAM

LOWER SEAM

UPPER SEAM

SURFACE TRACE - SEAM 60

SURFACE TRACE UPPER SEAM

SURFACE TRACE LOWER SEAM

SURFACE TRACE SEAM 60

SEISMIC SEAM

40+60 N

120+60 N

100+00 N

80+00 N

60+00 N

40+00 N

20+00 N

0+00

20+00 S

40+00 S

60+00 S

80+00 S

100+00 S

120+00 S

180+00E

160+00E

140+00E

120+00E

100+00E

80+00E

60+00E

40+00E

PROPOSED DRILL HOLES

- BR (22)
- BR (26)
- BW (6)
- BW (7)
- GEOTECHNICAL (6)

- ANTICLINE
- SYNCLINE
- FAULT
- SEAM TRACE

LEGEND

BUILDING
ROAD - Unpaved
TRAIL
CUTLINE
TREES
STREAM - LAKE
STREAM - Indistinct
SWAMP
SPOT ELEVATION
CONTOUR - Index
Intermediate
CONTROL POINTS
COORDINATED DRILL HOLE
DRILL HOLE

JOB No: 80-1075
DATE: NOVEMBER, 1980

MAP COMPILED FROM AERIAL PHOTOGRAPHS TAKEN OCTOBER 2, 1980, ROLL No. BR 80057.
VERTICAL DATUM - GEODETIC
GRID: U.T.M.
CONTOUR INTERVAL - 5 METRES

COMPILED BY
burnett resource surveys ltd.
VANCOUVER, BRITISH COLUMBIA

TECK MINING GROUP LIMITED
BURNT RIVER PROPERTY

PROPOSED DRILLING PROGRAM FOR 1981

METRES 0 100 200 300 400 500

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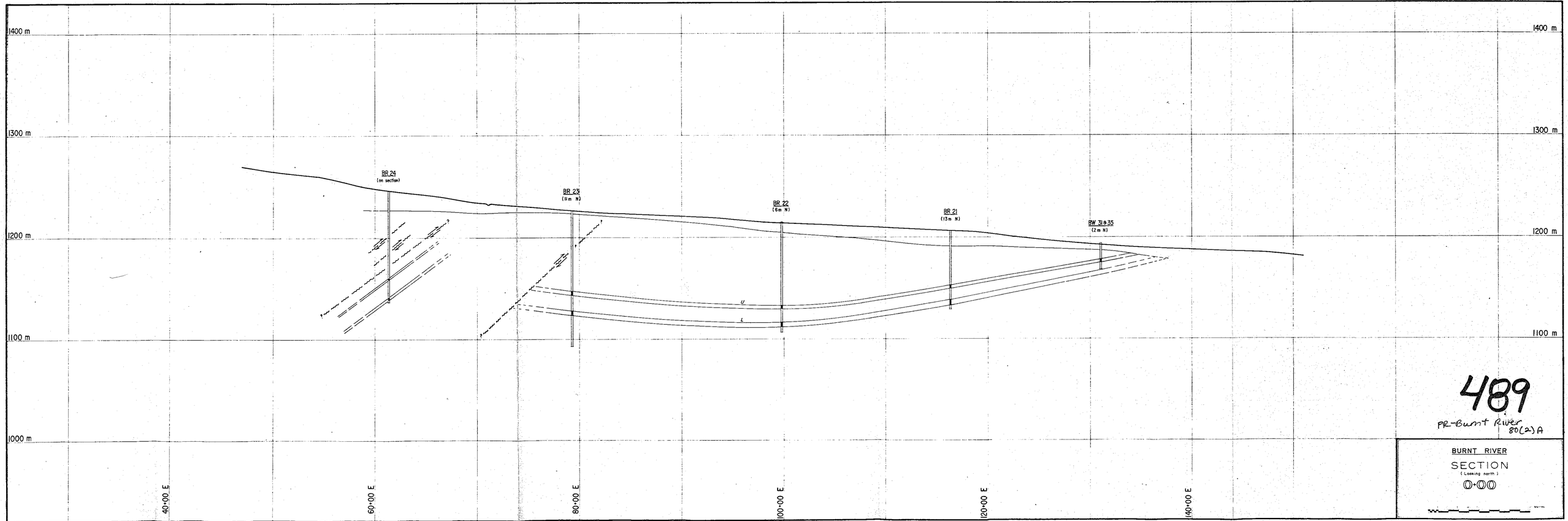
FIG-15

PRESUMPT RIVER BASIN



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PR-Burnt River
80(2) A

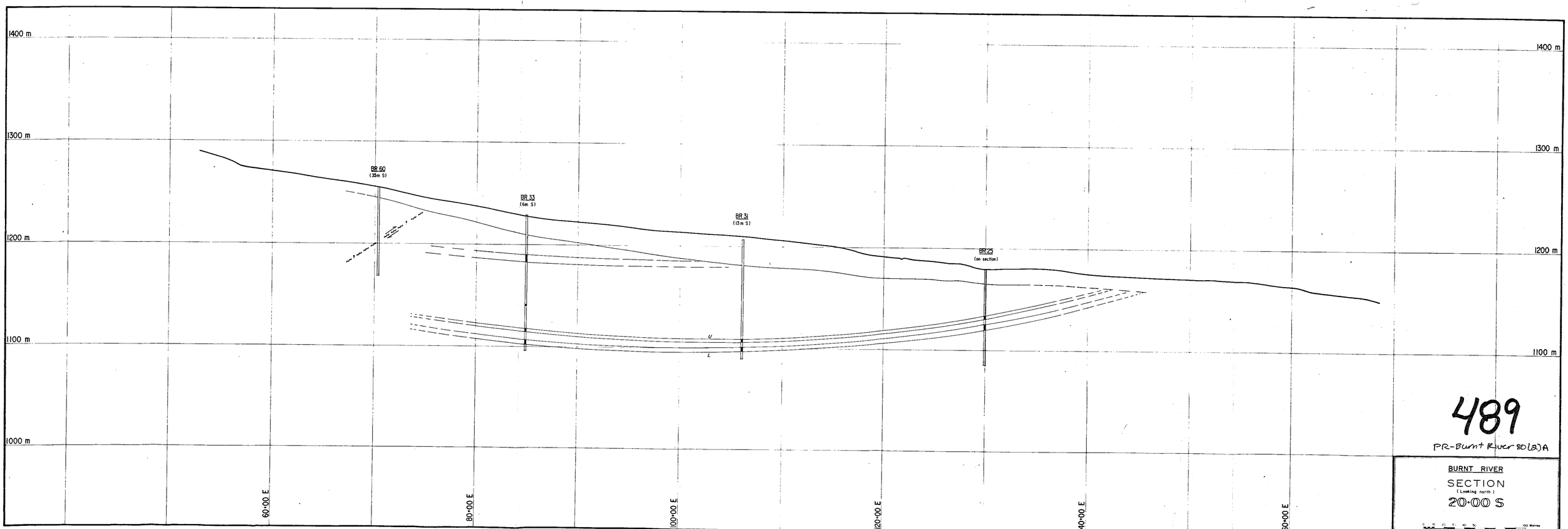
BURNT RIVER

SECTION

(Looking north)

0+00

1400 m
1300 m
1200 m
1100 m
1000 m
BR 47
(8m S)
BR 34
(15m S)
BR 35
(8m N)
BR 36
(22m N)
BR 48
(37m N)
BR 61
(45m N)
(Approx) 60
'D'
'C'
U
L
60+00 E
80+00 E
100+00 E
120+00 E
140+00 E
160+00 E
PR-Burnt River 80(2)A
489
BURNT RIVER
SECTION
(Looking north)
20+00 N
0 10 20 30 40 50 100 Metres



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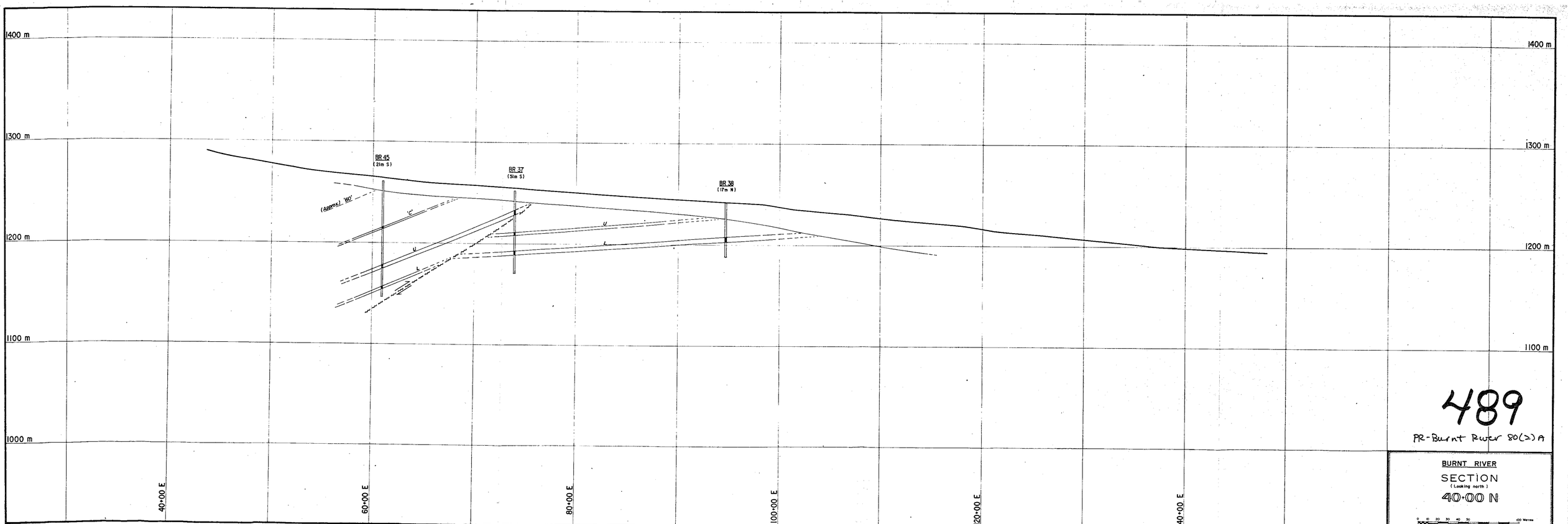
PR-Burnt River 80(2)A

BURNT RIVER

SECTION

(Looking north)

20+00 S



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PR-Burnt River 80(2) A

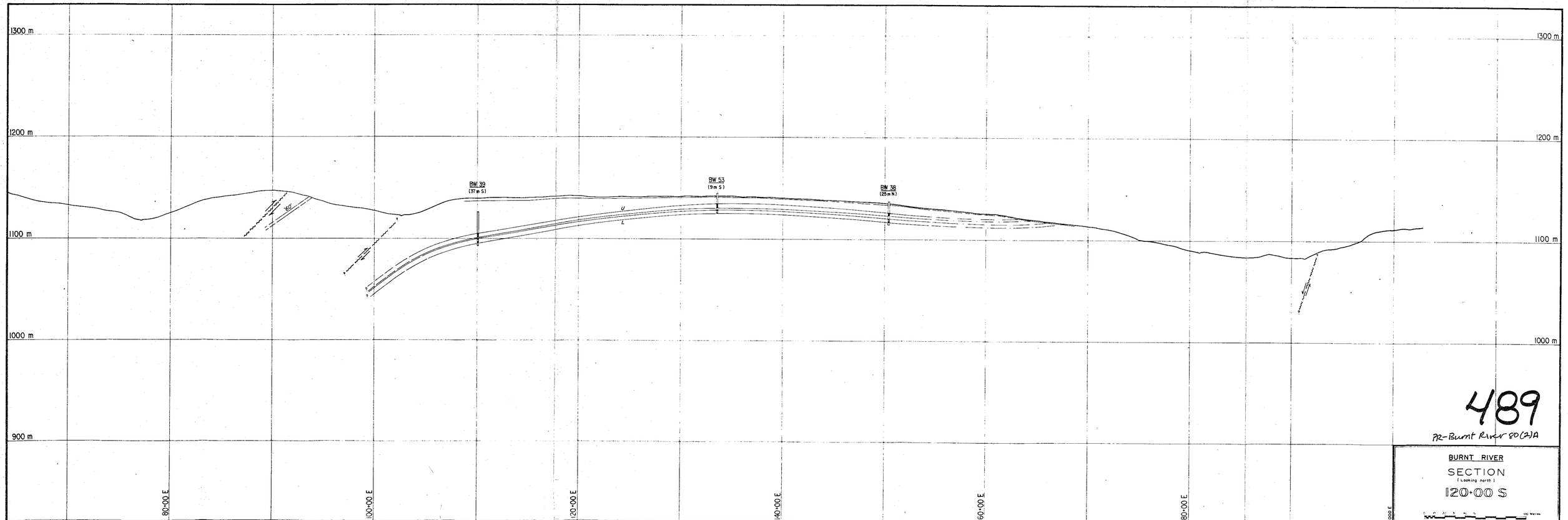
BURNT RIVER

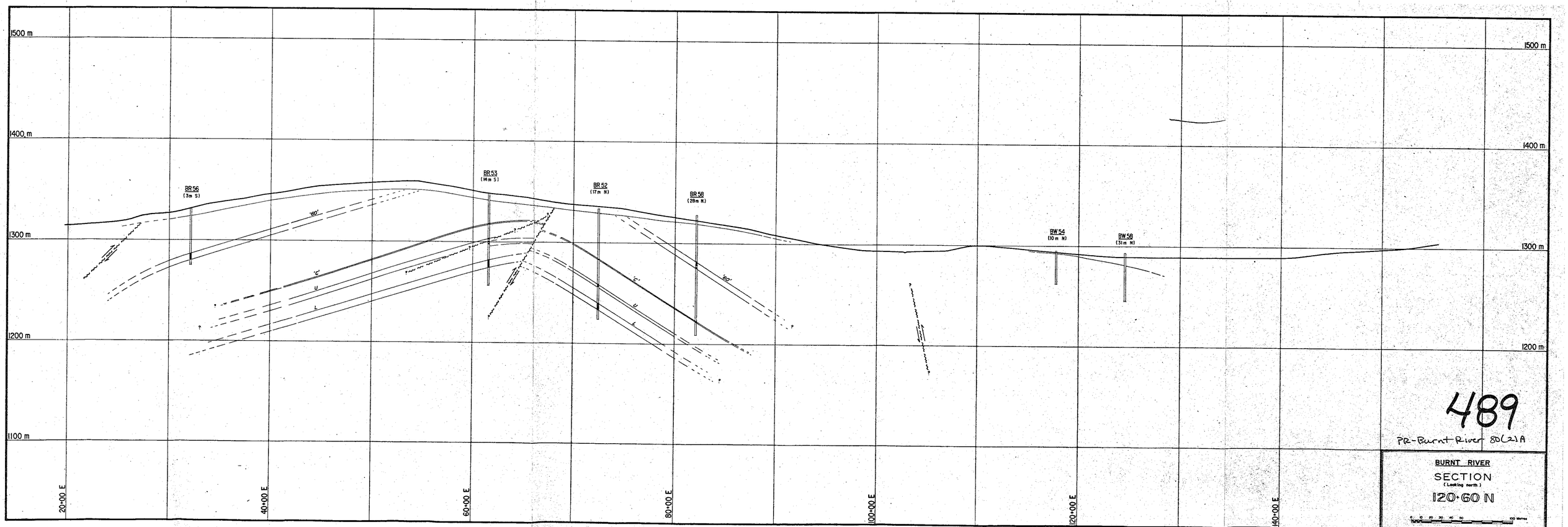
SECTION

(Looking north)

40+00 N

0 10 20 30 40 50 100 Metres


1300 m
1200 m
1100 m
1000 m
900 m
80°
BW 39
(37 m S)
BW 53
(9 m S)
BW 38
(25 m N)
U
L
80-00 E
100-00 E
120-00 E
140-00 E
160-00 E
180-00 E
200-00 E
489
PR-Burnt River 80(2)A
BURNT RIVER
SECTION
(Looking north)
120·00 S
0 20 40 60 80 100 Metres



489

PR-Burnt River 80(21)A

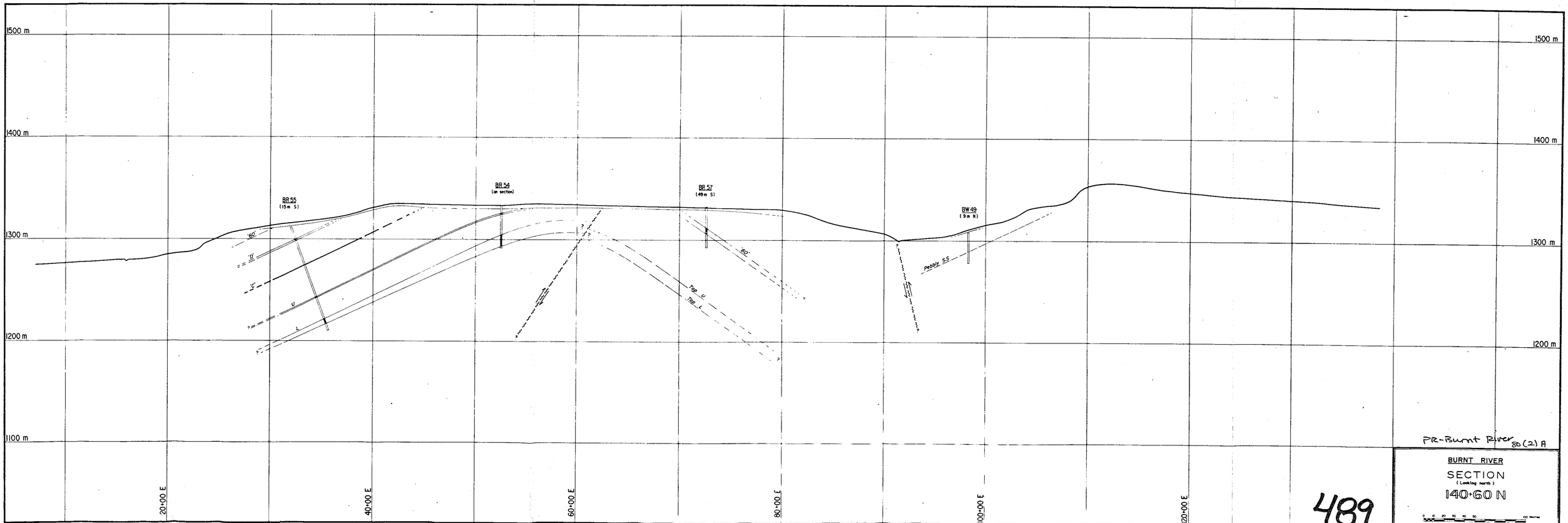
BURNT RIVER

SECTION

(Looking north)

120+60 N

0 10 20 30 40 50 100 Metres



PR-Burnt River 80(2) A

BURNT RIVER

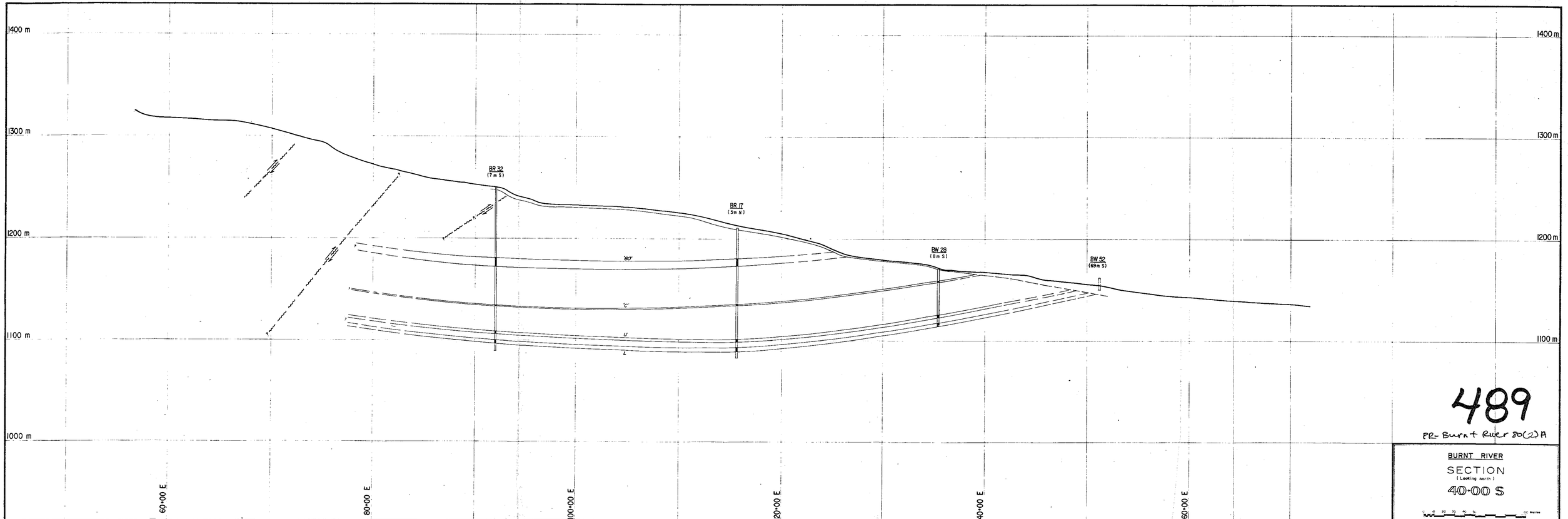
SECTION

(Looking north)

140+60 N

489


1500 m
1400 m
1300 m
1200 m
1100 m
BR 59
(11m S)
(Approx.) '60'
'D'
'C'
U
L
0+00
20+00 E
40+00 E
60+00 E
80+00 E
100+00 E
120+00 E
140+00 E
PR-Burnt River 82L21A
489
BURNT RIVER
SECTION
(Looking north)
160+60 N
0 10 20 30 40 50 100 Metres



489

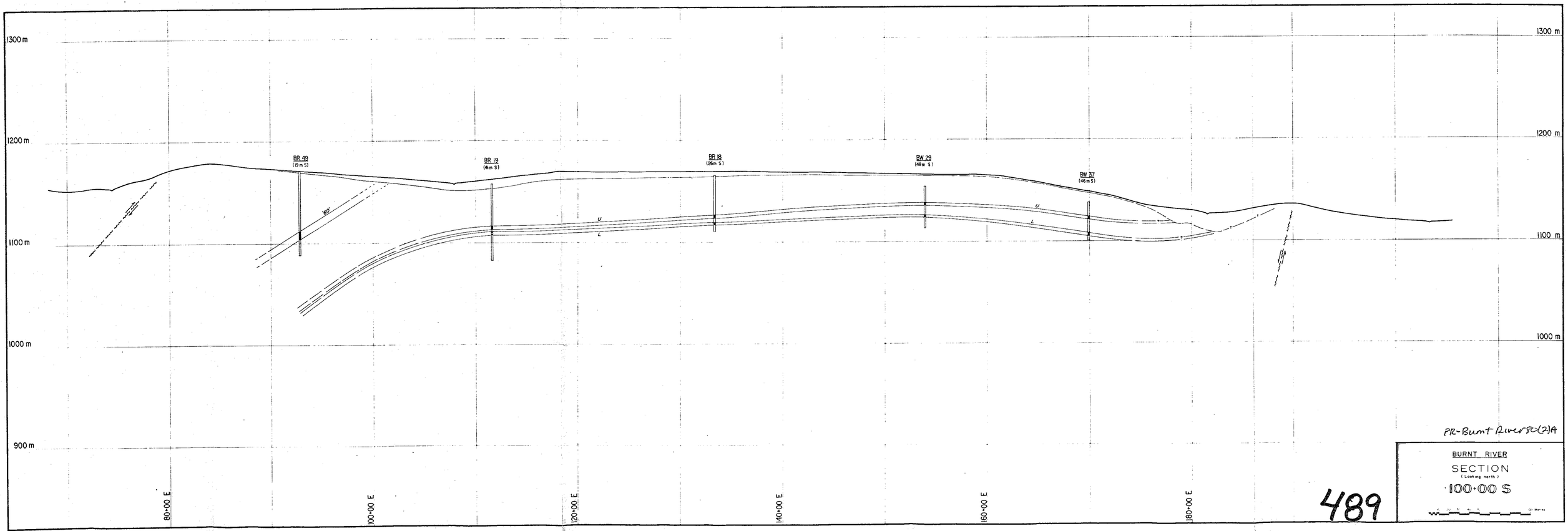
PR- Burnt River 30(2) A

BURNT RIVER

SECTION

(Looking north)

40·00 S



PR-Burnt River 5(7)A

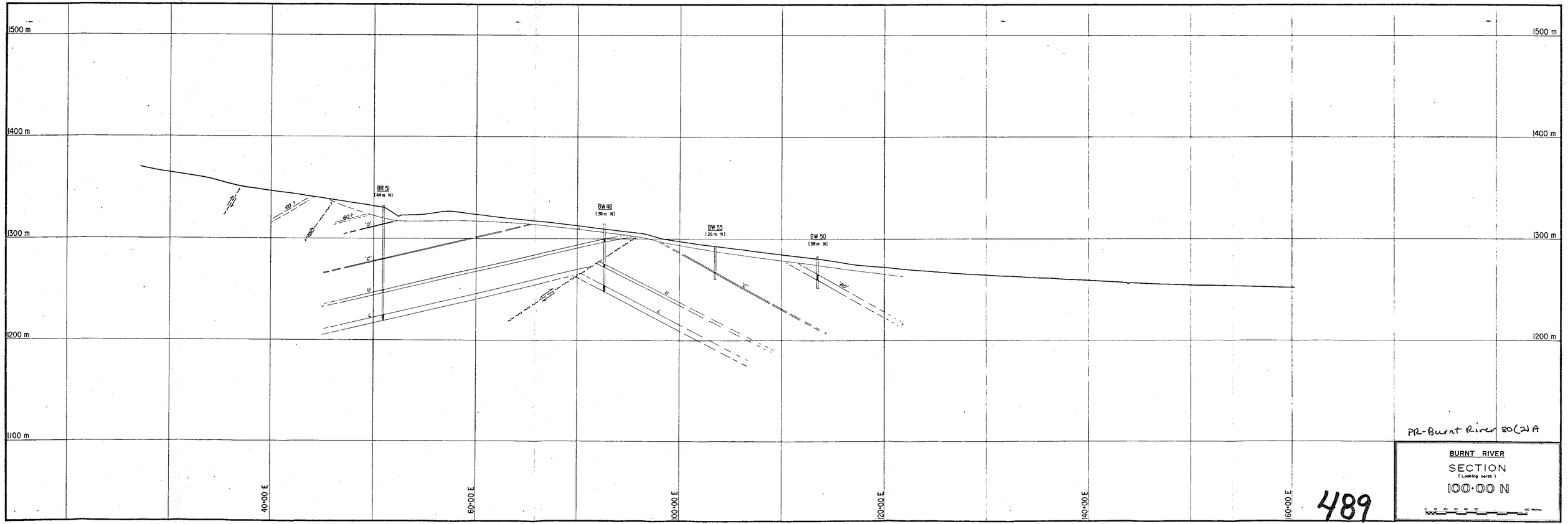
BURNT RIVER

SECTION

(Looking north)

100·00 S

489



PR-Burnt River 80(2)A

BURNT RIVER

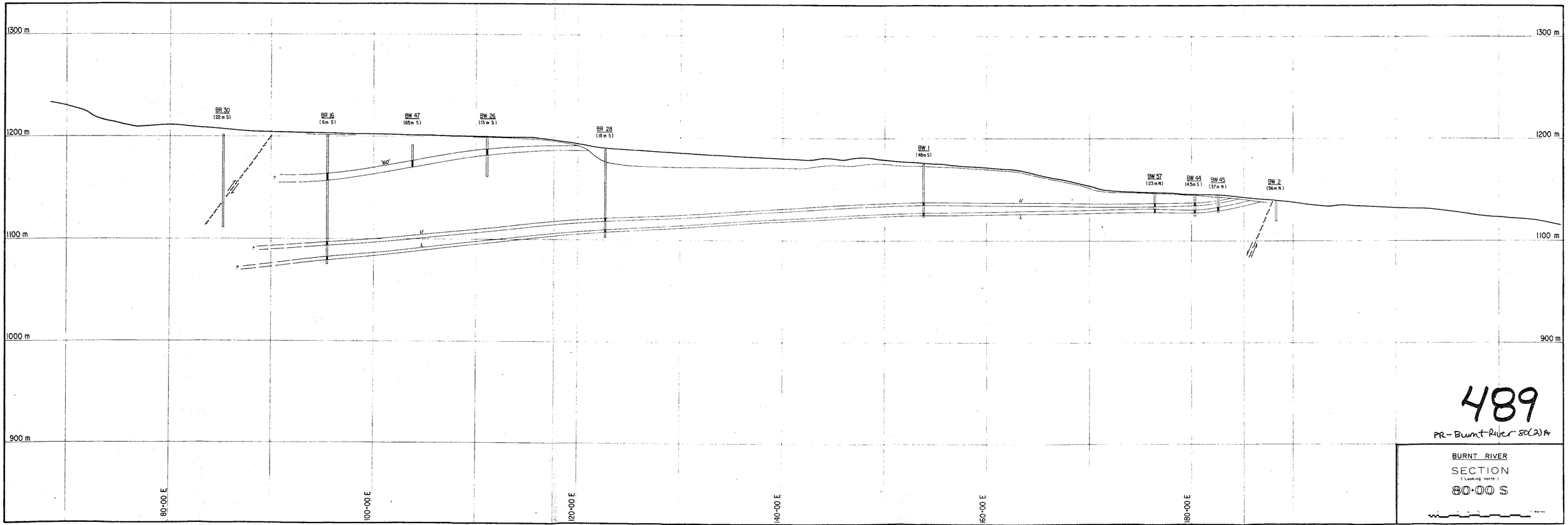
SECTION

(Looking north)

100·00 N

0 10 20 30 40 50 100 Metres

489



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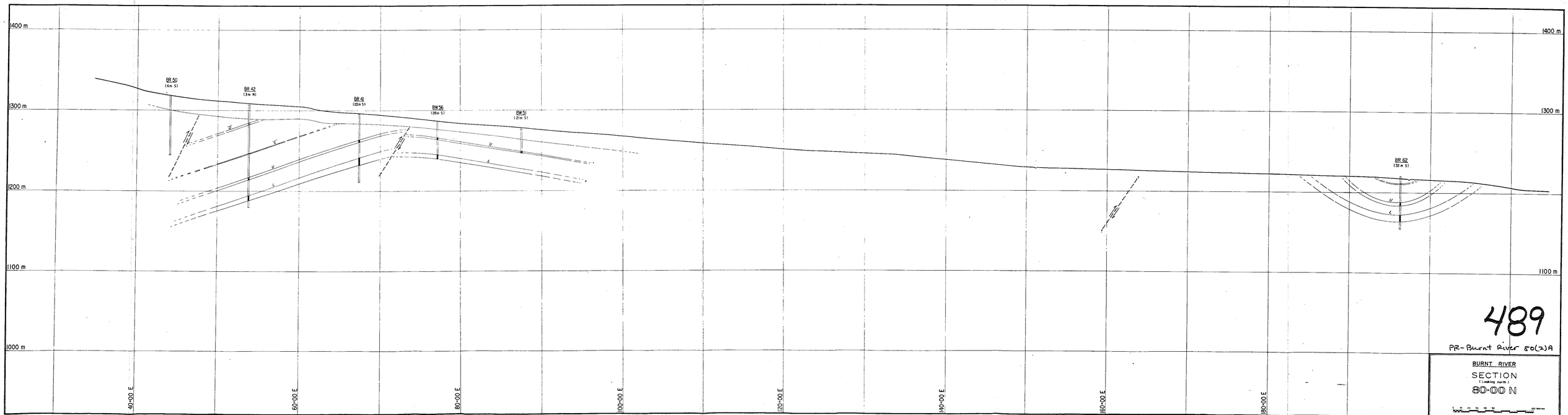
PR - Burnt River 80(2) A

BURNT RIVER

SECTION

(Looking north)

80+00 S



489

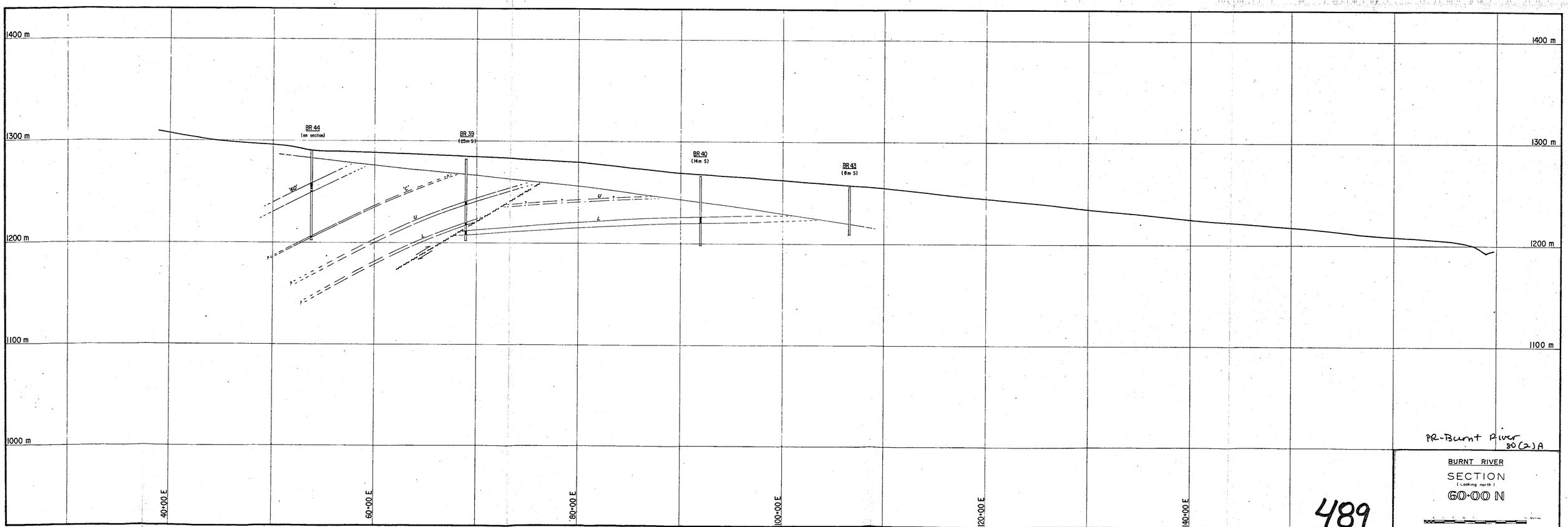
PR-Burnt River 80(7)A

BURNT RIVER

SECTION

(looking north)

80-00 N



PR-Burnt River
80(2)A

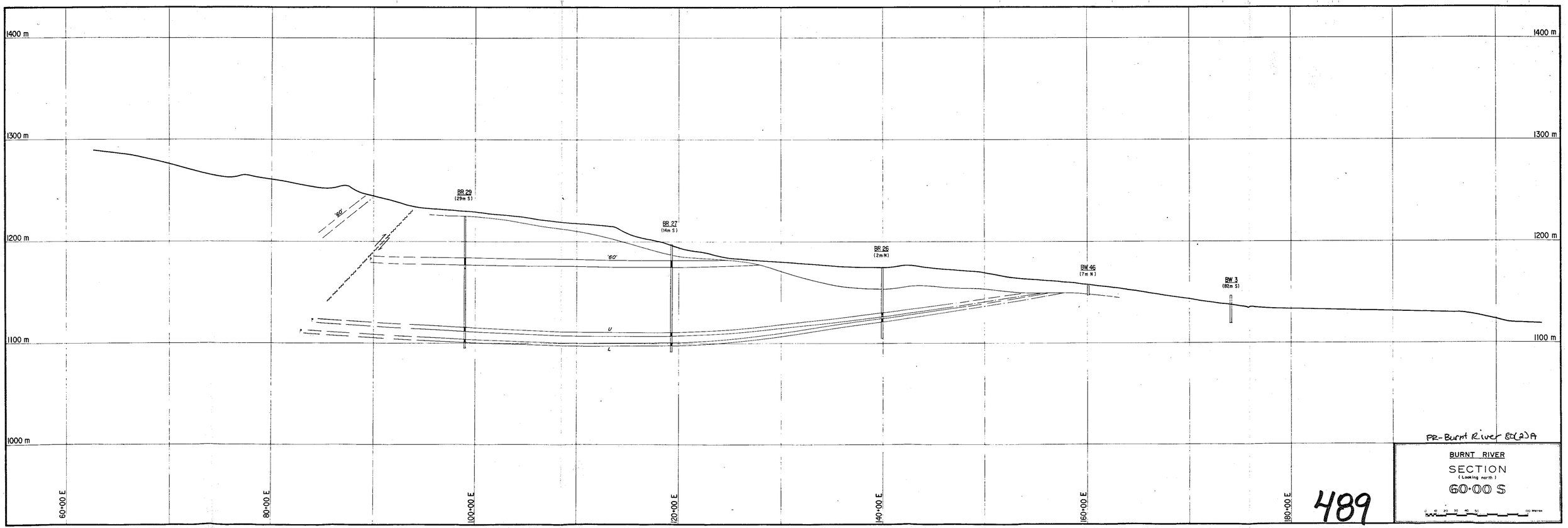
BURNT RIVER

SECTION

(Looking north)

60+00 N

489



PR-Burnt River 82(2)A

BURNT RIVER

SECTION

(Looking north)

60+00 S

0 10 20 30 40 50 100 Metres

489

PR-Burnt River
80(1)A

OPEN FILE

REPORT
on the
1980 EXPLORATION PROGRAM
for the
BURNT RIVER COAL PROPERTY

(Coal Licences 4524-4529, 3061-3088 inclusive)
SUKUNKA RIVER AREA, B.C.
(93 P/5W)

By
B.I. McClymont, P.Geol.
J.H. Wright, P.Eng.
for
TECK CORPORATION
and
AMALGAMATED BRAMEDA-YUKON LIMITED

00489

Vancouver, B.C. January 1981

SUMMARY AND CONCLUSIONS

The 1980 drill program was a direct continuation of the 1978 program. The objective of the 1980 work was to determine the total quantity and quality of coal in the main reserve area outlined previously, as well as to obtain detailed information on the geology in that area.

The quality of coal was consistent with that which was indicated in 1978. The coals have a very low ash content, are high in calorific value, and are low in volatile matter. The free swelling indexes are low but petrographic studies have shown that these coals have high reflectance and high strength characteristics. Coal rank classification is semi-anthracite to low-volatile bituminous.

Due to the more closely spaced drilling pattern, we now have a better knowledge of the structure and coal reserves in the main reserve area.

The stratigraphy is more complex than was apparent from earlier studies. Facies changes occur rapidly over short distances. A more detailed stratigraphic study will be carried out in the future.

Reserves indicated to date are 18.6 million metric tonnes,

with good potential for at least another 3 to 4 million tonnes. A drill program to verify and extend the coal reserve in the main reserve area is recommended. Some fill-in drilling is needed along the western margin to determine the amount of fault displacement in that area.

TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

Refer to: Confidential Coal Analysis File
PR-Burnt River 80(4)A

INTRODUCTION

A detailed exploration program was carried out by Teck Explorations Limited on the Burnt River coal property during the period May 15 to November 1, 1980. The coal licences were formerly held by Brameda Resources Limited and are now in the name of Amalgamated Brameda-Yukon Limited. The 1980 program consisted of diamond drilling, geological mapping, bulk sampling and environmental studies.

A fifteen-man trailer and tent camp was re-established at the site of the 1978 base camp. The project was supervised by Bruce McClymont. George Green, coal consultant, was resident geologist. Other Teck staff included a camp manager, expeditor, Winkie drillers and cooks. Connors Drilling supplied a four-man crew to operate a Boyles 37A diamond drill on a 24-hour basis. Target Tunnelling supplied a nine-man crew to carry out aditing and bulk sampling.

The thrust of the 1980 program was to gain information on geology and coal quality in the main reserve area in order to establish a mineable reserve of thermal coal. This report is intended as a compilation of all data acquired to date and will be the basis of a mining feasibility study.

The program was co-ordinated with the British Columbia Department of Mines and the local B.C. Forest Service office. A detailed report on reclamation has been submitted.

PROPERTY, LOCATION, ACCESS

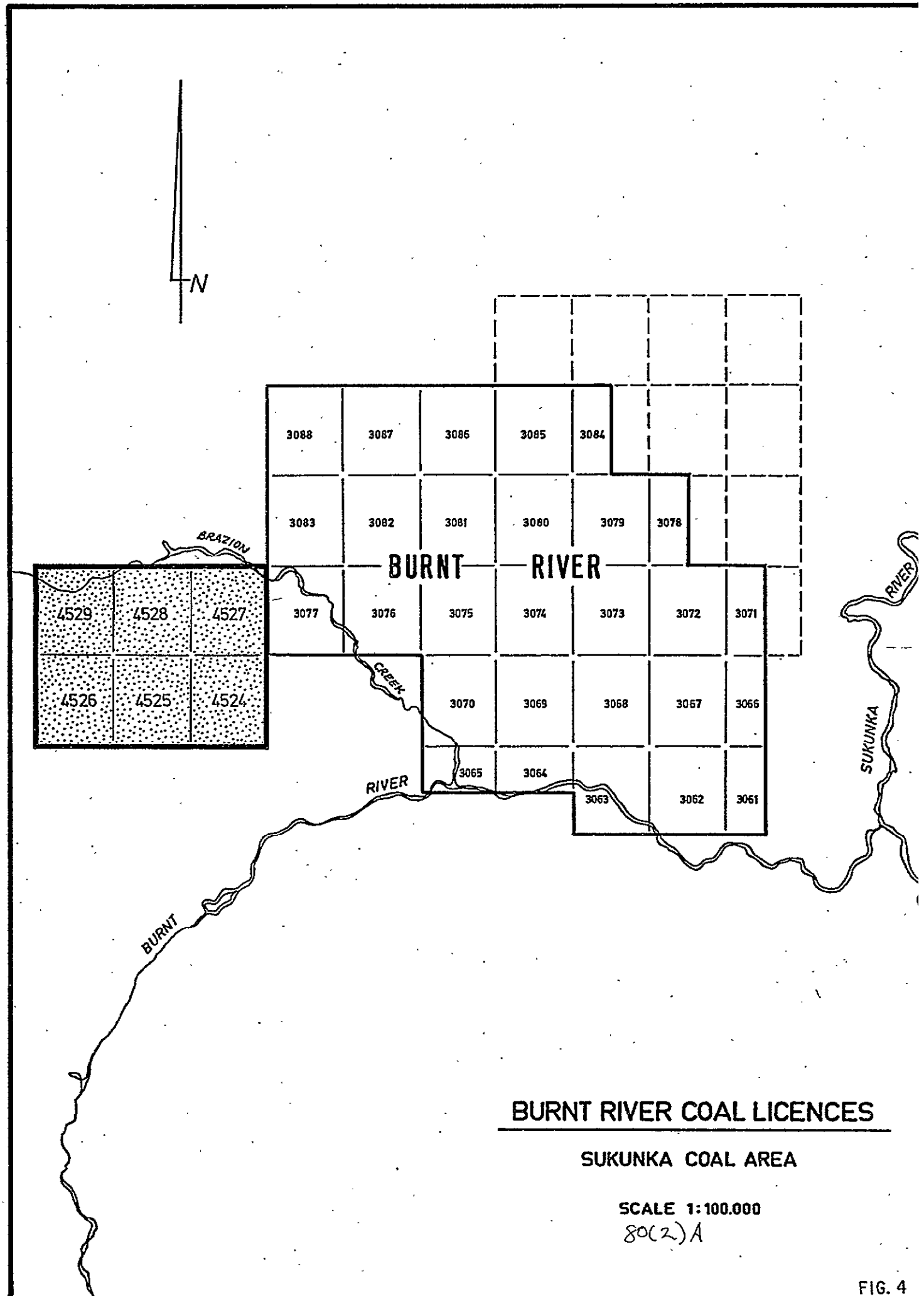
The 28 Burnt River coal licences and the 6 West Brazion coal licences have been grouped together for assessment purposes to comprise one property held by Amalgamated Brameda-Yukon Limited (Figure 4). The property is located 38 kilometers south-southwest of Chetwynd, B.C. (64 kilometers by road) in the Liard Mining Division (Figure 5). The licences cover approximately 22,000 acres.

Access to the base camp for the 1980 program was described in the 1978 report. B.P. Oil & Gas and Canfor Forest Products are constructing an all-weather haul road onto the property. This access route crosses the Sukunka River at Mile 25 and extends northwest onto the licences to within 2.5 kilometers of the Teck base camp. The road construction should be completed early in 1981 and will provide future access to the coal deposits.

Local access roads (11.3 kilometers) for drilling and bulk sampling were constructed for bombardiers and, if conditions permitted, 4 x 4 trucks. Maximum use was made of existing logging roads and seismic trails.

PREVIOUS WORK

The Burnt River licences were acquired in 1970. Prior to 1976 only intermittent geologic mapping had been done. Mapping continued in 1977 and preliminary helicopter-supported diamond drilling was carried out on three of the major seams known to exist at that time. Four holes were put down to test the coal



BURNT RIVER COAL LICENCES

SUKUNKA COAL AREA

SCALE 1:100.000

80(2)A

FIG. 4

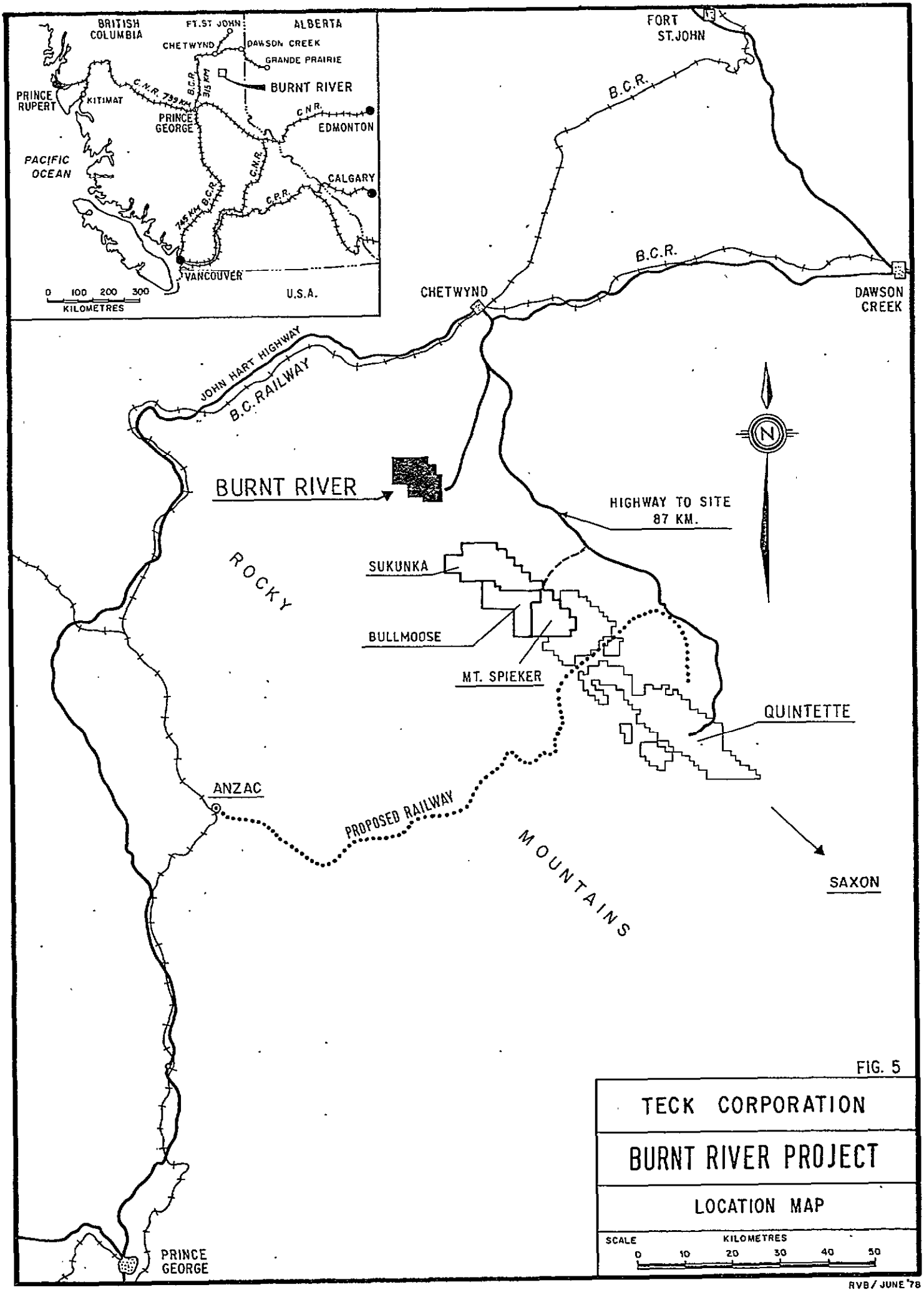


FIG. 5

TECK CORPORATION

BURNT RIVER PROJECT

LOCATION MAP

SCALE KILOMETRES 0 10 20 30 40 50

RVB / JUNE '78

seams as well as to give stratigraphic information on the coal measures.

The 1978 program was designed to increase our knowledge of the stratigraphy and structure of the area as well as to determine the extent and quality of the coal seams located in the earlier programs. Detailed mapping and drilling verified the complex nature of the Gething Formation in this area. During the latter part of the program, a shift in emphasis was given to detailed work on specific targets.

The ten new licences picked up in 1977 on the northeastern margin of the property were mapped during 1978. The geology was indicated to be unfavourable for the occurrence of economic coal deposits and these licences were allowed to lapse.

During 1979 the six West Brazion licences acquired in 1978 were investigated. A limited amount of geological mapping and diamond drilling was carried out. Coal seams occur within a relatively small area.

SURVEYING

Staples & Associates were engaged during the program to set up a U.T.M. survey grid. High-level and low-level controls were established for aerial photography. Staples also surveyed some of the drill holes and drill roads.

Aerial photography was carried out by Burnett Resource Surveys Ltd. during the first week of October. Topographic maps at scales of 1:5,000 and 1:10,000 were produced by Burnett from

these photos. The 1:5,000 topographic map covers the main reserve area and adjacent areas where thick coal is known to occur. The scales of air photos were 1:10,000 (low level) and 1:32,000 (high level).

DIAMOND DRILLING

A diamond drill contract was awarded to Connors Drilling of Vancouver for 2,000 meters of NQ drilling, later extended to 3,000 meters. Drilling started June 7th and was completed September 11th. Thirty-eight holes were drilled for a total of 3,144.62 meters. The drill used was a skid-mounted Boyles 37A. Four drillers worked two 12-hour shifts, seven days a week. Down time was minimal; however, moving between holes was hampered by extremely muddy, wet conditions. Connors averaged 17.22 meters per shift including drill moves. Drill hole spacing was 200 meters with some 100 meter step-out and fill-in holes. Core recovery was considered fair in Seam 60 and good in the Upper and Lower seams. Figure 8 shows the location of the drill holes.

Teck Explorations Limited supplied a portable Winkie drill and drill crew for the 1978 and 1980 programs. The function of the Winkie drill was threefold:

1. Prospecting and seam tracing.
2. Pilot-hole drilling for selection of adit locations for bulk sampling.
3. Grid drilling of shallow holes within the main reserve area.

TABLE II

COAL RECOVERY DATA

SEAM	No. of times intersected			RANGE - % RECOVERY			AVG. - % RECOVERY		
	BW	BR	total	BW	BR	RANGES	AVG. BW	AVG. BR	AVG. TOTAL
60	4	10	14	74.8% - 92%	10% - 85.2%	10% - 92%	81.9%	54.9%	62.6%
UPPER	9	22	31	25% - 100%	18.3% - 100%	18.3% - 100%	83.9%	78.5%	80.0%
LOWER	8	29	37	47.4% - 100%	52.9% - 96.2%	47.4% - 100%	85.4%	78.3%	79.8%

In total, twenty-seven holes were drilled with the Winkie drill for 691.89 meters with an average hole depth of 25.60 meters. Core recovery was excellent (see Table III). The drill was moved by truck, bombardier or carried by hand. Drill holes in areas of heavy overburden were usually abandoned, but our capacity to handle deeper overburden increased over that in 1978. Drill hole BW-51 had 15.85 meters of overburden and all the casing was retrieved upon hole completion.

As before, the Winkie drill proved to be a valuable tool and is recommended for use in future coal projects.

A summary of drilling data is given in Table III.

GEOPHYSICAL LOGGING

Borehole geophysical logging was performed by B.P.B. Instruments of Calgary. The logging unit was truck mounted, but on several occasions it was placed on a bombardier for access to difficult sites.

The suite of logs recorded were gamma-ray, neutron-neutron, and sidewall density. These logs were at a scale of 1:100 and 1:200. Detailed density logs (BRD and LSD) were used in detailing coal seams (scale of 1:20). The BRD detail logs were used by the geologist to aid in coal sampling and later by coal preparation engineers for compositing coal plys for coal quality studies.

HOLE NO	T.D. ft./m.	DRILL DATES	SEAM 60	UPPER SEAM	LOWER SEAM	SAMPLED	SHIPPED	γ	LOGS RUN DENSITY	LOGS RUN NEUTRON	F.E.	CASING	CORE LOGGED	CORE LOCATION	PHOTO	REMARKS
BW-32	51.7'/15.75m.	JUNE 7- 9	SEISMIC SEAM @ 7.1m.	-	-	/	JUNE 27	-	-	-	-	PULLED	/	CAMP	-	
BW-33	52.8'/16.1 m.	JUNE 8- 9	SEISMIC SEAM @ 7.1m.	-	-	/	JUNE 27	-	-	-	-	PULLED	/	CAMP	-	
BW-34	77.7'/23.7 m.	JUNE 12-13	SEISMIC SEAM @16.8m.	-	-	/	JUNE 27	-	-	-	-	PULLED	/	CAMP	-	
BW-35	83.7'/25.5 m.	JUNE 14-16	-	15.8 m.	25.4 m.	/	JUNE 27	-	-	-	-	PULLED	/	CAMP	-	HOLE STOPPED/TOP OF LOWER
BW-36	40' /12.2 m.	JUNE 17-18	-	-	-	-	-	-	-	-	-	PULLED	-	CAMP	-	OVERBURDEN ONLY
BW-37	123' /37.5 m.	JUNE 22-24	-	15.9 m.	31.9 m.	/	JULY 3	/	/	/	-	3'/0.91m. PULLED	/	CAMP	-	
BW-38	73.5'/22.4 m.	JUNE 25-27	-	10.5 m.	16.5 m.	/	JULY 14	/	/	/	-	PULLED	/	CAMP	-	
BW-39	116.6'/35.5 m.	JULY 5-11	-	23.6 m.	28.β m.	?	JULY 14	/	/	/	-	PULLED	/	CAMP	-	LOG LOST
BW-40	52.1'/15.9 m.	JULY 12	3.1m.	-	-	/	JULY 17	/	/	/	-	PULLED	/	CAMP	-	
BW-41	73.8'/22.5 m.	JULY 13-14	9.7m.	-	-	/	JULY 17	/	/	/	-	PULLED	/	CAMP	-	
BW-42	37.1'/11.3 m.	JULY 16-17	-	8 m.	-	/	?	-	-	-	-	PULLED	/	CAMP	-	HOLE CAVED
BW-43	40.3'/12.3 m.	JULY 18-19		4.6 m.	10 m.	/	AUG. 17	-	-	-	-	PULLED	/	CAMP	-	RODS BROKE OFF IN LOWER SEAM
BW-44	75.5'/23.1 m.	JULY 22-23	-	10 m.	16.8 m.	/	JULY 30	/	/	/	-	PULLED	/	CAMP	-	
BW-45	56' /17 m.	JULY 23-24	-	-	8.8 m.	/	JULY 30	-	-	-	-	PULLED	/	CAMP	-	HOLE CAVED
BW-46	30.8'/ 9.4 m.	JULY 28	-	-	-	-	-	-	-	-	-	22'/6.7m. PULLED	-	CAMP	-	OVERBURDEN TO TOTAL DEPTH
BW-47	65.6'/20 m.	JULY 29-31	11.2m.	-	-	/	AUG. 2	/	/	/	Res.	2'/0.6m. PULLED	/	CAMP	-	DEMONSTRATION/LOG NOT TAPED
BW-48	205' /62.5 m.	AUG. 7-14	-	9.1m./34.1m.	55 m.	/	?	/	/	/	-	2'/0.6m. PULLED	/	CAMP	-	RES. FAULTED UPPER SEAM
BW-49	97.7'/29.8 m.	AUG. 19-23	-	-	-	-	-	/	/	/	-	2'/0.6m. PULLED	/	CAMP	-	
BW-50	102' /31.1 m.	AUG. 23-26	17.2m.	-	-	/	SEP. 16	/	/	/	/	2'/0.6m. PULLED	/	CAMP	-	
BW-51	98.7'/30.1 m.	AUG. 27	-	28.2 m.	-	/	-	/	/	/	-	52'/15.9m. PULLED	/	CAMP	-	
BW-52	40' /12.2 m.	SEP. 10-11	-	-	-	-	-	-	-	-	-	PULLED	-	-	-	OVERBURDEN ONLY
BW-53	66.3'/20.2 m.	SEP. 15-16	-	11.3 m.	16.4 m.	/	SEP. 18	-	-	-	-	3'/0.91m. LEFT	/	CAMP	-	HOLE CAVED, LOWER SEAM SPLIT
BW-54	108' /32.9 m.	SEP. 16-26	-	-	-	-	-	/	/	/	-	4'/1.2m. LEFT	/	CAMP	-	NO COAL, RODS STUCK
BW-55	106' /32.31m.	SEP. 26-30	MARKER "C" @29.5m.	-	-	-	-	/	/	/	-	14'/4.3m. PULLED	/	CAMP	-	MARKER C AT 29.5M
BW-56	151.5'/46.18m.	OCT. 1- 4	-	18.22 m.	38.90m.	/	OCT. 8	/	/	/	-	32'/9.8m. PULLED	/	CAMP	-	
BW-57	66' /20.06m.	OCT. 5- 6	-	9.75 m.	15.30m.	/	OCT. 8	-	-	-	-	15'/4.6m. PULLED	/	CAMP	-	
BW-58	157' /47.85m.	OCT. 20-25	-	-	-	-	-	-	-	-	-	26'/7.9m. PULLED	/	CAMP	-	MINOR COAL

Total 2,270'/692m.

TABLE III

HOLE NO	T.D. ft./m.	DRILL DATES	SEAM 60	UPPER SEAM	LOWER SEAM	SAMPLED	SHIPPED	γ	LOGS RUN DENSITY	LOGS RUN NEUTRON	F.E.	CASING	CORE LOGGED	CORE LOCATION	PHOTO	REMARKS
BR-19	247'/ 75.3m.			38 m.	43.3m.	/		/	/	/	/	PULLED	/	CAMP	/	RODS
BR-25	307'/ 93.6m.	JUNE 7- 9	N.A.	45 m.	62 m.	/	JULY 14	/	/	/	/	85'/26.2m. PULLED	/	DEPT.MINES	/	OPEN
BR-26	228'/ 69.5m.	JUNE 9-11	N.A.	44.2m.	60.3m.	/	JULY 14	/	/	/	-	34'/10.4m. PULLED 63'/19.2m. PULLED	/	CAMP	/	OPEN
BR-27	348'/106 m.	JUNE 12-14	16.4m.	87.2m.	97.2m.	/	JULY 6	/	/	/	-	37'/11.3m. PULLED	/	CAMP	/	OPEN
BR-28	284'/ 86.5m.	JUNE 14-15	N.A.	66.8m.	78.3m.	/	JULY 14	/	/	/	/	52'/15.9m. LEFT	/	CAMP	/	OPEN
BR-29	192'/ 58.5m.	JUNE 16-17	40.2m.	-	-	/	JULY 14	/	/	/	-	10'/ 3.1m. PULLED	/	CAMP	/	OPEN
BR-29	426'/129.9m.	JULY 30-31	-	108.7m.	120.5m.	/	AUG. 14	/	/	/	-	10'/ 3.1m. PULLED	/	CAMP	/	LOGGED IN RODS
BR-30	Deepened 303'/ 91 m.	AUG. 5- 7	N.A.	N.A.	N.A.	NO COAL		/	/	/	-	20'/ 6.1m. PULLED	/	CAMP	OMIT	FAULTED/RODS
BR-31	385'/117.3m.	JUNE 18-20	N.A.	98.5m.	105.4m.	/	JULY 14	/	/	/	-	100'/30.5m. PULLED	/	CAMP	/	OPEN
BR-32	526'/160.3m.	JULY 27-30	68.6m.	141.5m.	149.8m.	/	AUG. 14	/	/	/	-	10'/ 3.1m. PULLED	/	DEPT.MINES	/	LOGGED IN RODS
BR-33	437'/133.2m.	JULY 24-26	39.5m.	111.9m.	123.1m.	/	JULY 3	/	/	/	/	64'/19.5m. PULLED	/	CAMP	/	LOGGED OPEN
BR-34	308'/ 93.9m.	JUNE 21-23	N.A.	67.7m.	83.4m.	/	JULY 3	/	/	/	-	62'/18.9m. PULLED	/	DEPT.MINES	/	RODS
BR-35	218'/ 66.4m.	JUNE 25-26	N.A.	34.6m.	54.1m.	/	JUNE 29	/	/	/	-	54'/16.6m. PULLED	/	CAMP	/	OPEN
BR-36	188'/ 57.3m.	JUNE 23-25	N.A.	33.4m.	46.4m.	/	JULY 6	/	/	/	-	86'/26.2m. PULLED	/	CAMP	/	RODS
BR-37	198'/ 60.4m.	JUNE 26-28	N.A.	28.6m.	50.3m. 68.4m.	/	JUNE 30	/	/	/	/	32'/ 9.8m. PULLED	/	CAMP	/	RODS AND OPEN
Deepened BR-38	267'/ 81.4m. 117'/ 53 m.	JULY 7- 8	N.A.	-	31 m.	/	?	/	/	/	-	50'/15.2m. PULLED	/	CAMP	/	FAULT 30-36m. ? RODS
BR-39	273'/ 83.2m.	JUN29-JUL1	N.A.	45.3m.	65.1m. 73.4m.	/	JULY 6	/	/	/	-	64'/19.5m. PULLED	/	CAMP	/	RODS/FAULTED LOWER
BR-40	225'/ 68.6m.	JULY 6- 7	N.A.	N.A.	41.4m.	/	JULY 14	/	/	/	-	86'/26.2m. PULLED	/	CAMP	/	RODS
BR-41	278'/ 84.7m.	JULY 2- 3	N.A.	36.2m.	58.2m.	/	JULY 14	/	/	/	-	42'/12.8m. PULLED	/	CAMP	/	RODS
BR-42	418'/127.4m.	JULY 4- 6	N.A.	91.1m.	113.6m.	/	JULY 14	/	/	/	-	65'/19.8m. PULLED	/	CAMP	/	OPEN
BR-43	155'/ 47.2m.	JULY 9-11	-	-	-	-		/	/	/	-	124'/37.7m. PULLED	/	CAMP	OMIT	BELOW LOWER SEAM RODS
BR-44	290'/ 88.3m.	JULY 11-13	32 m.	-	-	/	?	/	/	/	-	24'/ 4.3m. PULLED	/	CAMP	/	RODS
BR-45	317'/ 96.6m.	JULY 14-16	Marker "C" @ 50.3m.	85 m.	-	/	?	/	/	/	-	43'/13.1m. PULLED	/	CAMP	/	RODS
BR-45	376'/114.6m.	JULY 21-22	-	-	106.3m.	/	JULY 23	/	/	/	-	43'/13.1m. PULLED	/	CAMP	/	RODS
BR-46	Deepened 300'/ 91.4m.	JULY 16-19	Marker "D" @ 26.2m.	N.A.	N.A.	NO		/	/	/	-	36'/11 m. PULLED	/	CAMP	/	RODS
BR-47	50'/ 15.2m.	JULY 20-21	N.A.	N.A.	N.A.	NO COAL	-	/	/	/	-	34'/10.4m. PULLED	/	CAMP	/	BROKE RODS OFF ANGLE (-70°) @ BR-46 RODS
BR-48	166'/ 50.6m.	JULY 22-23	N.A.	N.A.	37.8m.	/	JULY 30	/	/	/	-	92'/28 m. PULLED	/	CAMP	/	LOGGED THROUGH RODS AND OPEN
BR-49	272'/ 82.9m.	AUG. 9-11	57.3m.	-	-	/	AUG. 18	/	/	/	-	2'/0.61m. PULLED	/	CAMP	/	RODS
BR-50	242'/ 73.8m.	AUG. 11-14	-	-	-	NO COAL		/	/	/	-	66'/20.1m. PULLED	/	CAMP	OMIT	FAULTED RODS
BR-51	364'/110.9m.	AUG. 14-18	N.A.	73.7m.	98.7m.	/	AUG. 31	/	/	/	-	16'/ 4.9m. PULLED	/	DEPT.MINES	/	RODS
BR-52	210'/ 64 m.	AUG. 18-21	N.A.	-	-	-	-	/	/	/	-	10'/ 3.1m. PULLED	/	DEPT.MINES	/	RODS
BR-52	360'/109.8m.		-	77.8m.	95.8m.	/	SEP. 4	/	/	/	/	10'/ 3.1m. PULLED	/	DEPT.MINES	/	OPEN
BR-53	Deepened 302'/ 92 m.	AUG. 21-23	N.A.	47.3m.	68.4m.	/	SEP. 4	/	/	/	-	26'/ 7.9m. PULLED	/	CAMP	/	RODS
BR-54	136'/ 41.5m.	AUG. 23-24	-	-	28.6m.	/	SEP. 4	/	/	/	-	10'/ 3.1m. PULLED	/	CAMP	/	HIGHLY SHEARED COAL/RODS
BR-55	356'/108.5m.	AUG. 24-26	N.A.	15 m.	98 m.	/	SEP. 4	/	/	/	-	30'/ 9.1m. PULLED	/	CAMP	/	ANGLED -70° EAST/IN RODS
BR-56	187'/ 57 m.	AUG. 27-28	45.8m.	-	-	/	SEP. 4	/	/	/	-	24'/ 7.3m. PULLED	/	CAMP	/	10% COAL RECOVERY/RODS
BR-57	131'/ 39.9m.	AUG. 29-30	21.1m.	-	-	/	SEP. 4	/	/	/	/	10'/ 3.1m. LEFT	/	CAMP	/	OPEN
BR-58	375'/114 m.	AUG30-SEP2	46 m.	-	-	/	SEP. 10	/	/	/	/	10'/ 3.1m. LEFT	/	CAMP	/	RODS
BR-59	291'/ 88.7m.	SEP. 2- 4	-	-	76.9m.	-	SEP. 10	/	/	/	/	16'/ 4.9m. PULLED	/	CAMP	-	FAULTED/NO UPPER/RODS
BR-60	285'/ 86.9m.	SEP. 5- 7	-	-	-	-	-	/	/	/	-	34'/10.4m. PULLED	/	CAMP	-	FAULTED/NO SEAM 60/RODS
BR-61	302'/ 92 m.	SEP. 7- 9	-	-	-	-	-	/	/	/	-	191'/58.2m. PULLED	/	CAMP	-	LOWER GETHING/RODS
BR-62	215'/ 65.5m.	SEP. 10-11	-	32.4m.	47.0m.	/	SEP. 16	/	/	/	-	24'/ 7.3m. PULLED	/	CAMP	/	FAULTED LOWER SEAM/RODS
Total	10,312'/3,143m.															

Focused-electric logs were run on several holes and will be evaluated for their possible use in a visitor analysis program.

Casing was left in the holes until geophysical logging was completed. In most cases, the casing was retrieved later. It was our intention to log all holes "open-hole" but where unfavourable conditions were encountered, the logs were obtained through the drill rods.

Geophysical logging of Winkie holes was very successful. The multisonde could not be used but smaller diameter tools were used to provide gamma-ray, neutron and sidewall density logs.

The geophysical logs were recorded on Sony cassette tapes for future reference.

CORE LOGGING AND SAMPLING

All drill cores were examined in detail and stratigraphic logs were drafted on a scale of 1:200. Overall core recovery was excellent (> 90%). Coal sections averaged 74% recovery, which is considered adequate for quality testing. The coal seams were sampled in several plys to give better control on quality characteristics. Roof and floor rocks (15 centimeters of each) were also taken for use in coal composite studies. Coal sections were logged in detail at 1:20 and superimposed on the detail BRD geophysical logs for inspection and analysis. All samples of coal core were shipped to Cyclone Engineering in Edmonton for proximate analysis.

BULK SAMPLING AND TESTING

Bulk samples of Seam 60, the Upper Seam and the Lower Seam were taken between October 13th and October 24th. Seam 60 was taken as a surface sample. A previous channel sample had confirmed that the ash content and Hardgrove Index of the outcrop material were comparable to the drill sample values. A .6 by .6 meter channel sample across the exposure was hand picked, resulting in sixteen barrels of coal and one barrel each of roof and floor. The roof material is hard mudstone with occasional fine coal bands. The contact appeared to be sharp but was difficult to determine due to the nature of surface exposure. See the following figure for seam lithology.

The Upper Seam sample was taken from an adit 38 meters in length. The sample was taken from a 1 meter by 1 meter channel along the full length of the adit. A total of forty-four barrels of sample were recovered from the channel including one barrel each for roof rock and floor rock. The lithology of the seam is shown on the following table. The roof rock of the Upper Seam is hard mudstone. Sheared mudstone with very few coal partings occurs at the base of the coal. The floor rock is softer than the roof and is softer than some of the coal. It consists of mudstone with fine bands of coal. The Upper Seam was dry during excavation. The cleating was parallel to the adit direction, with dips ranging from 70° and 90° to the west. A channel sample was taken for confirmation of the bulk sample quality. The adit was reclaimed and a 4 meter

length of 1.8 meter diameter culvert was placed in the portal to allow easy access to the adit at a future date.

The Lower Seam adit was selected on the basis of Winkie drill holes but the test work failed to predict the structural complications at the adit site. A small fault, with associated steepening and thickening of the seam, was intersected at 12 meters. Water flow of approximately 30 liters per minute was encountered. The sample was taken in relatively hard and undisturbed coal at 27 meters.

The Lower Seam, where sampled, is 3.51 meters thick. In addition, there are 10 to 20 centimeters of clean coal in the floor, separated by a mudstone parting of 12 centimeters. The roof of the coal is in sharp contact with competent mudstone. The immediate floor consists of 30 centimeters of soft mudstone intercalated with coaly bands. (See Fig. 3) This overlies hard mudstone. A total of 34 barrels of material were taken from the Lower Seam adit, including one of roof, two of the soft mudstone/coal section of the floor, and one of the underlying mudstone.

The bulk samples were shipped to the Birtley Engineering in Calgary for testing. These samples were treated in accordance with ASTM sample procedure methods to obtain a representative sample. A summary of results for the three adit samples are:

Seam	Air Dry Moisture %	Residual Moisture %	Ash %	Volatile Matter %	Fixed Carbon %	Sulphur %	BTU/lb	HGI
Upper	3.4	0.7	6.4	13.0	79.9	.38	14,486	57
Lower	4.4	0.5	8.6	13.4	77.5	.39	14,235	65
60	6.2	0.7	11.7	16.4	71.2	.36	13,546	79

Channel samples, which were taken during the adit program, were used to determine the amount of dilution contained in the bulk samples. Attached are the analyses of channel samples for ash and S.G. for the three seams. (See Figures 1 - 3)

GEOLOGY

Geologic Setting

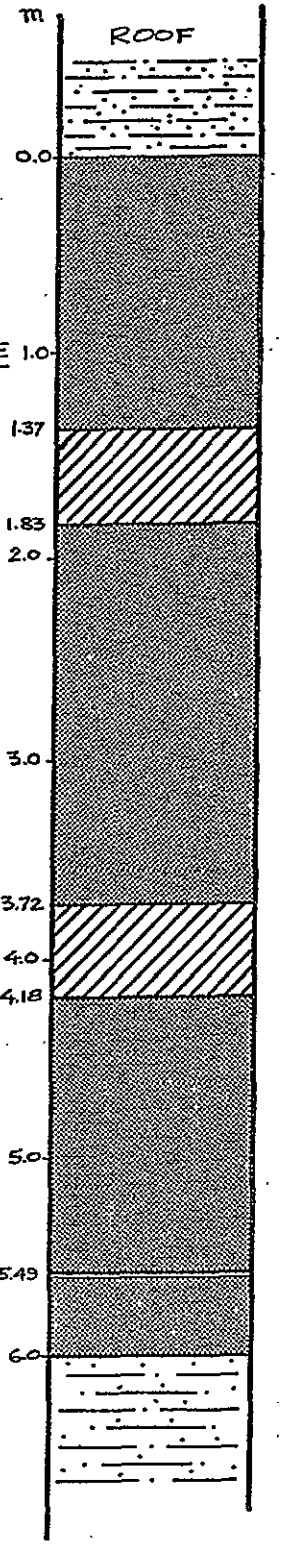
The Burnt River property is situated in the Rocky Mountain Foothills, approximately 65 kilometers east of the Continental Divide. The present landscape has been modified by Pleistocene glaciation and subsequent erosion by water. Elevations range from 700 to 1,400 meters with the steeper slopes confined to the fringes of the property.

The property is underlain by Lower Cretaceous sedimentary rocks which lie along a prominent northwest structural trend. These sediments tend to be tightly folded and are, for the most part, heavily faulted. The property is bounded on the east by the Bullmoose thrust and on the west by the Chamberlain thrust, both of which can be traced back to the Sukunka and Bullmoose coal properties. A number of northwest-trending thrust faults have been interpreted from air photography and surface geology and are believed to be moderate to high-angle, west-dipping faults.

SEAM 60 CHANNEL

CHANNEL COMPOSITE
0.0 m TO 5.98 m
11.4 % ASH, 1.39 S.G.

BULK SAMPLE COMPOSITE
11.7 % ASH, 1.38 S.G.



CARBONACEOUS MUDSTONE 60.05 % ASH
1.97 S.G.

BRIGHT, CLEAN, BLOCKY
4.16 % ASH, 1.33 S.G.

HIGHLY SHEARED, NO VISIBLE ASH
18.09 % ASH, 1.49 S.G.

HARD, BLOCKY
8.53 % ASH, 1.37 S.G.

HIGHLY SHEARED COAL
40.0 % ASH, 1.64 S.G.

9.05 % ASH
1.35 S.G.

ROCK BAND ~ 5 cm.

MUDSTONE ROOF
HARD, COMPETENT
89.80 % ASH

FIGURE I

UPPER SEAM CHANNEL

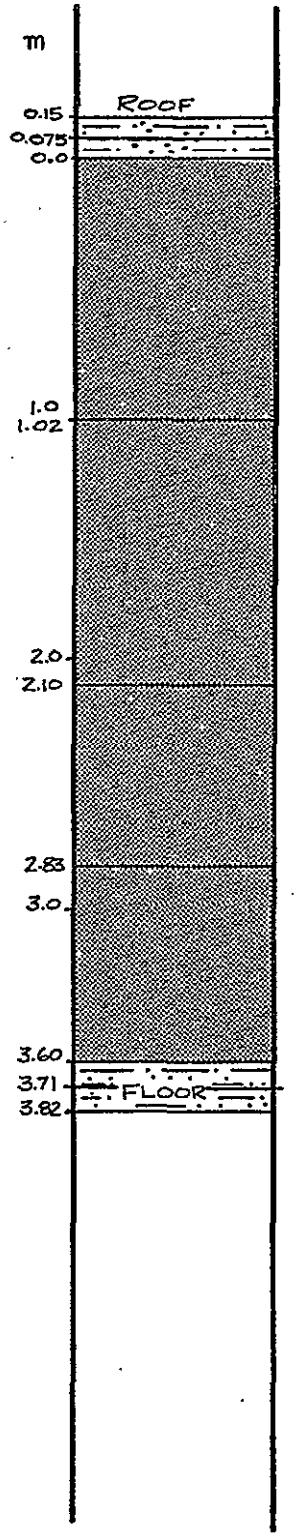
CHANNEL COMPOSITE

0.0 TO 3.60m

6.0% ASH, 1.34 S.G.

BULK SAMPLE COMPOSITE

6.4% ASH, 1.36 S.G.



MUDSTONE 90.7 % ASH, 2.54 S.G.
HIGHLY CARB. 60.9 % ASH, 1.93 S.G.

COAL, HARD, POOR ROOF CONTACT
12.7 % ASH, 1.41 S.G.

VERY HARD, BRIGHT
3.6 % ASH, 1.34 S.G.

HARD, BRIGHT, PARTLY SOFT AND FRIABLE
3.2 % ASH, 1.33 S.G.

HARD, BRIGHT, PARTLY SOFT
2.7 % ASH, 1.32 S.G.

62.2 % ASH, 1.97 S.G.
87.2 % ASH, 2.47 S.G.
} MUDSTONE, CARB.

FIGURE II

LOWER SEAM CHANNEL

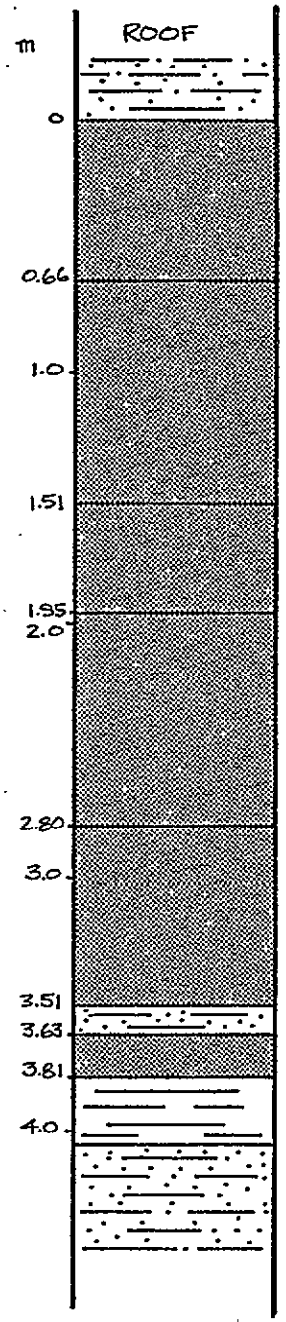
CHANNEL COMPOSITE

0.0 TO 3.51 m

4.0 % ASH, 1.33 S.G.

BULK SAMPLE COMPOSITE

8.6 % ASH, 1.36 S.G.



MUDSTONE, GOOD CONTACT
85.6 % ASH, 2.43 S.G.

HARD, CLEAN, BRIGHT
4.9% ASH, 1.34 S.G.

CLEAN, HARD, BRIGHT
2.6% ASH, 1.31 S.G.

BRIGHT, FRIABLE
2.4 % ASH, 1.34 S.G.

HARD, BRIGHT
3.4 % ASH, 1.33 S.G.

CLEAN, BRIGHT, SOME BONE COAL AT CONTACT
6.3 % ASH, 1.33 S.G.

FLOOR; MUDSTONE, HIGHLY CARB. } 32.7% ASH
COAL, BRIGHT, SOFT } 1.56 S.G.

SOFT, CLAYEY, COALY
49.1 % ASH, 1.78 S.G.

MUDSTONE; POOR CONTACT

FIGURE III

The Lower Cretaceous sediments occurring on the licences include the Gething and Cadomin formations and the underlying Minnes Group. The overlying Moosebar Formation is believed to occur in only one small area to the east of the main reserve area. Geologic mapping continued in 1980 in the main coal reserve area; however, the lack of outcrop (<5%) makes mapping of limited value in solving the complex geology of the area. Exposures of Gething and Minnes units are seen mainly in creek gullies or road cuts. The major outcrops consist of Cadomin conglomerate. Photo-geological interpretation has proven to be useful in gaining an understanding of the geological structure.

The geology in the main reserve area is somewhat complex in nature with complexities increasing in a northward direction. South of E-W 100, dips are low to moderate to the west with gentle pitching and rolling in a north-south plane. North of E-W 100, more pronounced folding is indicated along with south-westerly dipping thrust faulting. Folding increases to the north as does displacement along the thrust fault that divides the deposit into two plates. Toward the north, this fault follows the axis of an anticline so that the two plates dip away from the fault. The structural picture in the northeastern part of the area has not been totally resolved and more drilling is needed to confirm our interpretations.

Seismic Seam

The seismic seam was mapped, prospected and intersected by three Winkie drill holes in 1980 (BR-3 in 1977). The apparent dip of

the seam increases both to the north and to the south of the seismic line where it is exposed in outcrop.

The seam occurs on a dip-slope; however, its mineability is inferred to be low due to a high strip ratio. The quality of the coal is high and is referred to in more detail under the Coal Quality heading. In drill hole BW-34 the seam was "sanded out" so there may be a marked facies change occurring in that area. This seam will be explored in more detail at a later date.

Stratigraphy

Table I lists the formations occurring on the Burnt River property. The thicknesses noted do not directly relate to the area presently under study. The Moosebar Formation has not been positively located on the property and therefore it has been impossible to calculate the true thickness of the Gething Formation. All we can say at this point is that we believe the Gething to be greater than 250 meters thick. The stratigraphy of the coal measures in the Burnt River area has been described by Verzosa (1977) and McClymont (1978) and will not be reiterated.

In summary, the lack of outcrop has made it difficult to establish a complete stratigraphic picture. Air photo interpretation gave the first reliable information and was used as a guide for mapping the Gething in 1978. Mapping and subsequent drilling did not aid correlation as much as was hoped due to a lack of market beds and rapid facies changes during sedimentation.

From core study, one can see that the sediments were laid down in a moderate energy environment.

The Gething Formation is believed to be 400 meters in thickness, based on structural interpretations, and at least 240 meters of section have been observed in drill core. The top of the Gething Formation has not been observed in drill core or in outcrop. Facies changes make it difficult to correlate the rock units with those on surrounding properties (Pan Ocean and Sukunka). The Gething is a thick succession of laminated to interbedded siltstones, sandstones, mudstones and coal seams. The coal measures are widespread and underlie nearly 80% of the Burnt River property. Several thick coal seams have been located; however, correlation is difficult.

It is believed that the coal measures in the main reserve area occur in the middle of the Gething. However, the geology of the Pacific Petroleum gas well, 4 kilometers to the east, shows considerable thicknesses of coal in the upper third of the Gething. The gamma-ray and density logs did not correlate with our geophysical logs but it is unlikely that facies changes of that magnitude could occur over a relatively short distance. However, several major thrust faults occur in the area which may have "telescoped" rocks in the two areas, which might explain the major variations in stratigraphy across relatively short distances.

Sediments that make up the Gething are generally fine to medium

grained, carbonaceous, cross-bedded and convoluted. Mud swirls and sharp structures were common, as well as iron concretions ($FeCo_3$) and minor pyrite. It is speculated that source areas alternated from north to south.

The mudstones and siltstones were soft to moderately hard and dark grey to black in color. Massive units are an exception, with bedding being laminated to medium. The mudstones desiccated very quickly after being drilled and showed a rubbly texture.

The sandstones are highly variable in composition and structure. Analysis of the environment of deposition has not been carried out.

The gamma-ray logs showed the presence of bentonitic mudstones, one just below Marker "C" Seam and one mid-way between Markers "C" and "D".

Coal Seams

The main deposit area lies between two major thrust faults. It has undergone minor structural change compared to the remainder of the property.

The coal is generally clean, bright, blocky and moderately hard. The physical character of the coal seams in this area varied in direct relationship to local structure. Structurally the coal was cleated, jointed and occasionally pulverized due to local movement (faulting and/or folding).

PERIOD	GROUP		SYMBOL	FORMATION OR MEMBER	THICKNESS (metres)	LITHOLOGY
LOWER CRETACEOUS	FORT ST. JOHN GROUP	COMMOTION FORMATION	Bc	Boulder Cr. Member	73 - 170*	G.S.C. Bulletin - 15 Fine grained, well sorted sandstone, massive conglomerate, non-marine sandstone and mudstone
			Hul	Hulcross Member	0 - 137*	G.S.C. Bulletin -152 Dark grey marine shale with sideritic concretions.
			Ga	Gates Member	67 - 274*	G.S.C. Bulletin - 15 Fine grained, marine and non-marine sandstones conglomerate, coal, shale and mudstone.
			MbR	Moose Bar Formation	304 - 426*	G.S.C. Bulletin -152 Dark grey marine shale with sideritic concretions, glauconitic sandstone and pebbles at base.
	BULLHEAD GROUP		Ge	Gething Formation	0 - 549*	G.S.C. Bulletin -152 Fine to coarse grained, brown, calcareous, carbonaceous sandstone; coal, carbonaceous shale, and conglomerate.
			Cd	Cadomin Formation (erosional unconformity)	13 - 183*	G.S.C. Bulletin -152 Massive conglomerate containing chert and quartz pebbles.
	MINNES GROUP		Mi	Minnes Group	0 - 1828*	G.S.C. Bulletin -219 Massive, quartzose sandstone, alternating units of fine grained sandstone and mudstone, minor carbonaceous sediments.

TABLE I

*Estimated Figures Compiled From:

B.C. Dept. of Mines Bulletin No. 52
.....by, J.E. Hughes, 1967
G.S.C. Bulletin No. 152
.....by, D.F. Stott, 1968
G.S.C. Bulletin No. 219
.....by, D.F. Stott, 1973

All seams appeared, in outcrop as well as core, to have zones of weaknesses that were susceptible to shearing and fracturing -- slickensides are common. In these zones micro-structure is fairly intense.

Nine coal seams and coaly horizons which have not been given names are designated as "marker seams". The marker seams are useful as indicators of stratigraphic position and have been given alphabetical designations to indicate their relative position in the stratigraphic column (see Table II). Marker seams are usually less than 1 meter thick and tend to have a readily recognizable pattern or signature in the geophysical logs. There are five marker seams in the main deposit area. All have a carbonaceous mudstone roof and floor.

Marker "A":

Marker "A" occurs about halfway between the Lower Seam and the Cadomin conglomerate. DDH-BR-1 is the only hole in the deposit to have penetrated Marker "A". In this location the seam was reported to be 1.52 meters thick, hard, semi-bright with recovery at +85% (Verzosa - 1977). Unfortunately, no geophysical log is available for DDH-BR-1.

Marker "B":

Marker "B" usually occurs about .30 to 1.8 meters below the Lower Seam. In some cases it is incorporated into the bottom of the Lower Seam and does not register in the geophysical logs. Marker "B" averages about .45 to .60 meters in thickness and usually contains a high percentage of ash in the form of

carbonaceous shale.

Mid Marker:

The Mid Marker, which averages about .45 meters in thickness, was not recognized until after the holes establishing north-south cross section 100 were drilled.

In the southern end of the deposit, the Mid Marker appears to be the third and lowermost split in the Upper Seam (Reference: DDH-BR-16 or north-south cross section 100). As the Mid Marker is followed north on section 100, it appears to migrate downward towards the top of the Lower Seam. It may indicate that the source area for the sediments deposited below and above the Mid Marker switched from south to north.

Marker "C":

Marker "C", sometimes referred to as the "Marker Seam", is approximately .76 to 1 meter thick. In general, this thickness is maintained throughout the main reserve area although some thinning occurs in the northern quarter of the deposit.

Marker "C" is characterized by a distinctively high gamma pattern in the rocks that occurs just below the seam. (Reference: geophysical logs for DDH-BR-16, BR-27 or BR-29). The cause of this high gamma activity, relative to other gamma readings on the property, has yet to be conclusively determined. At present, it is believed to be associated with some bentonitic shale or traces of volcanic ash in the shale just below the seam.

The coal of Marker "C" is hard, dull to bright and generally blocky. It is generally low in ash and may be amenable to stripping methods in certain areas of the deposit.

Marker "D":

Marker "D", or the Seam 60 marker as it is sometimes referred to, is about .60 to .91 meters thick and occurs about 3 to 3.7 meters below Seam 60. It is characterized in the geophysical logs by a high gamma response for the shales occurring immediately below it. Marker "D" has a very high ash content.

Three seams are of primary economic interest. They are the Lower Seam, the Upper Seam, and Seam 60.

Lower Seam

The Lower Seam varies considerably in thickness over the north-south extent of the deposit. At the southern end of the deposit it averages 3.2 meters and at the northern end of the deposit, it averages 6.2 meters. (Reference: Cross section NS-100).

The coal of the Lower Seam is hard, blocky and usually bright and clean. In areas where it has been affected by structural deformation, it is generally highly sheared, platey and crushed to pulverized. Where it has not been affected by such forces, it remains blocky and, if the vitrain content is high, some jointing perpendicular to the bedding plane of the coal will occur. Two sets of joint planes commonly form at .32 to .64 centimeter spacings at roughly 85 to 90^{o} to one another. Most of the coals in the deposit exhibit this particular characteristic

of jointing (cleating) along with a general tendency to develop a set of parallel fracture planes that run almost perpendicular (70 to 80°) to the bedding plane of the coal.

Upper Seam

The Upper Seam averages 3.2 meters thick and is usually split by 30 to 60 centimeter parting of carbonaceous shale. This seam thins to the north and is believed to be only .76 meters thick in BR-59.

The coal is commonly hard, bright to dull and clean. It is thinly laminated and occasionally is fractured at angles 85 to 90° to its bedding plane.

In the area around hole BW-48 and between holes BR-41, BW-51, BR-39 and BR-40, the Upper Seam has been structurally repeated by displacement along a thrust fault.

Seam 60

Seam 60 ranges in thickness from 4.3 to 8.9 meters (average 6.7 meters). Its presence is limited primarily to the southwestern quarter of the deposit. Portions of Seam 60 are traceable throughout the northwestern extent of the deposit. However, the close proximity of the outcrop of the seam to the major thrust fault to the west has had the effect of severely reducing the seam's thickness and continuity in this part of the deposit.

The coal of Seam 60 sometimes exhibits a dull, metallic grey luster or sheen. The coal is basically hard, lightweight and

IDEALIZED STRATIGRAPHIC SECTION

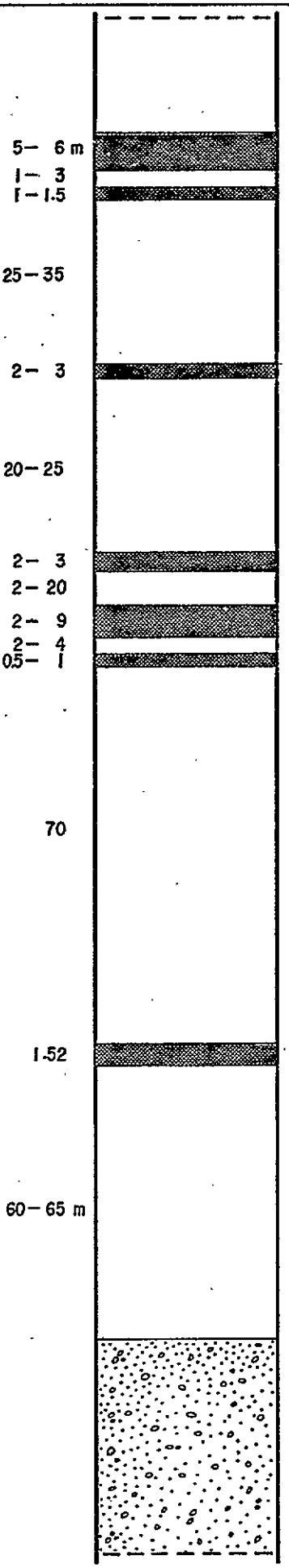
LOWER GETHING – COAL SEAMS

LOWER CRETACEOUS

BULLHEAD GROUP

GETHING FORMATION

CADOMIN F.



	FINE-MEDIUM GRAINED SANDSTONE, SHALE, CARBONACEOUS SHALE
5– 6 m	SEAM 60 (COAL)
1– 3	CARBONACEOUS SHALE, MINOR SILTSTONE
1–1.5	MARKER D (COAL)
25–35	SILTSTONE, FINE-MEDIUM GRAINED SANDSTONE, SHALE, CARBONACEOUS SHALE
2– 3	MARKER C (COAL)
20–25	FINE-MEDIUM GRAINED SANDSTONE, SHALE, MINOR CARBONACEOUS SHALE, SILTSTONE
2– 3	UPPER SEAM (COAL)
2– 20	FINE-GRAINED SANDSTONE, SILTSTONE, MINOR CARBONACEOUS SHALE
2– 9	LOWER SEAM (COAL)
2– 4	SHALE, CARBONACEOUS SHALE, MINOR SILTSTONE
0.5– 1	MARKER B (COAL)
70	SHALE, SILTSTONE, SANDSTONE, MINOR CARBONACEOUS TO COALY SHALE
1.52	MARKER A (COAL)
60–65 m	VERY FINE-MEDIUM GRAINED SANDSTONE, SHALE, SILTSTONE, CARBONACEOUS SHALE, MINOR MUDSTONE
	COARSE TO VERY COARSE GRAINED SANDSTONE, CONGLOMERATE, FRAGMENTS OF MUDSTONE, CARBONACEOUS SHALE

bright. Occasionally, small portions of Seam 60 will exhibit a scoria type texture that appears to be rich in iron and, in association with the dull metallic grey luster, gives rise to speculation that some sort of hydrothermal process may have affected the coal seams of the deposit.

Seam 60 is split by two or three shale or coaly shale partings. (Reference: DDH-BR-16). These partings range from shale to carbonaceous shale to coaly shale to shaley coal of varying percentages. The coal between the rock partings is generally softer due to differential movement with the seam during folding.

Structure

The coals of the main deposit are contained within a gently undulating, relatively narrow zone that trends northwest by southeast and dips roughly 10 to 20° to the southwest. The coal seams subcrop to the east under glacial till which locally is 60 meters in thickness.

The western extent of the deposit is limited by the Bear Mountain thrust which trends northwest. This faulted area is considered to be a thrust zone or a series of thrust faults which, in effect, gives a fairly thick zone of fault repeated beds.

The northern half of the deposit is bisected into two thrust plates by the Willow Creek thrust fault which merges with the Bear Mountain fault in the vicinity of DDH-BR-49. Displacement along the Willow Creek fault appears to increase in a northerly

direction and several holes drilled along the strike of this fault have encountered repeated portions of both the Upper and Lower seams. Displacement is in the order of 20 meters at BR-37 and 25 meters at BW-48.

The initial stages of the deformation of the Burnt River property appears to have taken place around the time of the Laramide Orogeny, more specifically, that portion of the Laramide Orogeny that produced the Rocky Mountain Thrust Belt. At that time, Burnt River strata were folded into a series of parallel folds oriented roughly northwest by southeast. The development of low-angle thrust faults soon followed and as folding and faulting proceeded, areas of resistance began to build up and differential displacement along fault planes resulted in local dip slip movements. In areas where tighter folding developed, faulted anticlines and faulted synclines (with west-dipping fault planes) may have resulted. This appears to be the case in the northern part of the deposit.

Much more drilling would be required to resolve the structural setting and further define the magnitude of these faults.

RESERVES

The following reserve tabulation is based on the 1978 and 1980 drilling program.

Seam	Drill Indicated 000 tonnes	Inferred 000 tonnes	Total 000 tonnes
Upper	5,056	673	5,729
Lower	6,776	850	7,626
Seam 60	2,892	410	3,302
Other**	-	2,000	2,000
	14,724	3,933	18,657

**Includes reserves of the big seam, middle seam and seismic seam as well as marker seams in excess of 1 meter thick.

The overall stripping ratio for the reserves is $5.6m^3$ of overburden per metric tonne of run-of-mine coal, assuming an ultimate pit highwall angle of 45°.

Significant potential exists for extending reserves to the northeast. In addition, mineable coal may exist in geologically more complex environments. These reserves are noted under potential reserves in the table above.

Drill indicated and inferred reserves are calculated on the following basis.

1. Moisture content (air-dry basis);
2. Loss of 15 centimeters of coal at contacts;
3. Inclusion of 8 centimeters of rock in coal contacts;
4. Minimum thickness approximately 1 meter;
5. 45° pit highwall.

No effort has been made to assess the underground reserve

potential of Burnt River. Reserve potential is felt to be limited due to complex geologic structure including many thrust faults, varying dips of coal seams and tectonic movement within the coal seams and roof rocks resulting in pinching and swelling of seam thickness within a short distance.

COAL QUALITY

The 1980 exploration season provided definition of coal quality and reserve potential throughout the deposit.

The coal quality program consisted of:

(a) Individual ply sampling of drill core with either proximate analysis or portion of each ply.

(b) Compositing individual ply according to the drill core for inherent coal uality or according to the mining plan to include dilution. (The analyses included proximate and ultimate analysis, HGI, calorific and equilibrium moisture. Ash fusion tests as well as FSI tests were conducted on occasional samples.)

(c) Bulk sampling for the three major seams in areas selected as reasonably representative of seam quality given the overriding parameter of topography. Proximate, ultimate, washability tests, and ash analysis were conducted on composited bulk samples.

The coal is of semi anthracite rank, possessing low volatiles (12 to 17%), low sulphur and high calorific values.

Lower Seam

The Lower Seam trends from a thin seam with a mineable parting in the southern end of the deposit to a thick, ash-free seam towards the north.

The table gives the ash level for a corresponding thickness. In the southern end, ash content ranges from 8 to 15% due to the inclusion of minor rock partings in the coal seam. The opposite extreme occurs at the north end where the thickness of the seam has more than trebled with ash levels less than 3.0%. Average analysis for the Lower Seam was 6.9% ash, 13.2% volatile matter, 79.0% fixed carbon, 0.9% inherent moisture, 0.40% sulphur, 7910 cal/gm and thickness of 4.15 m. The Lower Seam bulk adit analysis was taken at the transition point between a thin seam with partings to a thin clean seam to a thick clean seam. The ash level of 8.6% was consistent with pilot drilling and representative of the average seam quality.

Upper Seam

The Upper Seam is thick and clean in the south with trends to thinning and partings toward the north. Ash levels of 4 to 5% exist in the south on 3 meter intercepts whereas in the north, ash levels of 8 to 12% are more common on thinner seam thicknesses. Average analysis for drill core for the Upper Seam includes thickness 2.82 m, ash 8.1%, inherent moisture 0.8%, volatile matter 13.2%, fixed carbon 77.9%, sulphur 0.41%, calorific value 7800 cal/gm.

The Upper Seam bulk adit was taken at the southern end of the deposit and represents a lower than average ash content for the seam. The bulk sample analyzed 6.4% ash and although in agreement with drill core with respect to accuracy of the sample, it represents premium Upper Seam quality.

Seam 60

Seam 60 is limited to the southwest part of the deposit, and to the complex northern region. The majority of Seam 60 reserves are in the southwest where the seam is consistent with respect to thickness and quality. In the northern end, the seam thins and appears to be cleaner. Seam 60 possesses two major high ash zones (25 to 40% ash) as well as minor rock partings. In the north, the lower major ash parting increases in thickness to the point of breaking the seam apart. Seam 60 normally runs 10 to 12% ash and 16% volatile matter over a thickness of 6 meters. Average analysis for the whole Seam 60 includes: 5.87 meter thick, 0.8% inherent moisture, 11.2% ash, 16.1% volatile matter, 71.9% fixed carbon, 0.32% sulphur and 7550 cal/gm.

The marker seams of importance include marker B and marker C. Marker B frequently acts as the Lower Seam contact and although in excess of 30% ash for its true thickness, would normally be taken due to the low ash content of the Lower Seam. Marker C also has mining potential due to the thickness of the seam (.75 to 1.0 m). The coal ranges from 13% to 28% ash depending on the number of minor partings. The seam was only tested on

occasion, and fits into the potential geologic reserve.

Preparation of Burnt River coal will be dependent upon a sales contract. Based upon projected run of mine ash content, the requirements for a preparation plant will only be necessary if a premium grade (less than 16% ash) specification is contracted.

Jigging of the coarse coal fraction (+¼") will allow a specification as low as 10% ash to be reached without the need for thermal drying or fine coal cleaning.

Attachments include summarized drill core composite analysis, average seam analysis and washability results. Data from bulk samples appears in the previous section for proximate analysis. Other test results on bulk samples are appended.

APPENDIX I

COAL QUALITY

COAL QUALITY

UPPER SEAM

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 40									
BW 53	3.30	3.28	5.20	12.37	81.51	.43	0.92	8064	60
BW 38	3.06	3.06	5.03	12.78	81.42	.43	0.77	8220	62
BR 20	3.64	3.61	4.57	12.96	81.62	.44	0.85	8178	
BW 39	no information								
Section 50									
BR 19	3.50	3.45	4.27	13.22	81.94	.37	0.57	8168	62
BR 18	3.38	3.37	4.74	13.52	81.16	.41	0.58	8139	
BW 29	2.72	2.72	5.62	13.50	80.21	.52	0.67	8111	
BW 37	2.40	2.39	4.47	13.26	81.66	.39	0.61	8102	
Section 60									
BR 30	no coal								
BR 16	3.78	3.68	7.28	13.41	78.44	.42	0.87	7972	
BW 47	intercept Seam 60								
BW 26	intercept Seam 60								
BR 28	3.00	3.00	5.66	12.87	80.67	.35	1.07	7992	47
BW 1	2.88	2.88	6.02	13.83	78.76	.46	1.39	8000	
BW 57	3.30	3.30	13.63	12.22	73.46	.42	0.69	7284	65
BR 1	3.50	3.50	4.72	14.34	79.83	.40	1.11	8183	
BW 42	2.90	2.90	6.40	13.75	78.50	-	1.15	-	
BW 44	2.92	2.92	16.25	12.40	70.07	.45	1.14	7000	52
BW 2	no coal								

30(4)A

UPPER SEAM - 2

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 70									
BR 29	3.28	3.28	6.74	12.33	80.05	.38	0.88	7848	64
BR 27	2.98	2.98	5.20	13.00	81.15	.37	0.65	8082	63
BW 40	Seam 60 intercept								
BW 41	Seam 60 intercept								
BR 26	2.28	2.23	6.10	13.30	79.79	.38	0.81	7974	50
BW 46	no coal								
BW 3	no coal								
Section 80									
BR 32	2.80	2.78	3.60	13.20	82.69	.41	0.90	8283	63
BR 17	2.74	2.70	6.34	12.76	80.32	.47	0.58	7956	
BW 28	3.00	2.91	3.26	13.47	82.57	.47	0.70	8222	
BW 52	no coal								
Section 90									
BR 60	no coal								
BR 33	3.24	3.16	8.27	13.00	78.10	.37	0.63	7732	62
BR 31	2.92	2.87	5.30	13.10	80.69	.30	0.91	8186	60
BR 25	3.52	3.40	9.82	12.35	77.00	.43	0.83	7704	63
Section 100									
BR 24	no coal								
BR 23	3.98	3.86	5.11	13.81	80.35	.38	0.73	8222	
BR 22	3.18	3.16	7.43	12.94	78.90	.46	0.73	7633	
BR 21	3.14	3.07	3.64	12.70	82.97	.41	0.69	8244	
BW 31	3.05	2.93	8.71	12.79	77.53	.42	0.97	7798	62
BW 35									

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 110									
BR 46	no coal								
BR 34	2.84	2.77	8.76	13.17	77.92	.34	0.55	7762	61
BR 35	3.51	3.49	12.91	12.81	73.25	.22	1.03	7467	64
BR 36	4.25	4.25	13.30	12.56	73.36	.42	0.78	7426	64
BR 48	intercept on Lower								
Section 120									
BR 45	3.24	2.17	27.84	12.32	63.71	.38	0.95	6178	53
BR 37A	2.80	2.70	8.30	13.48	77.29	.50	0.93	7721	62
BR 37B	2.06	1.99	8.40	13.70	77.03	.50	0.87	7676	
BR 38	no Upper intercept								
Section 130									
BR 44	Seam 60 only								
BR 39	2.48	2.44	8.95	13.70	76.90	.43	0.35	7594	64
BR 40	Lower Seam only								
BR 43	no coal								
Section 140									
BR 50	no coal								
BR 42	1.74	1.64	6.10	13.20	79.85	.53	0.85	7756	55
BR 41	2.16	2.03	8.45	13.35	77.50	.41	0.70	7694	65
BW 56	2.35	2.26	19.30	12.81	67.22	.44	0.67	6767	60
BW 51	1.40	1.34	12.10	15.38	71.90	.38	0.62	6950	63

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 150									
BR 51	1.64	1.59	12.70	13.10	73.58	.50	0.62	6789	63
BW 48A	2.64	2.56	8.10	13.53	77.48	.51	0.90	7643	65
BW 48B	2.24	1.94	8.69	13.48	76.87	.45	0.96	7517	64
BW 50	Seam 60								
BW 55	Marker "C" only								
Section 160									
BR 53	2.52	2.27	14.32	13.51	71.06	.52	1.11	6889	66
BR 52	no coal								
BR 58	Seam 60								
BW 54	no coal								
BW 58	no coal								
BR 56	Seam 60 only								
Section 170									
BR 54	Lower Seam only								
BR 55	not sampled								
BR 57	Seam 60 only								
Section 180									
BR 59	Lower Seam only								

COAL QUALITY

LOWER SEAM

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 40									
BR 20	2.20	2.18	8.80	12.55	77.90	.55	0.73	7800	
BW 53	2.00	1.99	9.90	12.45	76.80	.51	0.84	7622	66
BW 38	2.52	2.52	14.60	12.10	72.50	.53	0.80	7244	68
BW 39	no information								
Section 50									
BR 49	Seam 60								
BR 19	2.04	2.01	10.40	13.00	75.60	.43	1.00	7612	64
BR 18	2.05	2.05	10.55	13.00	75.70	.63	0.75	7633	
BW 29	2.38	2.38	8.73	13.33	77.39	.65	0.55	7953	
BW 37	2.74	2.72	10.80	12.70	75.38	.52	1.13	7500	68
Section 60									
BR 30	no coal								
BR 16	2.92	2.84	11.05	13.51	74.63	.49	0.81	7589	
BW 47	Seam 60 only								
BW 26	Seam 60 only								
BR 28	2.34	2.34	8.40	12.50	78.28	.50	0.86	7836	57
BW 1	2.49	2.49	3.87	13.88	81.02	.58	1.23	8294	
BW 57	3.30	3.30	4.67	13.16	81.51	.40	0.66	8224	70
BR 1	2.59	2.59	4.72	13.34	80.83	.40	1.11	8183	
BW 42	not sampled								
BW 44	3.20	3.20	5.38	12.99	80.17	.38	0.88	8147	66
BW 2	no coal								

LOWER SEAM - 2

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 70									
BR 29	2.80	2.80	6.10	13.33	79.95	.43	0.62	7961	73
BR 27	2.68	2.68	5.10	13.95	80.15	.40	0.80	8115	66
BW 40	Seam 60								
BW 41	Seam 60								
BR 26	2.72	2.66	5.50	12.80	80.84	.44	0.86	8184	55
BW 46	no coal								
BW 3	no coal								
Section 80									
BR 32	3.80	3.77	10.40	13.26	75.81	.39	0.53	7661	67
BR 17	4.05	3.99	10.82	12.70	75.92	.35	0.56	7606	
BW 28	Only Partial Hole - drill rods stuck								
BW 52	no coal								
Section 90									
BR 60	no coal								
BR 33	4.30	4.19	9.00	13.00	77.30	.40	0.70	7762	63
BR 31	3.88	3.81	7.06	13.00	78.94	.30	1.00	7977	66
BR 25	5.48	5.29	6.00	12.86	79.16	.32	0.98	8048	63
Section 100									
BR 24	no coal								
BR 23	4.30	4.17	8.20	13.40	77.65	.37	0.80	7863	
BR 22	4.23	4.20	6.60	13.75	78.93	.38	0.72	7952	
BR 21	5.24	5.12	12.80	12.70	73.65	.36	0.84	7442	
BW 35/31	Stopped at Top of Seam								

LOWER SEAM - 3

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 110									
BR 47	no coal								
BR 34	4.20	4.09	3.75	13.58	82.00	.31	0.67	7993	66
BR 35	5.44	5.40	7.00	12.54	79.53	.36	0.93	7975	63
BR 36	5.52	5.52	4.70	13.70	80.57	.33	1.03	8215	63
BR 48	5.16	5.16	6.82	12.52	79.94	.36	0.72	8017	63
Section 120									
BR 45	2.20	1.47	9.15	13.66	76.31	.35	0.88	7472	60
BR 37	3.86	3.73	5.00	13.70	80.30	.31	1.00	7813	
BR 38	4.92	4.90	7.50	12.97	78.75	.37	0.78	7980	51
Section 130									
BR 44	Seam 60								
BR 39A	3.04	2.99	13.25	12.20	73.75	.36	0.80	7400	110
BR 39B	4.14	4.08	6.19	14.10	79.10	.34	0.70	8078	64
BR 40	6.10	6.10	10.25	12.95	75.70	.39	1.10	7748	61
BR 43	no coal								
Section 140									
BR 50	no coal								
BR 42	6.12	5.75	5.20	13.18	80.78	.35	0.84	8017	48
BR 41	9.22	8.67	6.50	13.27	79.29	.32	0.94	7999	65
BW 56	5.54	5.32	8.98	13.41	76.77	.37	0.84	7629	65
BW 51	Upper Seam only								
Section 150									
BR 51	6.08	5.90	3.80	13.92	81.56	.34	0.72	8197	60
BW 48	6.84	5.92	6.00	13.59	79.55	.34	0.86	7817	61
BW 55	Marker "C"								
BW 50	Seam 60								

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 160									
BR 56	Seam 60								
BR 53	7.82	7.04	3.90	12.79	82.75	.34	0.56	8222	63
BR 52	6.52	4.84	8.09	13.07	78.15	.36	0.69	7971	60
BR 58	Seam 60								
BW 54	no coal								
BW 58	no coal								
Section 170									
BR 55	4.84	4.24	5.70	13.66	80.02	.30	0.62	7976	65
BR 54	11.54	11.54	2.80	13.48	82.74	.38	0.98	8269	65
BR 57	Seam 60								
Section 180									
BR 59	6.08	4.66	2.80	13.47	82.87	.40	0.86	8166	63

COAL QUALITY

SEAM 60

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 50									
BR 49	6.67	4.29	9.90	16.52	73.05	.37	0.53	7656	78
Section 60									
BR 16	7.06	6.88	10.20	16.35	72.85	.29	0.60	7678	
BW 47	6.56	6.48	10.58	16.60	71.99	.48	0.83	7707	72
BW 26	5.88	5.81	10.52	17.06	71.43	.27	0.99	7683	
Section 70									
BR 27	6.44	6.44	14.24	15.18	69.96	.32	0.62	7287	84
BR 29	7.00	7.00	12.10	15.46	71.65	.30	0.79	7537	83
BW 40	6.00	5.93	9.70	15.90	73.37	.40	1.03	7722	77
BW 41	5.94	5.87	9.10	15.94	74.16	.30	0.80	7653	79
Section 80									
BR 17	7.66	7.55	13.96	15.81	69.61	.26	0.62	7433	
BR 32	8.84	8.78	10.88	16.22	72.14	.28	0.76	7659	82
Section 90									
BR 33	7.36	7.17	14.70	15.34	69.13	.29	0.83	7216	79
Section 130									
BR 44	5.00	4.93	8.05	17.27	74.02	.33	0.66	7737	70
Section 150									
BW 50	6.48	5.61	14.00	16.18	69.26	.39	0.56	7021	76

Drill Hole	Seam Intercept (m)	True Thickness (m)	% Ash	% VM	% FC	% S	% RM	Cal/gm	HGI
Section 160									
BR 56	not sampled due to low coal recovery								
BR 58	3.80	2.87	6.10	15.98	76.98	.43	0.89	7787	73
Section 170									
BR 57	3.20	2.42	6.50	15.88	76.76	.37	0.86	7795	80

COAL QUALITY

RANGES AND AVERAGES

Seam		Thickness (m)	RM (%)	Ash (%)	VM (%)	FC (%)	S (%)	Cal/gm
UPPER	Range	1.34-4.25	0.4-1.4	3.3-27.8	12.2-15.4	63.7-83.0	.22-.53	6178-8283
	Average	2.82	0.8	8.1	13.2	77.9	.41	7800
LOWER	Range	1.47-11.54	0.5-1.2	2.8-14.6	12.1-14.1	72.5-82.9	.30-.65	7244-8294
	Average	4.15	0.9	6.9	13.2	79.0	.40	7910
60	Range	2.42-8.78	0.5-1.0	6.1-14.7	15.2-17.3	69.1-77.0	.26-.48	7021-7795
	Average	5.87	0.8	11.2	16.1	71.9	.32	7550

PR-Burnt River 80(3)A
BR19

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 19

VERTICAL SCALE 1 : 200

PROJECT Burnt River
LOCATION SUKUNKA AREA
HOLE Nº BR-19 CORE SIZE NQ
DATUM
CO-ORDINATES 37858.8 N 74308.7 E
DATE STARTED Aug. 7, 1980
COLLAR ELEVATION 1157.8 METRES
DATE FINISHED Aug. 9, 1980
HOLE ANGLE -90° TOTAL DEPTH 75.3 M.
LOGGED BY G. Green

SERIES: LOWER CRETACEOUS
FORMATION: SUKUNKA
MEMBER: COMMOTION
DISTANCE FROM DATUM / COLUMNAR SECTION

	LITHOLOGIC DESCRIPTION
0	OVER BURDEN
7.3 – 7.9	MUDSTONE - BLACK, MEDIUM HARD, BROKEN, SLIGHTLY CARBONACEOUS. COAL - BLACK, HARD, BRIGHT, RUBBLY TO BROKEN, BEDDING 80° TO CORE. GRADATIONAL UPPER AND LOWER CONTACTS.
8.8 – 9.7	MUDSTONE - BLACK, SOFT, MEDIUM HARD, HIGHLY FRACTURED PARALLEL TO BEDDING 85-90° TO CORE. CARBONACEOUS TO COALY.
15	SILTSTONE - GRAYISH BLACK, MEDIUM HARD TO HARD, BROKEN. 20% THINLY INTERBEDDED FINE GRAINED SANDSTONE AND 10% INTERBEDDED MUDSTONE. BEDDING 85° TO CORE. 4" OF COAL @ 12.1 - COAL IS BLACK, BRIGHT, HARD
22.8 – 24.7	MUDSTONE - BLACK, MEDIUM HARD, BROKEN, CARBONACEOUS, WITH MINOR THIN COALY STRINGERS. 4" OF COAL @ 22.8. BLACK, HARD, BRIGHT, BANDING 80° TO CORE.
30	SILTSTONE - GRAY TO GRAYISH BLACK, MEDIUM HARD TO HARD, BROKEN. BASICALLY SOLID CORE. BEDDING 90° TO CORE GENERALLY. OCCASIONAL INTERBEDDED THINLY BEDDED (CROSSBEDDED) SANDSTONE
37.78 – 37.98	MUDSTONE - GRAYISH BLACK TO BLACK, HARD, MASSIVE COAL - BLACK, HARD, BRIGHT, BLOCKY INTERBEDDED WITH SHALY COAL @ 40.12 - 40.32
41.68 – 41.48	MUDSTONE - BLACK, HARD, BROKEN, CARBONACEOUS
43.08 – 43.44	SILTSTONE - GRAY-GRAYISH BLACK, HARD, BROKEN WITH NUMEROUS THIN SANDSTONE LAYERS THROUGHOUT, BEDDING 65° TO CORE. GRADATIONAL UPPER, SHARP LOWER CONTACT
44.44	MUDSTONE - GRAYISH BLACK TO BLACK, HARD, BROKEN COAL - BLACK, HARD, BRIGHT, BRIGHT TO DULL BANDING 80° TO CORE, BROKEN, FRACTURED 20° TO CORE
45.48 – 46.0	MUDSTONE - INTERBEDDED WITH COAL @ 44.52 - 44.64. COAL IS HARD, BRIGHT, RUBBLY. MUDSTONE IS BLACK, HARD, CARBONACEOUS TO SLIGHTLY COALY IN THIN STRINGERS
47.0 – 46.84 – 47.24 – 47.44	COAL - BLACK, HARD, BRIGHT, FRACTURED PARALLEL TO CORE, BANDED 85° TO CORE MUDSTONE INTERBEDDED WITH COAL MUDSTONE @ 47.00 - 47.24
50	SANDSTONE - GRAYISH BLACK, HARD, BROKEN, FINE GRAINED SANDSTONE. FRACTURED 18° TO CORE AND CALCITE INFILLING.
52.7 – 55.8	MUDSTONE - BLACK, MEDIUM HARD TO HARD, BROKEN, MASSIVE (LACKS BEDDING) GRADATIONAL UPPER AND LOWER CONTACTS. WHITE SPECKLED BLACK MUDSTONE @ 53.0 - 53.6
60	SANDSTONE - GRAYISH WHITE, HARD, BROKEN. THINLY BEDDED 65° TO CORE FINE TO MEDIUM GRAINED. GRADATIONAL UPPER AND LOWER CONTACTS
63.0 – 65	SANDSTONE - GRAYISH BLACK, HARD, FINE GRAINED. THINLY BEDDED 90° TO CORE, BROKEN, BASICALLY SOUND CORE.
70 – 70.7 – 71.9	SANDSTONE - GRAYISH WHITE TO BLACK (SALT AND PEPPER LOOK) HARD THIN COALY LENSES. BEDDING 90° TO CORE.
75 – 75.3	SANDSTONE - DARK GRAY TO GRAYISH BLACK, HARD, MEDIUM GRAINED CROSS-BEDDED, INTERBEDDED SILTSTONE WITH GRADATIONAL CONTACTS BEDDING 90° TO CORE. SLIGHTLY CARBONACEOUS. END OF HOLE
80	

PR-Burnt River 80(3)A
BR 25

TECK CORPORATION

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STRATIGRAPHIC LOG

OF

BR-25

VERTICAL SCALE 1 : 200

PROJECT Burnt River
LOCATION Sukunka
HOLE Nº BR-25 CORE SIZE NQ
DATUM
CO-ORDINATES ____ N ____ E
DATE STARTED June 7, 1980
COLLAR ELEVATION ____ METRES
DATE FINISHED June 9, 1980
HOLE ANGLE -90° TOTAL DEPTH 63.1 M
LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	GATES	0		
			5		OVERBURDEN
			10		
			15		
			15.6		SANDSTONE. GRAY TO GRAYISH BLACK, MEDIUM, SLIGHT $CaCo_3$ CONTENT, CROSS BEDDED WITH THIN INTERBEDS OF SANDY SILTSTONE. BEDDING CONTACTS ARE INDISTINCT AS INFLUENCED BY CROSSBEDDING. MINOR COAL TRACE AT 16.6 m.
			20		
			25		
			30		
			35		
		SUKUNKA	38.4		
			38.7		SANDSTONE. GRAY TO GRAYISH BLACK, HARD, FINE GRAINED, CROSS BEDDING 70° TO CORE
			40		MUDSTONE. BLACK TO GRAYISH BLACK, BROKEN TO BLOCKY, WITH SLICKENSIDED SURFACES (115.2, 116.2, 120.5, 122.1)
			44.48		MUDSTONE. MEDIUM TO HARD, UNEVEN FRACTURE
			44.96 45		COAL. BLACK, HARD, FRACTURES PARALLEL TO CORE, RUBBLY, 10 cm MUDSTONE NEAR TOP
			46.32		COAL. BLACK, HARD, DULL, FRIABLE, FRACTURES 60° TO CORE
			48.16		
			48.48		COALY MUDSTONE. BLACK, MEDIUM TO HARD, CRUSHED TO HIGHLY PULVERIZED MUDSTONE
			50.1 50		SANDSTONE. FINE GRAINED, HARD, CROSS BEDDED
			51.0		
			52.0		MUDSTONE. BLACK, HARD, COMPACT, SHARP LOWER CONTACT WITH COAL.
			52.44		COAL. BLACK, HARD, BRIGHT, FRACTURED, PARALLEL TO CORE, AND 90° TO CORE JOINT SET 90° TO EACH AND PARALLEL TO CORE.
			53.36		SILTSTONE. MEDIUM HARD TO HARD, MINOR COALY SHALE, BEDDING 60° TO CORE
			55		COAL. BLACK, HARD, BROKEN, BRIGHT, COMPETENT CORE, 6" TO 8" LENGTHS AT 53.36 TO 54.20. LOWER 1/3 FROM 56.72 TO 58.36 IS 60% HIGHLY PULVERIZED
			58.36		
			58.5		COALY MUDSTONE. BLACK, SOFT, HIGHLY CRUSHED TO PULVERIZED
			60		MIXED UNIT. 58.5 TO 59.3 COALY MUDSTONE TO CARBONACEOUS MUDSTONE 59.3 TO 59.4 FINE GRAINED, HARD SANDSTONE 59.4 TO 61.3 BLOCKY, MEDIUM TO HARD, LIGHTLY FRACTURED MUDSTONE, GRADING TO SANDSTONE.
					END OF HOLE 61.3 TO 63.1 LIGHT GRAY, FINE GRAINED, HARD SANDSTONE
			65		
			70		

7R-Burnt River 80(3)A

BR-26

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-26

VERTICAL SCALE 1 : 200

PROJECT Burnt River — LOCATION Sukunka Area

HOLE Nº BR-26 — CORE SIZE NQ — DATUM

CO-ORDINATES ——— N ——— E — DATE STARTED June 9, 1980

COLLAR ELEVATION ——— METRES — DATE FINISHED June 11, 1980

HOLE ANGLE -90° — TOTAL DEPTH 69.49 M. — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	GATES	0		
			21.9		OVERBURDEN
		SUKUNKA	44.04		MIXED UNIT OF: SANSTONE, SILTSTONE, MUDSTONE. BLACK TO GRAYISH BLACK, MODERATELY HARD. BROKEN, DIFUSED, AND GRADATIONAL CONTACTS. INDISTINCT BEDDING. MUDSTONES ARE HIGHLY CARBONACEOUS. SANDSTONES ARE WEAKLY CARBONACEOUS WITH 5% HCl BEDDING: 70° TO CORE AT 24.1 m; 70-75° TO CORE AT 37.5 m; 75° TO CORE AT 44.6 m
			44.24		MUDSTONE.- GRAYISH BLACK, MED. TO HARD, BROKEN TO RUBBLY. FRACTURED 90° TO CORE, SLIGHTLY CARBONACEOUS
			45.28		COAL.- BLACK, HARD, LIGHTWEIGHT, BRIGHT. FRACTURED 10 TO 20° TO CORE JOINTING PARALLEL TO CORE SECOND SET 90° TO FIRST, ¼ JOINT BLOCKS, VITRAIN BANDING 80 to 85° TO CORE
			46.52		MUDSTONE.- BLACK, MED. TO HARD, FRACTURED PARALLEL TO BEDDING, 90° TO CORE. MILDY CARBONACEOUS
			47.48		COAL.- BLACK, BRIGHT, BLOCKY, HARD, VITRAIN BANDING 85-90° TO CORE, HIGHLY FRACTURED 10-20° TO CORE. FRACTURE PLANE CURVED, CONVEY TO CORE
			47.80		SHALY COAL.- BLACK MED. HARD TO HARD, DULL THINLY INTERBEDDED COAL AND HIGHLY CARBONACEOUS SHALE
			48.00		COAL.- BLACK, HARD, DULL, RUBBLY, HIGHLY FRACTURED 10-20° TO CORE, JOINTING ALSO 0-20° TO CORE, BEDDING AND BANDING 85° TO CORE
			48.16		MUDSTONE.- GRAYISH BLACK, BLOCKY TO RUBBLY, CARBONACEOUS, FRACTURES 90° TO CORE.
			48.86		SANDSTONE.- GRAY, MEDIUM TO HARD, FINE GRAINED CROSS BEDDED
			50.08		MUDSTONE.- BLACK, MEDIUM TO HARD, CARBONACEOUS, FRACTURES 10° TO CORE, BEDDING 85° TO CORE
			50.28		COAL. BLACK, DULL TO BRIGHT, HARD, BEDDING AND BANDING 80-85° TO CORE, FRACTURED 80-85° TO CORE, AND 10-20° TO CORE BLOCKY, SLICKENSIDED PARALLEL TO BEDDING. SECOND SET COUNTERCLOCKWISE 10° TO FIRST SET TWO PERIODS OF MOVEMENT INDICATED.
			53.16		MUDSTONE.- BLACK, MEDIUM TO HARD, MINOR COAL CONTENT, BEDDING 90° TO CORE. RUBBLY TO CRUSHED
			53.28		COAL.- BLACK, RUBBLY, DULL WITH LISTRIC SURFACES, HARD, LIGHTWEIGHT.
			53.44		MUDSTONE.- BLACK, MEDIUM TO HARD, HIGHLY RUBBLY TO CRUSHED, MODERATELY CARBONACEOUS
			55		
			60		SILTSTONE.- BLACK, MEDIUM TO HARD, SLIGHTLY CARBONACEOUS, GRADING OCCASIONALLY INTO A VERY FINE TO FINE GRAINED SANDSTONE. MINOR $CaCo_3$ CONTENT IN THE SANDSTONE, FRACTURES TREND 90° TO CORE, AND PARALLEL TO BEDDING. BEDDING 80° TO CORE.
			65		
			69.49		END OF HOLE
			70		
			75		

PR-Burnt River 80(3)A

BR 27

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-27

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-27 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 106.06 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED June 12, 1980

DATE FINISHED June 14, 1980

LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS

FORMATION: GETHING

DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
0	
5	OVERBURDEN - MINOR COAL SPOIL
10	
11.27	MUDSTONE, SILTSTONE, SANDSTONE - GRAYISH-BLACK TO BLACK, MED. - HARD MUDSTONE, SILTSTONE, AND FINE GRAINED SANDSTONE. SANDSTONE IS WEAK TO MODERATELY CALCAREOUS. CORE IS BASICALLY SOUND, BLOCKY. BEDDING INDISTINCT 80° TO CORE
15	
16.16	MUDSTONE - DARK GRAY, MED. - HARD, HIGHLY FRACTURED, RUBBLY
16.36	COAL - BLOCKY, LIGHTWEIGHT, HARD JOINTING & CLEATING 10° TO CORE. BEDDING INDISTINCT 90° TO CORE
18.0	COAL - HIGHLY PULVERIZED, HIGH CORE LOSS
18.36	COAL - BROKEN, HARD, LIGHTWEIGHT. JOINTING PARALLEL TO CORE. SLICKENSIDES 50° TO DOWN DIP ON 80° TO CORE FRACTURE. - CRUSHED, TO PULVERIZED @ 19.28 - 19.40 & 20.24 - 20.56 - RUBBLY, FRIABLE, AND DULL @ 19.49 - 20.24
SEAM 60	
20	
20.56	COAL - BLOCKY, LIGHTWEIGHT, HARD. PULVERIZED FIRST 30 c.m., THEN BROKEN, FRACTURED 80°-90° TO CORE. MINOR BANDING 90° TO CORE. JOINTING PARALLEL TO CORE.
22.52	COALY MUDSTONE - PULVERIZED
22.80	MUDSTONE - MED. - HARD, CARBONACEOUS, FRACTURED 90° TO CORE, AND PARALLEL TO BEDDING
23.00	MUDSTONE - BLACK, HARD, BROKEN, CARBONACEOUS TO COALY IN THIN .75 c.m. LENSES MINOR COAL @ 24.57 - 24.68
25	
25.90	
30	
35	MUDSTONE - MAINLY MUDSTONE WITH MINOR INTERBEDS OF SILTSTONE & FINE GRAINED SANDSTONE. BEDDING INDISTINCT 80° TO CORE. BASICALLY GRADATIONAL CONTACT.
40	
45	
50	
54.85	
55	SANDSTONE - MED. to COARSE GRAINED, CROSSBEDDED, MED. - HARD, COMPETENT CORE. LT. GRAY. BEDDING INDISTINCT IN CROSSBEDDING 80° TO CORE
57.6	MUDSTONE - CARBONACEOUS, MED. - HARD, FRACTURES (UNEVEN)
60	
60.95	COAL - HARD, CRUSHED, GRADING TO CARB. MUDSTONE @ 61.71 - 62.02. HIGHLY FRACTURED 3°-5° TO CORE. VITRAIN CONTACT 5°-8°
MARKER "C"	
61.87	SILTSTONE - BLACK to GRAY - BLACK, HARD, COMPETENT, MINOR FINE GRAINED SANDSTONE LENSES. MINOR COALY SHALE @ 66.29 - 66.44
65	
66.44	
70	SANDSTONE - LIGHT GRAY, HARD, COMPETENT, BROKEN CORE, CROSSBEDDED, MINOR $CaCO_3$ (MATRIX?)
73.14	
75	
80	SILTSTONE, MUDSTONE, SANDSTONE - MED. - HARD, CARBONACEOUS. SANDSTONE IS FINE GRAINED, CROSSBEDDED
85	
87.04	MUDSTONE - GRAY. - BLACK, BROKEN, MED. HARD. FRACTURES PARALLEL TO BEDDING, 90° TO CORE
87.24	COAL - HARD, BROKEN TO RUBBLY, JOINTING PARALLEL TO CORE @ 88.00 - 89.44. BANDING 80° - 90° TO CORE.
UPPER SEAM	
89.64	MUDSTONE - HARD, DULL, CARBONACEOUS. FRACTURED 90° TO CORE
90.08	COAL - HARD, DULL TO BRIGHT, LIGHTWEIGHT, FRACTURED PARALLEL TO CORE, BANDING 85° TO CORE
90	
90.86	MUDSTONE - CARBONACEOUS, MED. - HARD, UNEVEN FRACTURE 90° TO CORE
91.04	
95	SILTSTONE - BLACK, MED. - HARD, COMPETENT CORE, MINOR CARBONACEOUS AND COALY SHALE. RUBBLY TEXTURE, LEAF IMPRESSION @ 93.26
97.04	MUDSTONE - CARB., MED. - HARD, FRACTURE PARALLEL TO BEDDING 85° - 90° TO CORE
97.24	COAL - DULL, LIGHTWEIGHT, UNEVEN FRACTURE, JOINTING, AND CLEATING PARALLEL TO CORE
LOWER SEAM	
99.92	MUDSTONE - CARBONACEOUS, PULVERIZED. HIGH CORE LOSS @ 100.6 - 100.24
100	
100.44	SILTSTONE - BLACK to GRAY - BLACK, HARD, BROKEN, MINOR CARBONACEOUS MUDSTONE
105	
106.06	END OF HOLE
110	

PR-Burnt River 80(3)A
BR-28
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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-28

VERTICAL SCALE 1 : 200

PROJECT Burnt River
HOLE Nº BR-28 CORE SIZE NQ
CO-ORDINATES ____ N ____ E
COLLAR ELEVATION ____ METRES
HOLE ANGLE -90° TOTAL DEPTH 86.5 M.

LOCATION Sukunka Area
DATUM ____
DATE STARTED June 14, 1980
DATE FINISHED June 15, 1980
LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	COMMOTION	0		
			5		OVERBURDEN
			10		
			15		
			15.84		SILTSTONE.- BLACK TO GRAYISH WHITE, HARD, MINOR SANDY SILTSTONE, CROSS BEDDED
			18.43		MUDSTONE.- BLACK, MODERATELY HARD, CARBONACEOUS (2" OF COAL AT 19.4), FRACTURE AT 20.75 85° TO CORE, SLICKENSIDED
			20		
			20.84		SILTSTONE.- GRAY, MODERATELY HARD, SLIGHTLY SANDY, CROSS BEDDED.
			24.68		
			25		MUDSTONE.- BLACK, MODERATELY HARD, CARBONACEOUS, BEDDING 90° TO CORE
			27.12		
			30		SILTSTONE, SANDSTONE, AND MUDSTONE.- MODERATELY HARD TO HARD, MODERATELY TO HIGHLY CARBONACEOUS, MINOR COALY MUDSTONE AT 33.5 TO 33.8, SOME IRONSTONE AREAS (33.6 TO 34.1). SANDSTONE AT 35.5 TO 37.03 AND 40.0 TO 40.5, MINOR $CaCO_3$ IN SANDSTONES.
			35		
			40		
			40.84		COAL.- DARK GRAYISH BLACK, DULL TO BRIGHT, FRACTURED PARALLEL TO CORE
			41.45		MUDSTONE.- DARK GRAY TO GRAYISH BLACK, SOFT, HIGHLY FRACTURED, POSSIBLE BEDDING PLANE FAULT
			42.51		SILTSTONE.- GRAY TO GRAYISH BLACK, HARD, SLIGHTLY SANDY, SLIGHTLY CARBONACEOUS, IRONSTONE ($FeCO_3$) AT 43.2 TO 43.5, MINOR COAL AT 45.1 TO 45.2
			45.26 45		
			50		SANDSTONE.- GRAYISH WHITE, HARD, FINE TO MEDIUM GRAINED, MINOR $CaCO_3$ MATRIX. CROSS BEDDED PERHAPS SOME $FeCO_3$ AND SOME PYRITE (SECONDARY) IN MATRIX.
			54.25		
			55		
			60		MUDSTONE.- BLACK, MODERATELY HARD, BROKEN, UNEVEN FRACTURE, SOME SLICKENSIDED SURFACES 90° TO CORE. MINOR PYRITE AT 65.8. HIGHLY CARBONACEOUS. MINOR $FeCO_3$ AT 57.9, 59.7, 62.8
			65		
			66.76		COAL.- BLACK, DULL, HARD, VERY COMPETANT CORE, BROKEN, LIGHTWEIGHT, NO BEDDING
			67.42		COAL.- BLACK, BRIGHT, CONTORTED, HIGH VITRAIN PERCENTAGE, HIGHLY FRACTURED, HARD, BROKEN TO RUBBLY
			67.51		COAL.- BLACK, HARD, DULL TO BRIGHT, RUBBLY TO BROKEN, THINLY BEDDED, LIGHTWEIGHT, BEDDING 80 TO 85° TO CORE
			68.92		COAL.- BLACK, HARD, DULL TO BRIGHT, RUBBLY TO BROKEN, THINLY BEDDED
			69.76		MUDSTONE.- BROWNISH BLACK, UNEVEN FRACTURE 90° TO CORE SLIGHTLY CARBONACEOUS
			69.86 70		
			75		SILTSTONE.- GRAY TO BLACK, MODERATELY HARD TO HARD. IRONSTONE BANDS OR AREAS, AT 73.4 TO 74.0 m MINOR SANDY SILTSTONE AT 74 TO 74.6 m
			78.32		COAL.- BLACK, HARD, BROKEN, DULL, BEDDING AND BANDING 90° TO CORE, VITRAIN 10-20%
			79.2		COAL.- BLACK, HARD, BRIGHT, JOINTING PARALLEL TO CORE (2 SETS) HIGHLY VITRAIN CONTENT 30°, HIGHLY FRACTURED
			79.4		COAL.- BLACK, BLOCKY, BRIGHT, BROKEN TO RUBBLY, FRACTURED PARALLEL TO CORE, LIGHTWEIGHT, METALIC LUSTER
			80		MUDSTONE.- GRAYISH BLACK, MEDIUM HARD, FRACTURED 90° TO CORE. INTERBEDDED COAL, AND COALY SHALE
			80.5		
			81.2		MUDSTONE.- BLACK, SOFT TO MODERATELY HARD, RUBBLY TO PULVERIZED, CARBONACEOUS
			83.2		
			85		SILTSTONE.- DARK GRAY, MODERATELY HARD, SLIGHTLY SANDY, THINLY CROSSBEDDED. BEDDING 80 TO 85° TO CORE
			86.55		END OF HOLE
			90		

PR-Burnt River 80(3)A

BR 29

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

D.H. BR-29

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-29 — CORE SIZE N.Q. — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED June 16, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED June 17, 1980

HOLE ANGLE -90° — TOTAL DEPTH 58.51 M. — LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS

FORMATION: SUKUNKA

MEMBER: COMMOTION / GATES

DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
0		
3.2		OVERBURDEN
5		
10		
15		SANDSTONE, SILTSTONE, SANDY SILTSTONE, MUDSTONE – MAINLY DARK GRAY, GRAY TO BLACK, HARD, FINE GRAINED SANDSTONE WITH INTERBEDDED SANDY SILTSTONE, SILTSTONE AND MUDSTONE. BASICALLY BROKEN CORE, UNEVEN FRACTURE, SANDY AREAS ARE MODERATELY REACTIVE WITH 5% HCL. SOME AREAS OF $FeCO_3$ (IRONSTONE), OCCASIONAL PYRITE IN FINE CRYSTALS. BEDDING: 85 - 90° TO CORE @ 14.32 DISTINCT; 90° TO CORE @ 32.91 INDISTINCT; 90° TO CORE @ 51.20 INDISTINCT
20		
25		
30		
35		
37.6		MUDSTONE - BLACK, HARD, CARBONACEOUS, MINOR COALY LENSES
39.2		SANDSTONE - GRAY, HARD, FINE GRAINED
40.2 40		COAL - BLACK, HARD, BLOCKY, DULL, JOINTED PARALLEL TO CORE, LOWER ¼ RUBBLY
42.08		SEAM 60 — COAL - BLACK, HARD, FRIABLE, HIGHLY CRUSHED TO PULVERIZED, BEDDING 80-85° TO CORE, HIGHLY FRACTURED 60° TO CORE, OPPOSING BEDDING
44.8 44.6 45		MUDSTONE - BLACK, CARBONACEOUS, PULVERIZED; COAL - BLACK, BRIGHT TO DULL, HARD, FRACTURED PARALLEL TO BEDDING, 80° TO CORE, 50% PULVERIZED, 50% BROKEN
47.2 47.64		MUDSTONE - BLACK TO BROWNISH BLACK, CARBONACEOUS, 80° TO CORE, INTERBEDDED BLACK, HARD COAL
		MUDSTONE - BLACK, HARD, HEAVY, MINOR COALY LENSES
49.68		COAL - BLACK, HARD, DULL, RUBBLY
50.24 50.04 50		IRONSTONE - $FeCO_3$
51.24		COAL - BLACK, BRIGHT, HARD, HIGHLY RUBBLY TO CRUSHED, HIGHLY FRACTURED
51.44		MUDSTONE - BLACK, MEDIUM TO HARD, CARBONACEOUS, UNEVEN FRACTURE 90° TO CORE
55		SILTSTONE - BLACK, HARD, BROKEN, SANDY, WITH INTERBEDDED SANDY MUDSTONE. MINOR $FeCO_3$ CONTENT, SLIGHTLY CARBONACEOUS, SHARP UPPER CONTACT
58.51		
60		SILTSTONE - GRAY, MEDIUM HARD TO HARD, BROKEN, WITH MINOR FINE GRAINED INTERBEDDED SANDSTONE, BEDDING TREND 75° TO CORE @ 60.9
63.4		MUDSTONE - BLACK, MEDIUM HARD, BROKEN, CARBONACEOUS
64.6 65		
		MIXED UNIT - 50/50 INTERBEDDED MUDSTONE - BLACK, MEDIUM HARD, RUBBL @ 65.8 - 66.1 AND SILTSTONE GRADING TO FINE GRAINED SANDSTONE - GRAY, HARD, GENERAL BEDDING TREND 80-85° TO CORE MINOR FRACTURING 65° TO CORE WITH SLICKENSIDES PARALLEL TO DOWN DIP OF FRACTURE PLANE.
70		
75		
76.5		SANDSTONE - GRAY, HARD, VERY FINE GRAINED, THINLY BEDDED, CROSS BEDDED IN THIN WISPY LAMINATIONS
78.4		MUDSTONE - BLACK, MEDIUM HARD, SLIGHTLY FISSILE, BROKEN, SHARP UPPER CONTACT, GRADATIONAL LOWER CONTACT
80		SILTSTONE - GRADING TO FINE GRAINED SANDSTONE @ 81.8 - 82.5. SILTSTONE IS GRAY, HARD, BROKEN. SANDSTONE IS GRAY, HARD, FINE TO MEDIUM GRAINED, GRADATIONAL LOWER CONTACT.
82.5		MUDSTONE - BLACK TO DARK BROWNISH BLACK, MEDIUM HARD, BROKEN, GRADING TO COAL @ 83.5 UNEVEN FRACTURE 90° TO CORE
83.6		MARKER "C" — COAL - BLACK, HARD, LIGHTWEIGHT, WITH OCCASIONAL THIN AREAS OF INCREASED MUDSTONE
84.4 85 85.3		MUDSTONE - BLACK, MEDIUM HARD, MEDIUM FRACTURED, NUMEROUS VERY THIN COALY LENSES MINOR SILTSTONE. 4" OF SILTSTONE @ 84.6
		MIXED UNIT - 50/50 SILTSTONE/SANDSTONE - GRAY TO GRAYISH BLACK, HARD, THINLY INTERBEDDED, BEDDING 85 - 90° TO CORE. THROUGHOUT
88.2 88.3		COAL - MINOR COAL - BLACK, HARD, BRIGHT, BEDDING 90° TO CORE. BANDED VITRAIN 30%
90		SILTSTONE - MAINLY SILTSTONE. GRAYISH TO BLACK, MEDIUM HARD TO HARD, BROKEN WITH MINOR INTERBEDDED MUDSTONE.
93.2		
95		SANDSTONE - GRAYISH WHITE, HARD, BROKEN, THINLY BEDDED, MINOR CROSSBEDDING BEDDING TREND 85° TO CORE MINOR PYRITE. BROKEN.
96.6		
100		MUDSTONE - BLACK MUDSTONE 65% WITH INTERBEDDED FINE SILTSTONES @ 97.5 - 100.2 AND SANDSTONE @ 102.4 - 103.9. SANDSTONE AND SILTSTONE - BROKEN MUDSTONE - BROKEN TO RUBBLY. IRONSTONE @ 105.7 - 106.0 HIGHLY FRACTURED MUDSTONE @ 106.0 - 106.3
105		
108.4 108.68		UPPER SEAM — MUDSTONE - BLACK, HARD, SLIGHTLY FISSILE.
110		COAL - BLACK, HARD, BRIGHT, BANDED 85° - 90° TO CORE @ 108.68 - 110.40 BROKEN, @ 110.40 - 111.12 JOINTED PARALLEL TO CORE
111.12		MUDSTONE - BLACK, MEDIUM HARD, FRACTURED 90° TO CORE. CARBONACEOUS.
111.76		COAL - BLACK, HARD, BRIGHT, BANDED 85° TO CORE.
112.60 112.80		MUDSTONE - DARK GRAYISH BLACK, HIGHLY FRACTURED, UNEVEN, 90° TO CORE.
115		SILTSTONE - GRAYISH BLACK, MEDIUM HARD TO HARD. BEDDING 85° TO CORE. MINOR INTERBEDDED THINLY LAMINATED SANDSTONE. GRADATIONAL UPPER AND LOWER CONTACTS.
120.28 120 120.48		MUDSTONE - DARK GRAYISH BLACK, MEDIUM HARD, CARBONACEOUS, UNEVEN FRACTURE 90° TO CORE
		LOWER SEAM — COAL - BLACK, HARD, BRIGHT, BANDING, 85 - 90° TO CORE @ 120.48 - 122.08 BLACK, MEDIUM HARD, DULL, BROKEN TO RUBBLY. HIGH CORE LOSS @ 122.08 - 123.28
123.28 123.44		MUDSTONE - BLACK, SOFT, PULVERIZED COALY PARTICLES
123.76 123.96		COAL - BLACK, HARD, RUBBLY, HIGH CORE LOSS
125		MUDSTONE - GRAYISH BLACK, SOFT, HIGHLY FRACTURED 90° TO CORE. CARBONACEOUS
		SILTSTONE - GRAYISH BLACK, MEDIUM HARD, WITH INTERBEDDED BLACK MUDSTONE. MINOR COAL BEDS 2" @ 126.3; 6" @ 126.7
		SILTSTONE - MUDSTONE CONTACTS EXHIBIT SWELLING, SUGGESTIVE OF B.P. MOVEMENT. MINOR CALCITE VEINING @ 128.9
129.9 130		BEDDING 70° TO CORE, B.P. FRACTURE ALSO 70° TO CORE PARALLEL TO DIP OF BEDS. SLICKENSIDES PARALLEL TO DOWN DIP OF BEDS. END OF HOLE

PR-Burnt River (80(3)A

BR 30

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 30

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA

HOLE Nº BR-30 CORE SIZE NQ — DATUM G.L.

CO-ORDINATES ____ N ____ E — DATE STARTED Aug 5, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED Aug 7, 1980

HOLE ANGLE -90° TOTAL DEPTH 92.0 M. — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	GATES	0	OVERBURDEN
			7.3	SANDSTONE – GRAY, HARD - VERY HARD, BROKEN, REDDISH BROWN OXIDATION STAINING. VERY FINE TO FINE GRAINED, BEDDING 55° TO CORE IN THIN LAMINATIONS, OCCASIONALLY THIN INTERBEDS OF MUDSTONE AND SILTSTONE. SEVERAL CALCITE VEINS RUNNING 60° TO CORE ALMOST PERPENDICULAR TO BEDDING CORE IS BASICALLY BROKEN. LOWER PORTION IN CONTACT WITH UNDERLYING UNIT CONTAINS NUMEROUS FRAGMENTS OF MUDSTONE
			17.5	MUDSTONE – BASICALLY MUDSTONE WITH MINOR INTERBEDDED SILTSTONE AND MEDIUM GRAINED SANDSTONE MUDSTONE - BLACK, HARD, BROKEN - RUBBLY @ 21.5 - 21.8, APPEARS BRECCIATED @ 17.5 - 17.7 WITH NUMEROUS CALCITE VEINS SANDSTONE - SALT AND PEPPER LOOK @ 20.7 - 21.3 GRADATIONAL UPPER SHARP LOWER CONTACTS. SINGLE 1" PEBBLE AT CONTACT. BEDDING 40° TO CORE.
			23.5	SANDSTONE – GRAYISH WHITE, HARD, GRADING FROM FINE SANDSTONE @ 23.5 TO MEDIUM GRAINED @ 26.2, SHARP THERE WITH 6" SANDY SILTSTONE. CONTACT IS CONTORTED WITH FRAGMENTS OF SILTSTONE AND MUDSTONE IN SANDSTONE, NUMEROUS CALCITE VEINS TRENDING 35° TO CORE. ALSO PERPENDICULAR TO BEDDING. SANDSTONE BEDDING 65° TO CORE MEDIUM GRAINED SANDSTONE @ 32.9 - 36.6, BEDDING 65° TO CORE WITH NUMEROUS FRAGMENTS OF MUDSTONE INCORPORATED INTO THE SANDSTONE. PLUS VERY MINOR THIN COALY LENSES. LOWER CONTACT IS SHARP, WELL FRACTURED WITH SOME CALCITE INFILLING.
			36.6	SANDY SILTSTONE – TO VERY FINE GRAINED SANDSTONE, GRAYISH BLACK, MEDIUM HARD - HARD, BROKEN. BEDDING 60° TO CORE. DISTINCT.
			47.5	MUDSTONE – BLACK, MEDIUM HARD - HARD, BROKEN. SLIGHTLY CARBONACEOUS. GRADATIONAL UPPER AND LOWER CONTACTS.
			49.7	SILTSTONE – GRAYISH BLACK, HARD, BROKEN, GRADATIONAL LOWER CONTACT, BEDDING 60° TO CORE
			52.7	SANDSTONE – GRAYISH WHITE, VERY HARD, MEDIUM GRAINED, FRACTURES PERPENDICULAR TO BEDDING. CLEAR CROSSBEDDING. SHARP LOWER CONTACT. BEDDING 40° TO CORE.
			58.2	SILTSTONE – GRAYISH BLACK, HARD, SLIGHTLY SANDY, BROKEN BEDDING 65° TO CORE. THIN WISPY LAMINATIONS - CROSSBEDDED
			62.4	SANDSTONE – GRAYISH WHITE - HARD, MEDIUM GRAINED, BROKEN, THINLY BEDDED 60° TO CORE, FINER SILTS ARE CROSSBEDDED
			63.5	MUDSTONE – BLACK, HARD, CARBONACEOUS TO COALY, BROKEN. COAL @ 64.9 - 65.0 THIN VOLCANIC ASH @ 64.5 (MICACEOUS ?) MUDSTONE GRADED DOWNWARD TO SILTSTONE TO VERY FINE GRAINED SANDSTONE TO FINE GRAINED SANDSTONE TO MEDIUM GRAINED SANDSTONE AS FOLLOWS:
			6" COAL 65	
			65.8	SILTSTONE – GRAY - HARD, GRADING TO SANDY SILTSTONE @ 71.3 - 77.4 MAINLY BROKEN. RUBBLY @ 70.7 - 71.3. THINLY BEDDED 65° TO CORE
			71.3	
			77.4	SANDSTONE – GRAYISH BLACK, HARD - FINE GRAINED, BROKEN, SOLID CORE BEDDING 60° TO CORE, CROSSBEDDED, GRADATIONAL UPPER AND LOWER CONTACTS
			82.3	SANDSTONE – GRAYISH WHITE, HARD, MEDIUM GRAINED, BROKEN, SOLID CORE, BEDDING 60° TO CORE
			88.0	SILTSTONE – GRAYISH BLACK, MEDIUM HARD - HARD, BROKEN – BEDDING 60° TO CORE. SLIGHTLY SANDY - MINOR FINE GRAINED SANDSTONE - INTERBEDS, CONTORTED MUDSTONE INTERBEDS. BEDDING PLANE SLIPPAGE
			92.0	END OF HOLE
			100	

PR-Burnt River 80(31)A

BR-31

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-31

VERTICAL SCALE 1 : 200

PROJECT Burnt River — LOCATION Sukunka Area

HOLE Nº BR-31 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED June 18, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED June 20, 1980

HOLE ANGLE -90° — TOTAL DEPTH 117.3 M — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
CRETACEOUS	LOWER CRETACEOUS	COMMOTION	0		
			29.25		OVERBURDEN
			29.86		SANDSTONE.- GRAY, VERY HARD, FINE TO COARSE GRAINED, CROSSBEDDED, FRACTURED, BROKEN TO RUBBLY
			31.39		MUDSTONE.- BLACK, MODERATELY HARD, CARBONACEOUS
			35.4		MUDSTONE.- BLACK, MODERATELY HARD, UNEVEN FRACTURE, CARBONACEOUS, BROKEN TO RUBBLY, SLICKENSIDED, MINOR COAL 33.6 TO 33.8 m. MINOR SANDSTONE 33.8 TO 34.4 m. BEDDING IN SANDSTONE 90° TO CORE
			40.5		SANDSTONE.- GRAY, HARD, BROKEN, SLIGHTLY CARBONACEOUS, WITH MINOR MUDSTONE AND SILTSTONE. BEDDING 80 TO 85° TO CORE AT 35.9, AND 90° TO CORE AT 39.3 m
			44.19		MUDSTONE.- BLACK, HARD, BROKEN, SLIGHTLY CARBONACEOUS, FRACTURE PARALLEL TO BEDDING, 85 TO 90° TO CORE
			55		SANDSTONE, AND MUDSTONE.- MIXED; INTERBEDDED SANDSTONE, AND MUDSTONE. GRADATIONAL CONTACTS. ABOUT 50/50 MIXTURE PROPORTIONATELY. BLOCKY SANDSTONE IS GRAY, HARD, SLIGHTLY CALCAREOUS. MUDSTONE IS BLACK, HARD, PROBABLY SOME $FeCo_3$ CONTENT.
			69.49		COAL.- BLACK, DULL TO BRIGHT, BLOCKY TO RUBBLY, MODERATELY WELL FRACTURED. 5 TO 8% VITRAIN LENSES, UP TO $\frac{1}{4}$" TO $\frac{1}{2}$" THICK. NO DECERNABLE BEDDING.
			70.40		
			74		SANDSTONE, MUDSTONE, SILTSTONE.- MIXED UNIT OF INTERBEDDED SANDSTONE, MUDSTONE, AND SILTSTONE. BLACK TO GRAY, HARD, CARBONACEOUS, FINE GRAINED SANDSTONE. MINOR COAL, 74 TO 74.2 m.
			98.28		MUDSTONE.- GRAYISH BLACK, FRACTURED PARALLEL TO BEDDING (80 TO 85° TO CORE), CARBONACEOUS
			98.48		COAL.- BLACK, HARD, BROKEN TO RUBBLY, BRIGHT TO DULL LUSTER, BANDING 90° TO CORE
			101.40		MUDSTONE.- BLACK, RUBBLY TO CRUSHED, CARBONACEOUS, WITH MINOR INTERBEDDED BLACK BRIGHT COAL.
			101.92		SANDSTONE.- GRAYISH BLACK, HARD, CROSSBEDDED TRENDING 75 TO 80° TO CORE. MINOR MUDSTONE. MINOR MUDSTONE APPEARS TO HAVE BEEN STRESSED AND HEALED.
			105.20		MUDSTONE.- BLACK, HARD, FRACTURED, SLIGHTLY CARBONACEOUS. SOME THINLY BEDDED COAL (105.40 - 105.76)
			106.60		COAL.- BLACK, HARD, BLOCKY, VERY COMPETANT CORE. BANDING 85 TO 90° TO CORE AND FRACTURED PARALLEL TO CORE AT 106.60 - 107.40 m. FRACTURED 25 TO 30° TO CORE AT 108.9 - 110.48 m.
			110.48		MUDSTONE.- GRAYISH BLACK, SOFT TO HARD, CARBONACEOUS, WITH INTERBEDDED BLACK, BRIGHT COAL.
			111.32		SILTSTONE.- BLACK, MODERATELY HARD, CARBONACEOUS, MINOR FINE GRAINED SANDSTONE AT 111.8 TO 111.9, 114.7 TO 114.8, 116.8 TO 117.3, RUBBLY 112.7 TO 113.5. SLICKENSIDED SURFACES 80 - 90° TO CORE. BEDDING 90° TO CORE AT 111.8
			117.3		END OF HOLE

PR-Burnt River 80(3)A
BR-32

489

TECK CORPORATION
STRATIGRAPHIC LOG
OF
BR - 32

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER
LOCATION SUKUNKA AREA
HOLE No BR-32 CORE SIZE NQ
DATUM
CO-ORDINATES ____ N ____ E
DATE STARTED July 27, 1980
COLLAR ELEVATION ____ METRES
DATE FINISHED July 30, 1980
HOLE ANGLE -90° TOTAL DEPTH 160 M.
LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS
FORMATION: COMMOTION
MEMBER: SUKUNKA GATES
MARKER "F" (10.3 – 11.8)
MARKER "E" (22.0 – 22.8)

DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
0 – 3.04	OVERBURDEN
3.04 – 10.3	SANDSTONE – GRAYISH WHITE, VERY HARD, MEDIUM TO COARSE GRAINED, WELL SORTED, BECOMING VERY COARSE @ 10.05, SUB ANGULAR TO SUB ROUNDED GRAINS OF QUARTZ, FELDSPAR, CHERT, AND OTHER MINERALS AND ROCK (?) SHARP, LOWER CONTACT WITH COAL
10.3 – 11.8	COAL – BLACK, HARD, HIGHLY FRACTURED, RUBBLY, BRIGHT, BEDDING 70° TO CORE SLICKENSIDED 10° FROM PARALLEL TO DOWN DIP ON BEDDING PLANE, CRUSHED TO PULVERIZED, 30% INTERBEDDED MUDSTONE. GRADATIONAL LOWER CONTACT.
11.8 – 20.4	MUDSTONE – GRAYISH BLACK, SOFT TO MODERATE HARD, HIGHLY FRACTURED AND WEATHERED TO 19.2, POSSIBLE VOLCANIC ASH @ 14.6
20.4 – 22.0	SANDSTONE – GRAY, HARD, FINE GRAINED, THINLY BEDDED 75° TO CORE
22.0 – 22.8	COAL – BLACK, HARD, BRIGHT, STRESSED 10° TO CORE, 15% MUDSTONE INTERBEDDED IN THE LOWER HALF
22.8 – 34.2	MUDSTONE – MAINLY MUDSTONE WITH MINOR INTERBEDDED SILTSTONE - GRADATIONAL CONTACTS, BROKEN, MINOR IRONSTONE @ 30.4. POSSIBLE VOLCANIC ASH @ 24.0 - 24.4
34.2 – 47.2	SILTSTONE – WITH 50% INTERBEDDED VERY FINE GRAINED SANDSTONE. GRAY TO GRAYISH WHITE, MODERATE HARD, BROKEN, BEDDING 85°-90° TO CORE. MEDIUM GRAINED SANDSTONE @ 46.6 - 47.2
47.2 – 68.64 (62.4, 63.09, 66.3)	MUDSTONE – BLACK, HARD, BROKEN, BEDDING 85-90° TO CORE MINOR INTERBEDDED SILTSTONE. MINOR INTERBEDDED VERY FINE GRAINED SANDSTONE @ 62.4-63.09, MICACEOUS MUDSTONE @ 63.09 - 63.3
68.44 – 68.64	MUDSTONE – BLACK, MODERATE HARD, UNEVEN FRACTURE TRENDING 90° TO CORE
68.64 – 74.68 (68.8, 70.0)	COAL – BLACK, MODERATE HARD, RUBBLY, AND DULL - SHALY @ 68.64 - 68.8 @ 68.8 - 70.0 HIGHLY FRACTURED, MEDIUM BRIGHT, METALLIC GRAY, APPEARANCE WEAKLY BANDED @ 70.0 - 71.40 UPPER THIRD RUBBLY TO CRUSHED, LOWER 2/3 BROKEN, MODERATE BRIGHT TO BLOCKY @ 71.4 - 73.44 HARD, DULL 50/50 RUBBLY TO BROKEN @ 73.44 - 74.68 MODERATE BRIGHT, UPPER 1/4 RUBBLY TO CRUSHED, LOWER 3/4 BROKEN, BEDDING 85° TO CORE
74.68 – 74.88	COALY MUDSTONE – BLACK, HARD, DULL, BROKEN, RUBBLY, UNEVEN FRACTURE
74.88 – 77.48	COAL – BLACK, HARD @ 74.88 - 75.48 BROKEN, DULL JOINTED PARALLEL TO CORE, 1/4" SPACINGS @ 75.48 - 76.60 BRIGHT AND BROKEN @ 76.60 - 77.48 BRIGHT, HIGHLY CRUSHED TO PULVERIZED HIGH CORE LOSS
77.48 – 79.5 (77.92, 78.08, 78.28)	MUDSTONE – VERY BLACK, MOD. HARD, BROKEN, FISSILE, BEDDING 90° TO CORE NUMEROUS COALY STRINGERS – @ 77.92 - 78.08 HARD, CRUSHED, BRIGHT COAL
79.5 – 80.7	COAL – BLACK, HARD, BRIGHT, HIGHLY CRUSHED TO PULVERIZED
80.7 – 82.3	MUDSTONE – 50% SILTSTONE (81.0 - 81.6). MUDSTONE IS BLACK, MODERATE HARD, BROKEN, FISSILE, BEDDING 90° TO CORE
82.3 – 85.9	SANDSTONE – GRAYISH BLACK, MODERATE HARD, VERY FINE GRAINED, THIN INTERBEDDING OF SILTSTONE
85.9 – 88.9	MUDSTONE – BLACK, MODERATE HARD, BROKEN, INTERBEDDED SILTSTONE, GRADATIONAL CONTACTS: BEDDING 90° TO CORE
88.9 – 93.5	SANDSTONE – MAINLY SANDSTONE - GRAY, MODERATE HARD TO HARD, VERY FINE TO FINE GRAINED, MINOR INTERBEDDED SILTSTONE AND MUDSTONE. BEDDING 90° TO CORE.
93.5 – 99.3	MUDSTONE – BLACK, MODERATE HARD, BROKEN, THIN COALY STRINGERS, GRADING TO SILTSTONE @ 99.3
99.3 – 109.4	SILTSTONE AND MUDSTONE MIXED 50/50 – SILTSTONE IS GRAY MEDIUM HARD TO HARD, OCCASIONALLY GRADING INTO VERY FINE GRAINED SANDSTONE. MINOR IRONSTONE @ 106.0 - 106.4. MINOR PYRITE CONCENTRATION AT 99.6. MUDSTONE IS BLACK, MODERATE HARD, BROKEN, SLIGHTLY FISSILE, MINOR COALY STRINGERS, BEDDING 80-90° TO CORE
109.4 – 112.7	SANDSTONE – VERY COARSE GRAINED SANDSTONE TO ALMOST CONGLOMERITIC FROM 110.0 - 111.2. WELL SORTED. CROSS BEDDING IN MEDIUM GRAINED PORTIONS. GRADATIONAL UPPER AND SHARP LOWER CONTACTS. SUB ANGULAR TO SUB-ROUNDED GRAINS. QUARTZ, FELD, CHERT
112.7 – 116.48 (116.28)	MUDSTONE – GRAYISH BLACK, MODERATE HARD, BEDDING 85-90° TO CORE, BROKEN, GRADING TO SILTSTONE @ 115.3 - 115.8. GRADATIONAL LOWER CONTACT. @ 116.28 - 116.48 MUDSTONE AND SILTSTONE 50/50%
116.48 – 117.52	COAL – BLACK, HARD, BRIGHT, BANDED 90° TO CORE. BROKEN. MINOR 10 CM. BONE COAL @ 117.0
117.52 – 123.1	MUDSTONE – BLACK, MOD. HARD, BROKEN, MINOR FINE GRAINED SANDSTONE AND FINE SILTSTONE INTERBEDS. MINOR COAL @ 120.6 - 120.9 - BLACK, HARD, BRIGHT, RUBBLY
123.1 – 131.0	SILTSTONE – GRAY TO GRAYISH WHITE, MODERATE HARD TO HARD, THINLY BEDDED 90° TO CORE
131.0 – 141.52	MUDSTONE – BLACK, MODERATE HARD, FISSILE, BROKEN, VERY MINOR INTERBEDDED SILTSTONE. BEDDING 90° TO CORE. @ 141.32 - 141.52 HARD, BROKEN, UNEVEN FRACTURE - 90° TO CORE
141.52 – 144.32	COAL – BLACK, HARD, SOLID CORE @ 141.52 - 143.04 MEDIUM BRIGHT, INDISTINCT BEDDING 85-90° TO CORE. LIGHT WEIGHT @ 143.04 - 144.32 DULL
144.32 – 146.64	MUDSTONE – GRAYISH BLACK TO BLACK, MEDIUM HARD TO HARD, BROKEN, CARBONACEOUS, SLIGHTLY FISSILE. GRADING INTO COAL @ 146.44 - 146.64. SHALY COAL IS BLACK, HARD AND BROKEN
146.64 – 147.0	COAL – BLACK, HARD, DULL-MEDIUM BRIGHT, FRACTURE 10° TO CORE, BEDDING 85-90° TO CORE.
147.0 – 147.20	MUDSTONE – BLACK, MOD. HARD, BROKEN, SLIGHTLY FISSILE AND CARBONACEOUS
147.20 – 149.58	SILTSTONE – GRAYISH BLACK TO GRAY, HARD, PROBABLE HIGH $FeCO_3$ CONTENT, NUMEROUS $FeCO_3$ VEINS RUNNING 90° TO CORE
149.58 – 149.78	MUDSTONE – BLACK, MOD. HARD, FISSILE, BEDDING 90° TO CORE, MINOR THIN COALY LENSES
149.78 –	COAL – BLACK, HARD, MEDIUM BRIGHT, BLOCKY, SOLID CORE @ 149.78 - 151.92 CRUSHED @ 152.9 - 153.1
– 153.58	MUDSTONE INTERBEDDED WITH COAL AND COALY MUDSTONE. MUDSTONE IS BLACK, MEDIUM HARD, SLIGHTLY FISSILE @ 153.14 - 153.28. COAL @ 153.28 - 153.4 IS BLACK, HARD, DULL, AND BLOCKY. COALY MUDSTONE @ 153.4 - 153.58 IS BLACK, MODERATE HARD, HIGHLY FRACTURED PARALLEL TO BEDDING. 90° TO CORE
153.58 – 155.0 (154.2)	SILTSTONE – GRAYISH BLACK, HARD, BROKEN, BEDDING 85° TO CORE, MINOR PYRITE SHOWING @ 154.0
155.0 – 157.0	MUDSTONE – BLACK, MODERATE HARD, BROKEN, CARBONACEOUS TO COALY. FRACTURE PARALLEL TO BEDDING. 90° TO CORE
157.0 – 160.0	SILTSTONE MAINLY, INTERBEDDED WITH FINE GRAINED SANDSTONE AND VERY FINE, BLACK CRYPTO-CRYSTALLINE MUDSTONE
160.0	END OF HOLE

PR-Burnt River 80(3)A
BR 33

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 33

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA

HOLE Nº BR-33 CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED July 24, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED July 26, 1980

HOLE ANGLE -90° TOTAL DEPTH 133.2 M. — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
LOWER CRETACEOUS	COMMOTION	GATES	18.9		OVERBURDEN
			30.8		MUDSTONE - DARK GRAY, MEDIUM - HARD, BROKEN, NUMEROUS CALCITE VEINS. 80° TO CORE. PARALLEL TO BEDDING
			34.7		SILTSTONE - GRAY, HARD. BROKEN, MODERATE Fe CONTENT - OXIDIZED
		SUKUNKA	39.48		MUDSTONE - BLACK, SOFT - MEDIUM HARD, HIGHLY FRACTURED, BROKEN TO RUBBLY, MINOR INTERBEDDED SILTSTONE @ 37.2 - 38.1
			41.20		COAL - HARD, DULL, BROKEN, BEDDING 85° TO CORE. JOINTING (MINOR) PARALLEL TO CORE
			43.0		COAL - HARD, DULL TO MEDIUM BRIGHT, RUBBLY, FRACTURED PARALLEL TO BEDDING
			44.34		COAL - HARD, DULL, BROKEN TO RUBBLY
			45.3		MUDSTONE - DARK GRAY, SOFT TO MEDIUM HARD, HIGHLY FRACTURED
					COAL - HARD, BROKEN, FRACTURED, PARALLEL TO BEDDING
			50.9		MUDSTONE - BLACK, SOFT - MEDIUM HARD, THIN COALY STRINGERS THROUGHOUT, BROKEN, SLIGHTLY FISSILE, 6" OF Fe STONE @ 48.7, 8" ASH OR MICACEOUS MUDSTONE @ 50.4, ALSO 4" @ 50.9
			56.4		SILTSTONE - GRAY, HARD, GRADING OCCASIONALLY TO FINE GRAINED SANDSTONE (CROSSBEDDED) IN THIN WISPY LAMINATIONS. BEDDING 90° TO CORE.
			66.4		MUDSTONE - BLACK, SOFT - MEDIUM HARD, BROKEN, UNEVEN FRACTURE PARALLEL TO BEDDING, 90° TO CORE, MINOR INTERBEDDED SILTSTONE, WHITE SPECKLED MUDSTONE @ 57.9 - 58.5
			71.3		SILTSTONE - GRAY, SOFT - MEDIUM HARD, BROKEN PARTS 90° TO CORE, BEDDING 90° TO CORE. VERY FINE GRAINED SANDY
			72.8		SANDSTONE - GRAYISH WHITE, HARD, MEDIUM GRAINED, THINLY BEDDED 70° TO CORE
			75.3		SILTSTONE - GRAY, VERY HARD, BROKEN, VERY COMPETENT CORE, MASSIVE, LACKS BEDDING
			78.1		SANDSTONE - GRAYISH WHITE, HARD, BEDDING 70° TO CORE, MEDIUM GRAINED. MORE CALCAREOUS.
			FAULT ZONE		FAULT ZONE - HIGHLY CONTORTED, BEDDING STEEPENS TO 15° TO CORE. FRACTURES WERE FILLED WITH CALCITE AND FAULTED AGAIN AS CALCITE IS SLICKENSIDED TOO.
					MIXED SILTSTONE AND SANDSTONE - GRAY, VERY HARD, HIGH Fe CONTENT, GENERALLY MASSIVE
			87.5		COAL - BLACK, HARD, RUBBLY, HIGHLY FRACTURED 20° TO CORE AND PARALLEL TO BEDDING. BEDDING 90° TO CORE.
			88.7		MUDSTONE - BLACK, MEDIUM HARD, BROKEN, INTERBEDDED MUDSTONE, HIGH $Fe CO_3$ CONCENTRATION IN MUDSTONE @ 89.9 - 90.3
			93.4		SILTSTONE - GRAYISH BLACK, MEDIUM HARD, BROKEN, MINOR INTERBEDDED MUDSTONE. MINOR THIN COALY LENSES. BEDDING 85 - 90° TO CORE
			101.5		MUDSTONE - BLACK, MEDIUM HARD, BROKEN, FRACTURED, UNEVEN THROUGHOUT, SLICKENSIDED PARALLEL TO BEDDING
			104.1		SILTSTONE - BLACK TO GRAYISH BLACK, HARD, CONTORTED BEDDING, CARBONACEOUS
			105.7		SILTSTONE AND MUDSTONE - GRAY, MEDIUM HARD, MASSIVE SILTSTONE BLACK, MEDIUM HARD, MASSIVE MUDSTONE PROBABLE HIGH $Fe CO_3$ CONTENT BEDDING 80° TO CORE
			111.68		MUDSTONE - CARBONACEOUS AND SLIGHTLY COALY, BROKEN, FRACTURED, 90° TO CORE
			111.88		COAL - HARD, DULL TO MEDIUM BRIGHT, BEDDING 85° - 90° TO CORE @ 113.28 - 113.48
			114.8		MUDSTONE - BLACK, HARD, BROKEN, FISSILE, MINOR THIN TRACES OF COALY STRINGERS. BEDDING 90° TO CORE.
			115.6		SILTSTONE - GRAY, HARD, THINLY LAMINATED. BEDDING 90° TO CORE GRADING TO 30 % MUDSTONE @ 120 - 120.9
			121.32		MUDSTONE - BLACK, MEDIUM TO HARD, BROKEN; HARD, BROKEN COAL @ 121.55 - 121.92
			123.12		COAL - HARD, DULL, BROKEN, LIGHT WEIGHT. BEDDING 80° TO CORE @ 126.0 - 126.96
			126.96		MUDSTONE - BLACK, MEDIUM HARD, TRENDING TO GRAY AND HARD MUDSTONE, NUMEROUS LAYERS. SLIGHTLY CONTORTED CONTACTS
			130.4		SILTSTONE - GRAY, HARD, SLIGHTLY CONTORTED. MINOR INTERBEDDED MUDSTONE BEDS
			131.9		MUDSTONE - BLACK, MEDIUM HARD, BROKEN, SLIGHTLY FISSILE, CRYPTO CRYSTALLINE TEXT.
			132.5		IRONSTONE - DARK GRAY, FINE GRAINED IRONSTONE MUDSTONE. VERY HARD, UNEVEN FRACTURE. NO BEDDING.
			133.2 Fe ST		END OF HOLE

PR-Burnt River 82(3)A

BR 34

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-34

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-34 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 93.8 M.

LOCATION SUKUNKA AREA

DATUM G.L

DATE STARTED JUNE 21-1980

DATE FINISHED JUNE 23-1980

LOGGED BY B.I.M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GATES	COMMOTION	0		
			5		
			10		OVERBURDEN
			15		
			19.20		
			20		MUDSTONE – CARBONACEOUS
			20.73		
			25		
					SANDSTONE – MEDIUM-COARSE GRAINED, CROSS BEDDED, BROKEN ALONG COAL WISPS, VUGGY, CALCITE VEINING, CONGLOMERATE 32.31 - 33.53 CARBONACEOUS MUDSTONE PARTINGS AT 26.0
			30		
			33.98		
			35		
					MAINLY SANDSTONE (80%) WITH INTERBEDDED CARBONACEOUS MUDSTONE FINE GRAINED CONVOLUTED SILTS 20° TO CORE .10 MUD SEAM AT 34.0 M
			40		
					SILTSTONE, CARBONACEOUS MUDSTONE, MINOR SANDSTONE, HIGH IRON.
	SUKUNKA		42.0		COAL, GENERALLY BRIGHT, BLOCKY; MINOR BONE COAL (6 CM) AT 43.28
		MARKER SEAM 1.20/.49	43.20		
			45		
					MUDSTONE, SILTY PHASES, COAL PARTINGS, INTERBEDDED SANDSTONE 15%, SILTY, FINE GRAINED .15 CM COAL AT 47.70 80°-85° TO CORE 9CM MUD SEAM AT 43.59 SLICKENSIDES : 44.2 – 45.7, 54.25 – 54.86
			50		
			55		
			55.32		
					MAINLY SANDSTONE, FINE TO COARSE GRAINED.
			60		
			60.65		MUDSTONE, CARBONACEOUS, SILTY, MINOR SANDSTONE
			63.25		
			65		SANDSTONE, MUDSTONE MEDIUM INTERBEDDED 50°-80° TO CORE AVERAGE 70° TO CORE SANDSTONE, FINE GRAINED, GRITTY AT 66.40
			66.85		
			67.70		MUDSTONE, SOFT, CARBONACEOUS; BONE COAL 67.61 – 67.70
		UPPER SEAM 3.26/2.31 70%	68.58		COAL, CLEAN, BRIGHT AND BLOCKY SEMI-BRIGHT, HEAVY 68.58 - 68.70 GEO-LOG SHOWS HIGH ASH 69.04 – 69.43 2.88/2.10 TOTAL SEAM 3.28/2.31 70%
			70		
			70.54		MUDSTONE, CRUSHED COAL MIXED .44/.21
			70.98		MUDSTONE, MINOR INTERBEDDED SANDSTONE
			75		SANDSTONE, MUDSTONE, SILTSTONE THINLY INTERBEDDED CONVOLUTED BEDDING 75°-85° TO CORE AT 71.35 – 79.20 SANDSTONE FINE GRAINED, CROSS-BEDDED, LAMINATED SILTS 70° TO CORE AXIS AT 82.0
			80		
			82.28		MUDSTONE, CARBONACEOUS, MINOR SANDSTONE.
			83.41		COAL, BLOCKY, SEMI BRIGHT .17/.12
					MUDSTONE .18/.12
		LOWER SEAM 4.98/4.12 82%	85		COAL, CLEAN, BRIGHT, BLOCKY 4.20/3.59
			87.96		COAL, CLEAN TO DIRTY, MUDSTONE PARTINGS .43/.29
			88.39		MUDSTONE, SOME CRUSHED COAL
			89.54		CLEAN TO BONE COAL .36/.36
			89.92		
			90		MUDSTONE, CARBONACEOUS
			91.30		THINLY INTERBEDDED SILTSTONE, SANDSTONE 85° TO CORE AXIS CARBONACEOUS LAMINATIONS
			93.28		MUDSTONE, CARBONACEOUS
			93.80		END OF HOLE
			95		
			100		

PR-Burnt River 80(3)A
BR 35

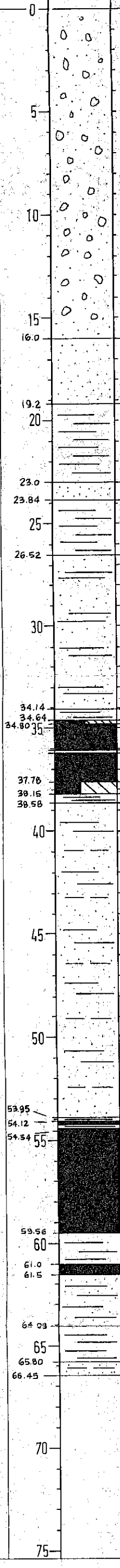
489

TECK CORPORATION
STRATIGRAPHIC LOG
OF
BR-35

VERTICAL SCALE 1 : 200

PROJECT Burnt River
LOCATION Sukunka Area
HOLE Nº BR-35 CORE SIZE NQ
DATUM
CO-ORDINATES ____ N ____ E
DATE STARTED June 25, 1980
COLLAR ELEVATION ____ METRES
DATE FINISHED June 26, 1980
HOLE ANGLE 90° TOTAL DEPTH 66.4 M.
LOGGED BY B. McClymont

SERIES: LOWER CRETACEOUS
FORMATION: SUKUNKA
MEMBER: COMMOTION
DISTANCE FROM DATUM: GATES



DISTANCE FROM DATUM		LITHOLOGIC DESCRIPTION
0		
	OVERBURDEN	
16.0		
	SANDSTONE	MEDIUM GRAINED, CROSS BEDDED, MINOR CALCAREOUS, 75° TO 80° TO CORE
19.2		
	MUDSTONE	CARBONACEOUS, MINOR SILTS
23.0		
	SANDSTONE	SALT AND PEPPER, MEDIUM TO COARSE GRAIN, CROSS BEDDED 70° TO CORE
23.84		
	MUDSTONE	CARBONACEOUS
26.52		
	SANDSTONE	MUDSTONE, MEDIUM, INTERBEDDED. SANDSTONE, FINE TO MEDIUM GRAIN, CROSS BEDDED, CALCAREOUS FRACTURES AT 31.7 to 32.0 m 70° TO CORE
34.14		
	MUDSTONE	CARBONACEOUS, SOFT
34.64		
	COAL	MUDSTONE, CLAY CRUSHED .16/.06
34.80		
	COAL	CLEAN, BRIGHT, AND BLOCKY 2.98/2.80
37.78		
	COAL	CLAY CRUSHED .37/.18
38.15		
	MUDSTONE	CARBONACEOUS
38.58		
	SANDSTONE, MUDSTONE, SILTSTONE, THINLY INTERBEDDED. SANDSTONE: FINE TO MEDIUM GRAIN, SILTY, CROSS BEDDED, CALCAREOUS FRACTURES WITH SLICKS AT 46.02 TO 48.16 m 75° TO CORE AT 39.62 m 75° TO CORE AT 45.42 m 90° TO CORE AT 51.20 m	
53.95		
	MUDSTONE	
54.12		
	COAL	CLEAN, BRIGHT, AND BLOCKY, MINOR MUDSTONE (.03), BROKEN .44/.23
54.54		
	COAL	CLEAN, BRIGHT, AND BLOCKY, CRUSHED 54.44 TO 59.56m 4.82/3.79
59.56		
	MUDSTONE	CARBONACEOUS 1.44/.94
61.0		
	COAL	CLEAN, CRUSHED, .50/.12
61.5		
	SANDSTONE, MUDSTONE	CONVOLUTED SHARP STRUCTURES
64.93		
	MUDSTONE	CARBONACEOUS
65.80		
	SILTSTONE	THINLY INTERBEDDED SANDSTONE
66.45	END OF HOLE	

PR-Burnt River 80(3)A

BR-36

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-36

VERTICAL SCALE 1 : 200

PROJECT Burnt River — LOCATION Sukunka Area

HOLE Nº BR-36 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED

COLLAR ELEVATION ____ METRES — DATE FINISHED

HOLE ANGLE -90° — TOTAL DEPTH 57.29 M. — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	GATES	0		
					OVERBURDEN
			26.8		SANDSTONE.- GRAY TO GRAYISH BLACK, CROSSBEDDED, HARD, FINE GRAINED, SLIGHTLY CARBONACEOUS, APPARENT BEDDING TREND 75° TO CORE.
			28.3		MUDSTONE.- GRAYISH BLACK, HIGHLY FRACTURED, SOFT, CARBONACEOUS. INTERBEDDED FINE GRAINED SANDSTONE
			29.86		SANDSTONE.- GRAYISH BLACK, FINE GRAINED, MEDIUM HARD TO HARD, CROSS BEDDED.
			30.70		MUDSTONE.- BLACK, MEDIUM HARD TO HARD, BROKEN, FRIABLE, CARBONACEOUS, HIGHLY FRACTURED, BEDDING DISTINCT 85° TO CORE MINOR SANDY SILTSTONE AT 31.64 to 31.85 m
			33.35		COAL.- BLACK, HARD, DULL LUSTER, BROKEN TO RUBBLY, FRACTURES PARALLEL TO CORE, SOME BANDING 85° TO CORE, MINOR 5% VITRAIN LENSES OR BANDS, CRUSHED 36.26 to 36.57 m, FRACTURED 50° TO CORE, WITH SLICKENSIDES PERPENDICULAR TO DOWN DIP.
			36.20		SHALY COAL - BLACK, CRUSHED TO PULVERIZED, DULL, POSSIBLE WASH-OUT AREA
			36.60		
			37.48		MUDSTONE.- BLACK, MODERATELY HARD, CARBONACEOUS, WITH INTERBEDDED FINE GRAINED SANDSTONE
					SILTSTONE.- MEDIUM HARD TO HARD, WITH SOME AREAS GRADING INTO A VERY FINE GRAINED SANDSTONE, CROSSBEDDED. NUMEROUS VERY THIN CALCITE STRINGERS 90° TO CORE.
			45.58		MUDSTONE.- BLACK TO GRAYISH BLACK, MEDIUM HARD, SLIGHTLY CARBONACEOUS, BROKEN, UNEVEN FRACTURE.
			46.40		COAL.- BLACK, DULL METALIC GRAY LUSTER, LIGHTWEIGHT, FRACTURED AND BANDING BOTH 70° TO CORE
			46.80		
					COAL.- BLACK, DULL, BLOCKY TO RUBBLY TO CRUSHED, 51.20 to 51.96 m MINOR BANDING 80 to 85° TO CORE FRACTURED 30 to 40° TO CORE.
			51.48		COAL.- BLACK, CRUSHED TO PULVERIZED, POSSIBLE WASHOUT.
			51.92		MUDSTONE.- RUBBLY, CARBONACEOUS, HIGHLY FRACTURED. MINOR SILTSTONE AT 52.12 to 52.88 m
			53.48		COAL.- BLACK, RUBBLY TO CRUSHED, MINOR VITRAIN
			53.79		
					SILTSTONE.- GRAY, HARD, SLIGHTLY SANDY, CARBONACEOUS, FRACTURED 50° TO CORE WITH SLICKENSIDES PARALLEL TO DOWN DIP.
			57.29		END OF HOLE
			65		

PR-Burnt River 80(3)A.

BR 37

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-37

VERTICAL SCALE 1 : 200

PROJECT Burnt River

LOCATION Sukunka Area

HOLE Nº BR-37 CORE SIZE

DATUM

CO-ORDINATES N E

DATE STARTED June 26, 1980

COLLAR ELEVATION METRES

DATE FINISHED June 28, 1980

HOLE ANGLE -90° TOTAL DEPTH 60.35 M.

LOGGED BY B. McClymont

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	GATES	0		
			5		
			10		
			10.36		BASICALLY MUDSTONE, SILTSTONE, MEDIUM INTERBEDDED WITH SANDSTONE PHASES, CONVOLUTED BEDDING, MINOR CALCAREOUS VEINING 70° TO CORE
			15		
			17.67		
			20		SANDSTONE. VERY SILTY, FINE GRAINED, 80° TO CORE
			22.86		
			25		SANDSTONE. THINLY INTERBEDDED SILTS (30%) 80° TO CORE
			26.45		SANDSTONE. SALT AND PEPPER, CROSS BEDDED, CARBONACEOUS, MEDIUM TO COARSE GRAINED, 80° TO CORE.
			27.95		
			28.50		MUDSTONE. CARBONACEOUS, CLAY SEAM (15 cm)
					COAL. CLEAN, BRIGHT, AND BLOCKY, BROKEN 1.22/.94
			29.72		
			30.20 30		BONE COAL/MUDSTONE 60-40 .48/.48
			31.04		COAL. CLEAN, SHEARED, CRUSHED .84/.45
			31.23		MUDSTONE. .19/.06
			32.82		COAL. CRUSHED, BRIGHT 1.59/.24
			33.14		MUDSTONE. COAL PARTINGS .32/.32
			35		
			40		BASICALLY SANDSTONE. SWIRLED MUD AND SILTS. FINE GRAINED, CROSS BEDDED, 50% INTERBEDDED MUDSTONE, AT 46.5 TO 47.8m FRACTURED WITH SLICKENSIDES AT 43.0 TO 45.0 m / 38.6 TO 40.0 75° TO CORE
			45		
			47.80		SANDSTONE. SALT AND PEPPER, COAL WISPS, 70-75° TO CORE
			49.62		MUDSTONE. CARBONACEOUS, VERY SOFT.
			50		
			50.32		COAL. CLEAN, BRIGHT, AND BLOCKY, 1.57/.98
			51.89		BONE COAL. .19/.09
			52.08		COAL. GENERALLY BRIGHT, BROKEN TO CRUSHED, 1.04/.85
			53.12		
			53.52		MUDSTONE. CRUSHED COAL .40/.09
			53.80		MUDSTONE. CARBONACEOUS
			55		MAINLY SANDSTONE, FINE GRAINED, CROSS BEDDED, MUDSTONE, SILTSTONE PHASES, CONVOLUTED AND SWIRLED BEDDING.
			60		
			60.35		END OF HOLE
			65		

PR-Burnt River 80(3)A

BK 38

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-38

VERTICAL SCALE 1 : 200

PROJECT Burnt River

LOCATION Sukunka Area

HOLE Nº BR-38 CORE SIZE NQ

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED June 7, 1980

COLLAR ELEVATION _____ METRES

DATE FINISHED June 8, 1980

HOLE ANGLE -90° TOTAL DEPTH 58.8 M.

LOGGED BY G Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	GATES	0		
			5		OVERBURDEN
			10		
			15.2		SILTSTONE.- GRAYISH BLACK, HARD, BROKEN, GRADING TO AND FROM A FINE GRAINED SANDSTONE, CROSSBEDDED, MINOR CALCITE FILLING ON FRACTURE PLANES.
			20		
			23.4		
			25		SANDSTONE.- LIGHT GRAY, FINE GRAINED, HARD CROSSBEDDED IN THIN WISPY LAMINATIONS, BROKEN MINOR CALCITE AT 30.9 TO 31.4 m.
			30		
			30.76		MUDSTONE, COAL, COALY SHALE. GRAYISH BLACK, BROKEN TO RUBBLY MUDSTONE, BEDDING 85° TO CORE.
			31.44		BLACK, HARD, RUBBLY COAL FROM 30.96 to 31.26 m. BLACK, DULL SHALY COAL FROM 31.26 TO 31.44 m.
					COAL.- BLACK, HARD, DULL TO BRIGHT, JOINTED PARALLEL TO CORE, AND LACKING DECERNABLE BEDDING AT 31.44 TO 34.40 m. HIGHLY FRACTURED RUBBLY AT 34.40 TO 35.88 m
			35		
			35.88		MUDSTONE.- DARK GRAY, SOFT, BROKEN TO RUBBLY, THIN COALY LENSES, FRACTURED 90° TO CORE
			36.08		SANDSTONE.- BLACK TO GRAYISH BLACK, CARBONACEOUS, CROSSBDDG. & FRACTURES 80-85° TO CORE
			37.00		GRAYISH BLACK, MED. TO HARD, BROKEN MUDSTONE, INTERBEDDED BLACK, BLOCKY COAL (37.20 - 37.44 m)
			37.68		
			40		
					MAINLY SILTSTONE AND MUDSTONE, GRAYISH BLACK, MEDIUM TO HARD SILTSTONE WITH SOME CARBONACEOUS SHALE AT 37.6 TO 39.0 m AND 39.3 TO 40.8 m. BLACK, MEDIUM TO HARD, BROKEN, CARBONACEOUS MUDSTONE WITH MINOR COALY SHALE AT 45.2 TO 47.8 m. SOME GRAY, MEDIUM TO HARD, FINE GRAINED SANDSTONE AT 38.0 TO 38.3 m AND 42.5 TO 42.9 m. WORM OR CLAM BURROWS AT 47.8 TO 48.0 m. BEDDING 80° TO CORE THROUGHOUT.
			45		
			50		
			53.6		
			55		SANDSTONE.- GRAY, VERY FINE GRAINED, HARD, BROKEN, CROSSBEDDED, IN THIN WISPY LAYERS
			56.6		MUDSTONE.- GRAY TO BROWNISH BLACK, MEDIUM TO HARD, BROKEN, CARBONACEOUS SHALE, MINOR 10 c.m. COALY SHALE AT 58.8 m MINOR PYRITE IN CLAM BURROWS AT 58.3 m BDDG. 85° TO CORE
			58.8		END OF HOLE
			60		
			65		

COMMOTION

PR-Burnt River 80(3)A
BR 39
489

TECK CORPORATION
STRATIGRAPHIC LOG
OF

BR - 39

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER
HOLE Nº BR-39 CORE SIZE N.Q
CO-ORDINATES 39069.5 N 73103.7 E
COLLAR ELEVATION 1383.2 METRES
HOLE ANGLE -90° TOTAL DEPTH 83.2 M.

LOCATION SUKUNKA
DATUM G.L.
DATE STARTED June 29, 1980
DATE FINISHED July 1, 1980
LOGGED BY B. I. M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	GATES	0		OVERBURDEN
			18.6		SANDSTONE - FINE TO COARSE GRAIN, VERY CARBONACEOUS, DARK GRAY, CROSSBEDDED, MINOR CALCITE, BEDDING 80° TO CORE
			20.75		MUDSTONE - SOFT AND SILTY
			21.9		BASICALLY SANDSTONE - VERY SILTY, MINOR MUDSTONE (15%) FINE GRAINED, CONVOLUTED BEDDING, HARD @ 26.6 - 65-70° TO CORE @ 27.5 - 28.3 BRECCIA, SLICKS
			28.65		MUDSTONE - BLACK, BLOCKY, SILTY PHASES 20%, MINOR SLICKS BROKEN AND CRUSHED WITH CLAY PARTINGS @ 31.0 - 32.10
			32.3		SILTSTONE - WITH INTERBEDDED MUDSTONE, SANDY PHASES LIGHT GRAY, BRECCIA @ 34.3
			35.36		SILTSTONE - WITH THINLY INTERBEDDED MUDSTONE - SOFT SILTSTONE: DARK GRAY, VERY HARD, HIGH Fe CONTENT
			39.0		THINLY INTERBEDDED SILTSTONE, SANDSTONE, MUDSTONE, SANDSTONE INCREASING DOWNWARD, 40 - 40 - 20 SANDSTONE FINE GRAINED, CARBONACEOUS, CROSS BEDDED 75° TO CORE
		COMMOTION	45.2		MUDSTONE - CARBONACEOUS, BLOCKY
			45.3		UPPER SEAM 3.46/2.26 (65%) COAL - CLEAN, BRIGHT, AND BLOCKY TO CRUSHED 1.30/.60
			46.6		MUDSTONE - MINOR BONE .42/.33
			47.02		COAL - CLEAN, BRIGHT, AND BLOCKY 1.18/1.18
			48.2		MUDSTONE, COAL, CLAY MIXED .56/.15
			48.76		MUDSTONE - SHEARED, CALCITE VEINING, VERY CARBONACEOUS
			49.06		
			50		BASICALLY SANDSTONE (60%) WITH THINLY INTERBEDDED SILTSTONE FINE GRAINED, SOFT, SWIRLED AND CONVOLUTED BEDDING MINOR CALCITE 80° TO CORE 70 - 75° TO CORE @ 59.40
			62.66		MUDSTONE - CARBONACEOUS, SOFT, MINOR SANDSTONE, SILTSTONE
			65.26		MUDSTONE - BROKEN, POLISHED, COAL MIXED .40/.15
			65.5		LOWER SEAM 'B' 3.04/1.92 (63%) COAL - CLEAN, BRIGHT, AND BLOCKY TO CRUSHED, WELL POLISHED SLICKS 2.64/1.77
			68.14		MUDSTONE - 50% CALCITE - SMALL FAULT?
			68.3		SANDSTONE - SILTSTONE, THINLY INTERBEDDED, VERTICAL FRACTURES WITH CALCITE 80° TO CORE
			71.66		MUDSTONE - SOFT, BLOCKY, MINOR SANDSTONE @ 72.66
			73.16		BONE? NOT RECOVERED
			73.32		MUDSTONE - SOFT
			73.44		LOWER SEAM 'A' 4.46/3.66 (82%) COAL - CLEAN, BRIGHT, AND BLOCKY TO CRUSHED 3.92/3.50
			77.36		COAL - MUDSTONE PARTINGS .54/.10
			77.90		MUDSTONE - DARK GRAY TO BLACK, MINOR SILT, COAL PARTINGS AND WISPS
			79.18		MARKER SEAM 'B' COAL - BROKEN, DULL TO BRIGHT, HIGH ASH? .44/.27
			79.62		MAINLY MUDSTONE - CARBONACEOUS, HIGH Fe CONTENT WITH CONCRETIONS, VARIES HARD TO SOFT INTERBEDDED SANDSTONE @ 82.3
			83.21		END OF HOLE
			85		

PR-Burnt River 80(3)A

BR 40

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-40

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA

HOLE Nº BR-40 CORE SIZE NQ

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED JULY 6, 1980

COLLAR ELEVATION _____ METRES

DATE FINISHED JULY 7, 1980

HOLE ANGLE -90° TOTAL DEPTH 68.5 M.

LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS

FORMATION: SUKUNKA

MEMBER: COMMOTION

DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
0		
		OVERBURDEN
27.4		SANDSTONE. GRAYISH WHITE, MEDIUM GRAINED, HIGHLY CALCAREOUS, UNIFORM SANDSTONE, HARD, BROKEN, INDISTINCT BEDDING 70° TO CORE, SALT AND PEPPER
30.4		SANDSTONE AND INTER-BEDDED SILTSTONE. HARD, BROKEN, SLIGHTLY CARBONACEOUS, CROSS BEDDED, SOUND CORE, MINOR FRACTURING 25° TO CORE
39.31		SILTSTONE. GRAYISH BLACK, HARD, CARBONACEOUS, WISPY INTERBEDS OF VERY FINE GRAINED SANDSTONE.
40.38		COAL. BLACK, BROKEN, HARD, DULL TO BRIGHT LAMINATIONS, BEDDING 85° TO CORE
42.04		COAL. BLACK, BROKEN, COMPETENT CORE, MINOR UNEVEN FRACTURE 90° TO CORE
43.20		COAL. BLACK, BROKEN TO RUBBLY, HARD, SLIGHTLY SHALY IN THIN LAMINATIONS, BRIGHT TO DULL BANDING, MINOR JOINTING PARALLEL TO CORE.
46.00		COAL. BLACK, RUBBLY, HARD, LIGHTWEIGHT, FRACTURED 65° TO CORE, SLICKERSIDES PARALLEL TO DOWN DIP ON FRACTURED PLANE
47.48		COALY MUDSTONE
		MUDSTONE. VERY BLACK, SOFT TO MEDIUM HARD, BROKEN TO RUBBLY, SOLID TO HIGHLY FRACTURED. 90° TO CORE, HIGHLY CARBONACEOUS TO COALY. MINOR INTERBEDDED COALY SHALE AT 48.9 m. IRONSTONE AT 49.2m. MINOR PYRITE ON FRACTURE PLANES.
55.5		COALY MUDSTONE. BLACK, SOFT TO MEDIUM HARD, BRIGHT AND DULL COAL INTERBEDS IN A VERY BLACK, HIGHLY CARBONACEOUS MUDSTONE. HIGHLY FRACTURED 80° TO 85° TO CORE. DISTINCT BEDDING 80° TO 85° TO CORE. COAL PORTIONS JOINTED 5° TO CORE
57.3		SANDSTONE. GRAYISH BLACK TO BLACK, MEDIUM TO HARD, BROKEN, FINE UNEVEN FRACTURE LINES 90° TO CORE.
61.8		MUDSTONE. BLACK, MEDIUM TO HARD, CARBONACEOUS, BROKEN TO RUBBLY 50/50 MINOR COALY LENSES, UNEVEN FRACTURE 90° TO CORE
65.9		SANDSTONE. GRAY, HARD, VERY FINE TO FINE GRAINED BROKEN, THIN WISPY CROSSBEDDING, MODERATELY CALCAREOUS.
68.5		END OF HOLE
70		
75		

PR-Burnt River 80(3)A
BR 41

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-41

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER
HOLE Nº BR-41 CORE SIZE NQ
CO-ORDINATES 39238.0 N 72992.8 E
COLLAR ELEVATION 1295.8 METRES
HOLE ANGLE -90° TOTAL DEPTH 84.73 M.

LOCATION SUKUNKA AREA
DATUM G.L.
DATE STARTED July 2, 1980
DATE FINISHED July 3, 1980
LOGGED BY B. McClymont

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			5		OVERBURDEN
			10		
			13.10		MUDSTONE - SOFT, CARBONACEOUS, SILTY to SANDY PHASES
			15		
			16.15		SILTSTONE - GRAY, SANDY
			18.29		SANDSTONE - FINE - MED. GRAINED, CONVOLUTED BEDDING, SWIRLED SILTS. THINLY INTERBEDDED MUDSTONE. 70°-75° TO CORE
			20		
			23.47		
			25		MUDSTONE - SOFT, CARBONACEOUS, SILTY PHASES. MINOR FINE GRAINED, CROSS BEDDED SANDSTONE. 70° TO CORE @ 29.57
			30		
			32.06		SANDSTONE - MUDSTONE THINLY INTERBEDDED. 75° TO CORE
			34.50		
			35		MUDSTONE & SILTSTONE - MED. INTERBEDDED, CARB., MED.-HARD. SILTSTONE @ 36.0 - 36.20
			36.20		COAL - DULL, HARD, METALLIC GRAY LUSTER, SLICKENSIDES, BEDDING 60° TO CORE
	UPPER SEAM		37.20		MUDSTONE - SOFT to HARD, HIGHLY FRACTURED & SLICKENSIDED, RUBBLY, MINOR COAL
			37.64		COAL - BLACK to DULL GRAY, RUBBLY, MODERATELY BRIGHT. BEDDING 60° TO CORE
			38.80		MUDSTONE - CARBONACEOUS, MED.-HARD.
			39.00		
			40		
LOWER CRETACEOUS		GETHING	45		MAINLY SANDSTONE, SILTSTONE - (60% - 40%) THIN to MED. INTERBEDDED, VERY GRADATIONAL CONTACTS. FINE - MED. GRAINED, CROSSBEDDED, CONVOLUTED, 70° TO CORE.
			50		
			55		
			55.62		MUDSTONE, SANDSTONE, SILTSTONE - (50% - 30% - 20%). THIN INTBDD. HEAVY CALCITE @ 55.2
			57.44		MUDSTONE - BLOCKY, CARBONACEOUS. VERY SOFT @ 58.0 - 58.2
			58.20		
			60		COAL - HARD, RUBBLY, THINLY BEDDED 60° TO CORE, FRACTURED 60° TO CORE WITH SLICKENSIDES to DOWN DIP OF FRACTURE PLANE. VERY LIGHTWEIGHT. BROKEN to RUBBLY @ 66.0 - 66.76 HIGH CORE LOSS @ 66.76 - 67.42
	LOWER SEAM		65		
			67.42		MUDSTONE - CARBONACEOUS to COALY. SANDY & SILTY PHASES. MED.-HARD, BROKEN
			68.72		COAL - MAJOR JOINTING PARALLEL TO CORE. HIGH ASH BANDS (10%)
			69.24		
			69.44		MUDSTONE - BLACK, MED.-HARD, BROKEN, MINOR COALY LENSES
			70		
			75		MUDSTONE - CARBONACEOUS, BLOCKY, COAL PARTINGS, MINOR SANDY to SILTY PHAGES. COAL - CLEAN BRIGHT & BLOCKY @ 69.60 - 69.87 .15 CRUSHED, BRIGHT COAL @ 78.18 GRAY, SOFT MUDSTONE, Fe CORE 75.60 - 77.10
			78.64		SANDSTONE - MUDSTONE MEDIUM INTERBEDDED, NUMEROUS CLEAN COAL PARTINGS IN MUDSTONE. SANDSTONE IS FINE GR., CROSSBDD., WITH SWIRLED SILTS.
			80		
			81.6		MUDSTONE - BLACK, CARBONACEOUS to LIGHT GRAY & SILTY.
			84.73		END OF HOLE
			85		
			90		
			95		

PR-Burnt River 80(3)A

BR-42

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-42

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-42 — CORE SIZE NQ — DATUM

CO-ORDINATES 39193.9 N 72862.3 E — DATE STARTED July 4, 1980

COLLAR ELEVATION 1308.2 METRES — DATE FINISHED July 6, 1980

HOLE ANGLE -90° — TOTAL DEPTH 125.8 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
			0	
				OVERBURDEN
			19.50	
		BOTTOM SEAM 60		MUDSTONE - SOFT TO MED.-HARD, HIGHLY BROKEN - RUBBLY, CARBONACEOUS. MINOR COAL @ 19.65 - 19.81 (BLACK, HARD, BRIGHT)
			21.60	
				SILTSTONE - CARBONACEOUS WITH INTERBEDDED FINE GRAINED SANDSTONE. BEDDING 60°-65° TO CORE. FRACTURES PARALLEL TO BEDDING PLANE.
			24.30	
				SANDSTONE - GRAY TO GRAYISH-WHITE. VERY HARD, VERY FINE GRAINED, FRACTURED ALONG THIN CARBONACEOUS LENSES 50° TO CORE.
			26.80	
				SILTSTONE & SANDSTONE - INTERBEDDED SILTSTONE & FINE GRAINED SANDSTONE HARD, CROSSBEDDED, MINOR, THIN VERY CARBONACEOUS LENSES
			29.20	
				SANDSTONE - GRAY, FINE GRAINED, HARD, SOUND CORE, VERY MINOR CALCITE IN FRACTURES 20° TO CORE, SHARP LOWER CONTACT
			32.60	
				SANDSTONE, SILTSTONE, & MUDSTONE - GRAYISH-BLACK, MED.-HARD, BROKEN, BEDDING 60° TO CORE IN THIN LAMINATIONS. SANDSTONE IS FINE GRAINED.
			34.50	
				MUDSTONE - MED.-SOFT TO MED.-HARD. HIGHLY FRACTURED PARALLEL TO BEDDING, 80° TO CORE. SHARP LOWER CONTACT. GRADATIONAL UPPER CONTACT.
			37.50	
				SANDSTONE - GRAYISH-WHITE, HARD, FINE GRAINED, BROKEN.
			39.60	
				MUDSTONE - MED.-HARD, BROKEN, UNEVEN FRACTURE, SLIGHTLY CARBONACEOUS GRADATIONAL UPPER & LOWER CONTACTS
			45.70	
				SANDSTONE - GRAY.-WHITE, VERY FINE GRAINED, GRADING TO VERY COARSE GRAINED. WEAK TO MODERATELY CALCAREOUS, BROKEN, FRACTURED 20° TO CORE. CALCITE INFILLING, SHARP LOWER CONTACT.
			52.70	
				SILTSTONE - GRAY.-WHITE TO BLACK, SOME SANDSTONE & MUDSTONE
		MARKER 'C'	58.04	
			59.28	COAL - WITH 2 THIN SHALY COAL PARTINGS. NOTE: ONLY 6" RECOVERED BY CORING
				SILTSTONE - GRAY.-WHITE TO BLACK.
			63.40	
				SANDSTONE & MUDSTONE - MAINLY FINE GRAINED SANDSTONE & MUDSTONE
			67.0	
				MUDSTONE & SILTSTONE
			69.10	
				MAINLY SANDSTONE WITH THIN INTERBEDDED SILTSTONE & MUDSTONE
			74.0	
				MAINLY MUDSTONE & SILTSTONE
			75.80	
				MAINLY SANDSTONE
			77.70	
				MUDSTONE
			79.20	
				IRONSTONE SHALE
			80.10	
				MUDSTONE & SILTSTONE
			84.70	
				MAINLY SANDSTONE WITH INTERBEDDED SILTSTONE
			90	
		UPPER SEAM	90.5	MUDSTONE - BLACK, MED.-HARD, CARBONACEOUS, MINOR COALY LENSES
			91.1	COAL - BRIGHT, HARD, BROKEN TO RUBBLY, FRACTURES AND BEDDING 50° TO CORE.
			91.88	SHALE/COALY SHALE - MED.-HARD, BROKEN TO RUBBLY SHALE WITH COALY SHALE @ 91.88 - 92.12
			92.84	
			93.80	COAL - BRIGHT, HARD, BROKEN TO HIGHLY RUBBLY
			94.08	COALY SHALE - MED.-HARD, BANDING IN COAL LENSES 65° TO CORE, RUBBLY.
			95	
			100	SANDSTONE - GRAYISH-WHITE, FINE TO MEDIUM GRAINED, CROSSBEDDED, HARD, SLIGHTLY CARBONACEOUS, FRACTURED 20° TO CORE WITH CALCITE AND PYRITE INFILLING. MINOR INTERBEDDED SILTSTONE AND THIN SHALE (STRONGLY CALCAREOUS)
			105	
			110	
			112.7	MUDSTONE - MUDSTONE WITH MED.-SOFT, RUBBLY CARBONACEOUS SHALE @ 113.36 - 113.56
			113.56	
		LOWER SEAM	115	COAL - BRIGHT, HARD, BEDDING 65° TO CORE IN THIN LAMINATIONS, FRACTURED 40° TO CORE WITH SLICKENSIDES 40° TO DOWN DIP ON FRACTURE PLANE. THIN BRIGHT TO DULL BANDING THROUGHOUT
			118.92	SHALY COAL - SAME AS ABOVE... BUT HIGHLY RUBBLY & SLIGHTLY SHALY
			119.68	MUDSTONE - MED.-HARD, SLIGHTLY CARB., UNEVEN FRACTURE, MINOR FINE GR. SANDSTONE
		MARKER 'B'	121.16 120	
				MUDSTONE
			123.1	
				SANDSTONE - GRAY, HARD, FINE GRAINED. GRADING INTO SILTSTONE AND MINOR MUDSTONE. BLACK WHITE SPECKLED SHALE (POSSIBLY VOLCANIC ASH) @ 124.2
			124.9 125	
			125.8	MUDSTONE - VERY BLACK, MED.-HARD, BROKEN, BEDDING 60° TO CORE, UNEVEN FRACTURE
				END OF HOLE
			130	

LOWER CRETACEOUS — GETHING

PR-Burnt River 80(3)A

BR-43

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-43

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-43 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 47.2 M.

LOCATION SUKUNKA

DATUM _____

DATE STARTED JULY 9, 1980

DATE FINISHED JULY 11, 1980

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	COMMOTION	0		
					OVERBURDEN
			37.7		SHALE, GRAYISH BLACK, MEDIUM TO HARD, BROKEN, WHITE SPECKLED SHALE FROM 38.4 to 38.7m
			38.7		SILTSTONE, GRAY TO GRAYISH WHITE, BROKEN TO RUBBLY, UNEVEN FRACTURE 30° TO CORE WITH MINOR INTERBEDDED GRAY FINE GRAINED SANDSTONE
			42.6		SANDSTONE GRAY TO GRAYISH WHITE, VERY FINE GRAINED. MINOR INTERBEDDED AND SLIGHTLY CARBONACEOUS MUDSTONE AND SILTSTONE. 10 cm BRECERATED SILTSTONE AT 43.6 m, FRACTURE FILLED WITH CALCITE.
			45.4		MUDSTONE GRAYISH BLACK TO BLACK, MEDIUM TO HARD, BROKEN TO RUBBLY, FRACTURED SUB. PARALLEL TO CORE, UNEVEN FRACTURES
			47.2		END OF HOLE
			55		

PR-Burnt River 80(3)A

BR-44

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

DH BR-44

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-44 — CORE SIZE NQ — DATUM

CO-ORDINATES 39017.5 N 72958.0 E — DATE STARTED July 11, 80

COLLAR ELEVATION 1291.3 METRES — DATE FINISHED July 13, 80

HOLE ANGLE -90° — TOTAL DEPTH 88.7 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
					OVER BURDEN
			5		
			7.6		SANDSTONE — GRAY, HARD, FINE GRAINED SANDSTONE, WITH INTERBEDDED DARK GRAY SILTSTONE AND MUDSTONE, MINOR COAL @ 11.8, GRADATIONAL CONTACTS THROUGHOUT. COAL @ 11.8 SEEMS TO HAVE SOME PALE GREEN OXIDATION COLORING ON IT. FRACTURE PLANES ON SANDSTONE ARE HEAVILY OXIDIZED. LIMONITE STAIN, SANDSTONE IS COMPOSED PARTLY OF FINE GRAINED QUARTZ AND CLEAR MICA
			10		
			14.3		
			15		SILTSTONE — INTERBEDDED, BLACK, SILTSTONE, MUDSTONE AND FINE GRAINED SANDSTONE, GRADING FROM ONE TO ANOTHER, BROKEN, MODERATE HARD TO HARD SHALES ARE OCCASIONALLY COALY WITH THIN COALY LENSES. SANDSTONE IS FINE GRAINED, CROSS BEDDED IN THIN WISPY LAMINATIONS BEDDING 55° TO CORE. SHALES PART PARALLEL TO BEDDING WITH AN UNEVEN FRACTURE. VERY BLACK SHALES ARE SLIGHTLY FISSILE. SHARP LOWER CONTACT WITH COAL.
			20		
			25		
			30		
			31.76		MUDSTONE — GRAY, MODERATE HARD, FRACTURE PARALLEL TO BEDDING TREND 55° TO CORE
			31.96		COAL — BLACK, WITH DULL METALLIC GRAY SHEEN, HIGHLY SHEARED PARALLEL TO CORE AND BEDDING (50-55° TO CORE), SLICKENSIDES PARALLEL TO DOWN DIP, FRIABLE, RUBBLY. APPEARS TO HAVE UNDERGONE SOME SORT OF ALTERATION. ONLY RUBBLY @ 33.2 - 34.4 AND RUBBLY TO CRUSHED @ 34.4 - 35.88
			35		
		SEAM 60	35.88		
			36.08		MUDSTONE — GRAYISH BLACK, MOD. HARD, FRACTURE PARALLEL TO CORE, SLICKENSIDES PARALLEL TO CORE ON FRACTURE PLANE. ALSO FRACTURED PARALLEL TO BEDDING TREND. @ 37.2 - 37.88 FRACTURED 40° TO CORE AND HIGHLY SHEARED AND SLICKENSIDED
			37.00		
			37.20		
			37.88		COAL - BLACK, HARD, HIGHLY CRUSHED
			38.08		MUDSTONE - DARK GRAYISH BROWN, SOFT, HIGHLY SHEARED, PARALLEL TO BEDDING, BROKEN TO RUBBLY, BEDDING 60° TO CORE (SUSPECT BEDDING PLANE SLIPPAGE)
			39.8		SILTSTONE — DARK GRAYISH BLACK, MODERATE HARD, FINE SANDY BEDDING 80° TO CORE, FRACTURED PARALLEL TO CORE WITH CALCITE INFILLING
			40.0		
			40		COAL - BLACK, HIGHLY CRUSHED AND PULVERIZED
			41.16		MUDSTONE — BLACK, MODERATE HARD, FRACTURE 55° TO CORE, CARBONACEOUS TO COALY (THIN LENSES)
			41.26		
			45		
			50		SANDSTONE — GRAYISH BLACK, HARD TO VERY HARD, UNIFORM GRAIN SIZE, FINE TO MEDIUM GRAINED. MINOR INTERBEDDED MUDSTONE AND SILTSTONE BEDDING 65° TO CORE @ 44.0; 60° TO CORE @ 54.0 DISTINCT.
			55		
			56.3		SILTSTONE — BLACK, HARD, SILTSTONE WITH MINOR INTERBEDDED SANDSTONE
			60		
			62.5		
			65		SANDSTONE — GRAY, VERY HARD, FINE GRAINED, SANDSTONE GRADING TO A BLACK HEAVY SILTSTONE. BEDDING 65° TO CORE
			69.2		SILTSTONE — BLACK, HARD, SLIGHTLY SANDY, FRACTURED PARALLEL TO BEDDING SLICKENSIDES 60° TO DOWN DIP. BEDDING 55° TO CORE, CALCITE VEINING PERPENDICULAR TO BEDDING, ALSO FRACTURED 40° TO CORE AND CALCITE FILLED
			70		
			71.0		SANDSTONE — FINE TO COARSE GRAINED @ 74.9 - 78.0. MORE CALCAREOUS / BROKEN TO RUBBLY, COALY LENSES, HIGHLY CONTORTED. FRACTURED 20° TO CORE. SLICKENSIDES PARALLEL TO DOWN DIP ON FRACTURE PLANE
			75		
			78.0		SILTSTONE — BLACK TO GRAYISH BLACK, HARD, BROKEN BUT BASICALLY SOUND CORE, MINOR INTERBEDDED SANDSTONE - GRADATIONAL CONTACTS SOAPSTONE (?) OR ASH (?) AT 83.5. VERY SOFT. ASH GRAYISH BROWN TO WHITE
			80		
			84.7		COAL — BLACK, HARD, HIGHLY CRUSHED - HIGHLY PULVERIZED SHARP UPPER CONTACT, GRADATIONAL LOWER CONTACT
		MARKER "C"	85		
			85.4		SANDSTONE - DARK GRAYISH WHITE, HARD, GRADING OCCASIONALLY INTO SILTSTONE. ABOUT 50% SILTSTONE. BEDDING 55° TO CORE. THROUGHOUT. BASICALLY SOUND CORE IRONSTONE MUDSTONE FROM (86 - 87 m). VERY HARD. VERY FINE GRAINED.
			88.7		END OF HOLE
			90		
			95		

LOWER CRETACEOUS — COMMOTION — GATES — SUKUNKA

BR-45

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

D.H. BR - 45

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-45 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED July 14 / July 21,80 } DEEPENING OF DRILL HOLE

COLLAR ELEVATION ____ METRES — DATE FINISHED July 16 / July 22,80 }

HOLE ANGLE -90° — TOTAL DEPTH 114.9 M. — LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS

FORMATION: SUKUNKA

MEMBER: COMMOTION GATES

DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
0		
13.4		OVERBURDEN
14.0		SILTSTONE - BLACK, SOFT TO MEDIUM HARD, CARBONACEOUS
22.0		SILTSTONE - GRAY TO GRAYISH BLACK, HARD, BROKEN WITH MINOR INTERBEDDED CARBONACEOUS MUDSTONE. FRACTURED 10 - 20° TO CORE WITH CALCITE INFILLING. SLIGHTLY SANDY IN THIN WISPY BEDS. CARBONACEOUS MUDSTONE @ 17.3 - 17.7 AND 19.0 - 19.4
27.7		CARBONACEOUS MUDSTONE - BLACK, MODERATE HARD, BROKEN, MODERATE FRACTURE MINOR INTERBEDDED SILTSTONE @ 23.9 - 25.3 AND 26.6 - 26.9. BEDDING 60° TO CORE. FRACTURED PERPENDICULAR TO BEDDING 50° TO CORE WITH CALCITE INFILLING
31.3		SANDSTONE - GRAY, HARD, BROKEN. VERY FINE TO FINE GRAINED, UNIFORM. 40 % INTERBEDDED SILTSTONE, BLACK, HARD, BROKEN, GRADATIONAL CONTACTS
34.4		MUDSTONE - BLACK, MODERATE HARD, BROKEN, MEDIUM WELL FRACTURED. MODERATE CARBONACEOUS. PYRITE CONCENTRATION @ 33.8
44.0		SANDSTONE - GRAY, HARD, CROSSBEDDED. MINOR CARBONACEOUS MUDSTONE INTERBEDS. GRADATIONAL UPPER AND LOWER CONTACTS.
47.5		SILTSTONE - GRAYISH BLACK, MODERATE HARD - HARD. MINOR CARBONACEOUS MUDSTONE @ 44.4 - 55.5. BLACK, HARD, CARBONACEOUS TO COALY.
49.84		SANDSTONE - GRAY, HARD, CROSSBEDDED IN FINE GRAINED, THIN, WISPY BEDS
MARKER "C"		SILTSTONE - HARD, VERY FINE GRAINED, INTERBEDDED WITH GRAY, VERY HARD SANDSTONE @ 50.04 - 50.28, MOD. HARD, COALY MUDSTONE @ 50.42 - 50.54 AND SOFT COALY MUDSTONE @ 51.26 - 51.52, INTERBEDDED ALSO WITH COAL AND MUDSTONE @ 50.42 - 51.26. COAL IS BLACK, HARD, RUBBLY, LIGHTWEIGHT AND FRACTURED 20° TO CORE. MUDSTONE IS DARK, GRAYISH BLACK, VERY HARD, MINOR $Fe CO_3$, BROKEN, AND UNEVEN FRACTURE.
51.72		
55		SANDSTONE - GRAY, HARD, VERY FINE GRAINED. UNIFORM GRAIN SIZE. BROKEN SOUND CORE - MINOR INTERBEDDED MUDSTONE @ 53.6 - 55.1 BLACK, HARD, CARBONACEOUS TO COALY.
60.9		SANDSTONE - GRAY, HARD, CROSSBEDDED IN THIN WISPY LAYERS.
64.6		MUDSTONE - BLACK, MODERATE HARD, CARBONACEOUS FRACTURED 40° TO CORE WITH SLICKENSIDES PARALLEL TO DOWN DIP.
65.6		SILTSTONE - GRAYISH BLACK TO BLACK, MODERATE HARD TO HARD, BROKEN - MAINLY SOUND CORE. MINOR CARBONACEOUS MUDSTONE.
68.5		SANDSTONE - GRAYISH TO GRAYISH BLACK, HARD, BROKEN, MODERATE CALCAREOUS.
71.0		SILTSTONE - GRAYISH BLACK TO BLACK, MODERATE HARD, BROKEN
74.0		SANDSTONE - GRAY TO GRAYISH BLACK, MODERATE HARD, FINE GRAINED CROSSBEDDED
79.2		SANDSTONE - GRAYISH WHITE, HARD, COARSE GRAINED. CONTORTED COALY LENSES GRADING TO SILTSTONE 82.9 - 84.4 (GRAYISH BLACK, MODERATE HARD.
84.28		SILTSTONE - GRAY, HARD, VERY FINE GRAINED, RUBBLY, HIGHLY FRACTURED
84.52		MUDSTONE - DARK GRAY, MODERATE HARD, UNEVEN FRACTURE
85.85		COAL - BLACK, HARD, LIGHTWEIGHT @ 85.0 - 86.00 HIGHLY CRUSHED TO PULVERIZED, DULL METALLIC GRAY SHEEN @ 86.0 - 86.28 BRIGHT, FRACTURE 20° TO CORE
UPPER SEAM		
86.28		
86.96		COALY MUDSTONE - BLACK, MOD. HARD, UNEVEN FRACTURE, CONTORTED, CARBONACEOUS TO COALY.
		COAL - BLACK, DULL TO BRIGHT, HARD, BEDDING 20° TO CORE. FRACTURED PARALLEL TO BEDDING.
89.24		SILTSTONE INTERBEDDED WITH MUDSTONE. SILTSTONE IS GRAY, HARD, FINE GRAINED, HEAVY, CARBONACEOUS TO COALY. MUDSTONE IS BLACK, SOFT, HIGHLY SHEARED PARALLEL TO BEDDING. RUBBLY TO CRUSHED @ 88.0 - 89.0
89.2		
90		
94.7		MUDSTONE - BLACK, SOFT TO MODERATE HARD, CARBONACEOUS TO COALY. HIGHLY FRACTURED.
95		SANDSTONE - GRAY, HARD, WITH INTERBEDDED SILTSTONE AND MUDSTONE, BROKEN, CROSSBEDDED. BEDDING 45° TO CORE. NUMEROUS CALCITE VEINS FILLING FRACTURE 45° TO CORE AND PERPENDICULAR TO BEDDING
100		
102.40		MUDSTONE - GRAYISH BLACK, MODERATE HARD
		@ 102.4 - 106.08 SLIGHTLY CARBONACEOUS, BROKEN, BEDDING 45° TO CORE
105		@ 106.08 - 106.28 RUBBLY TO CRUSHED, HIGHLY FRACTURED 35° TO CORE. SLICKENSIDES PARALLEL TO DIP OF FRACTURE, BEDDING 35° TO CORE
106.28		COAL - BLACK, HARD, HIGHLY SHATTERED, CRUSHED TO PULVERIZED, DULL METALLIC GRAY LUSTER (SHEEN). FRACTURED PARALLEL TO CORE.
UPPER SPLIT IN LOWER SEAM		
108.48		MUDSTONE - BLACK, MODERATE HARD, RUBBLY, FRACTURED 45° TO CORE, AND ALSO 40° TO CORE (MUTUALLY ROTATED 40° TO ONE ANOTHER WITH OPPOSING DIP DIRECTIONS @ 108.48 - 108.69
110		BLACK, MODERATE HARD - HARD AND INTERBEDDED IRONSTONE. MUDSTONE FRACTURE 60° TO CORE, WITH SLICKENSIDES 60° FROM PARALLEL TO DOWN DIP. HIGHLY POLISHED FRACTURE PLANES. MINOR CALCITE INFILLING, RUBBLY @ 108.68 - 114.59
114.59		END OF HOLE
115		

PR-Burnt River 80(3)A

BR-46

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

D.H. BR-46

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-46 CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED July 16, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED July 19, 1980

HOLE ANGLE -90° TOTAL DEPTH 91.4 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	GATES	0		
			0		OVER BURDEN
			10.9		SANDSTONE – GRAY, MEDIUM HARD, BROKEN, MEDIUM TO COARSE GRAINED, FAIRLY MASSIVE, THINLY BEDDED. BEDDING 65° TO CORE GENERALLY. OCCASIONAL FRAGMENTS OF MUDSTONE IN THE SANDSTONE. INDICATION OF B.P. SLIPPAGE (?), FAULTING AND POSSIBLE REPEATING.
			20		POSSIBLE FAULT
			26.22		BASE OF SEAM 60 — COAL – BLACK, BRIGHT, HARD, RUBBLY - HIGHLY CRUSHED, HIGHLY FRACTURED. BEDDING 50-55° TO CORE – LIGHTWEIGHT, SHARP UPPER CONTACT (POSSIBLE FAULT.) GRADATIONAL LOWER CONTACT. SANDSTONE NEAR UPPER CONTACT APPEARS TO BE HIGHLY STRESSED.
			27.60		MUDSTONE – BLACK, MEDIUM HARD, HIGHLY CARBONACEOUS GRADING TO SILTSTONE WITH MINOR FINE GRAINED, INTERBEDDED SANDSTONE
			28.8		SILTSTONE – GRAY TO BLACK, HARD, VERY FINE GRAINED INTERBEDDED SANDSTONE
			30.4		MUDSTONE – BLACK, HARD, CARBONACEOUS, SHARP UPPER AND LOWER CONTACTS.
			32.3		SILTSTONE – GRAYISH BLACK, HARD, INTERBEDDED VERY FINE GRAINED SANDSTONE. BEDDING 60° TO CORE.
			33.0		MUDSTONE – VERY BLACK, MEDIUM HARD, BROKEN, UNEVEN FRACTURE, HIGHLY CARBONACEOUS
			35.0		SILTSTONE – GRAY, HARD, BROKEN, THINLY BEDDED 50° TO CORE, CONTORTED, GRADATIONAL CONTACTS.
			36.5		MUDSTONE – BLACK, HARD, BROKEN TO RUBBLY, HIGHLY FRACTURED 45° TO CORE. SLICKENSIDES ARE 90° TO DIP OF FRACTURE PLANE. (STRIKE-SLIP MOVEMENT) SHARP UPPER CONTACT, GRADATIONAL LOWER CONTACT.
			38.4		SILTSTONE – GRAYISH BLACK, HARD, GRADING TO BLACK CARBONACEOUS MUDSTONE @ 38.4
			42.0		MUDSTONE – BLACK, HARD, BROKEN, CARBONACEOUS CONTACT @ 42.0 IS CONTORTED WITH BITS OF SANDSTONE. BRECCIATED @ 41.1
			46.9		SANDSTONE – GRAY, HARD, MINOR INTERBEDDED SILTSTONE AND MUDSTONE. SANDSTONE IS FINE TO MEDIUM GRAINED. FRACTURED 10° TO CORE TO THE WELL DEVELOPED GYPSUM CRYSTALS.
			51.8		MUDSTONE – BLACK, MEDIUM HARD, BROKEN, CARBONACEOUS TO SLIGHTLY COALY. HIGHLY FRACTURED. GRADING INTO A SERIES OF INTERBEDDED MUDSTONE AND SILTSTONE.
			63.7		CARBONACEOUS MUDSTONE AND SILTSTONE – MIXED 50/50 BEDDING 55° TO CORE @ 63.7. FRAGMENTS OF CARBONACEOUS MUDSTONE IN THE SILTSTONE. SHARP LOWER (CONTORTED) CONTACT. WELL DEVELOPED CALCITE CRYSTALS @ 58.8
			68.2		MARKER "C" — MUDSTONE
			68.55		COAL – BLACK, HARD, BRIGHT, HIGHLY SHATTERED. FRACTURED 10° TO CORE. SLICKENSIDES 45° TO CORE ON FRACTURE PLANE. INTERBEDDED SILTSTONE @ 69.56 - 69.76
			69.76		
			70.0		MUDSTONE – BLACK, MEDIUM HARD TO HARD, HIGHLY CARBONACEOUS WITH MINOR COALY LENSES. FRACTURED 30-35° TO CORE. SLICKENSIDES PARALLEL TO DOWN DIP OF FRACTURE PLANE. ½" PYRITE @ 72.2
			78.0		SILTSTONE – GRAY, MEDIUM HARD, THINLY BEDDED 50° TO CORE. MINOR CALCITE INFILLING ON FRACTURES 50° TO CORE
			80.7		MUDSTONE – BLACK, HARD, CARBONACEOUS TO COALY, CONTORTED, UNEVEN FRACTURE, QUITE COALY @ 85.9 - 86.1 FRACTURED 40° TO CORE (86.2) WITH SLICKENSIDES PARALLEL TO DOWN DIP. MINOR CALCITE IN VERY THIN VEINS.
			86.2		SANDSTONE – GRAY, HARD, HIGHLY CONTORTED AND FRACTURED. NUMEROUS CALCITE VEINS AT VARIOUS ANGLES TO CORE. FRACTURED 35° TO CORE WITH CARBONACEOUS STRINGERS ON FRACTURE PLANES. HIGHLY POLISHED SLICKENSIDES PARALLEL TO DOWN DIP
			91.4		END OF HOLE

PR-Burnt River 80(30)

BR-47

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

D.H. BR-47

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-47 CORE SIZE N.Q — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED July 20, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED July 21, 1980

HOLE ANGLE -65 W TOTAL DEPTH 15.8 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	SUKUNKA GATES	0		
					OVERBURDEN
			5		
			10.2		MUDSTONE - BLACK, MODERATE HARD, HIGHLY FRACTURED, BROKEN TO RUBBLY, BEDDING 40° TO CORE. MINOR CALCITE VEINS
		POSSIBLE	13.2		
			13.8 / 13.7		COAL - BLACK, HARD, BRIGHT, SHATTERED, RUBBLY, BEDDING 35° - 40° TO CORE HIGHLY FRACTURED PARALLEL TO CORE
		LOWER PART OF SEAM 60			SILTSTONE - GRAYISH BLACK, HARD, CARBONACEOUS, BLOCKY, PROBABLY SOME $FeCO_3$
			15		END OF HOLE

PR-Burnt River 80(3)A
BR-48

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 48

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER
HOLE Nº BR-48 CORE SIZE NQ
CO-ORDINATES _____ N _____ E
COLLAR ELEVATION _____ METRES
HOLE ANGLE -90° TOTAL DEPTH 50.60 M.

LOCATION SUKUNKA AREA
DATUM G.L
DATE STARTED July 22, 1980
DATE FINISHED July 24, 1980
LOGGED BY B.I.M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0		
			5		
			10		
			15		OVERBURDEN
			20		
			25		
			28.0		SANDSTONE, CONVOLUTED SILTSTONE. FINE - MEDIUM GRAIN, 70° TO CORE MINOR CALCAROUS, PYRITE ON FRACTURES
			30		
			31.70		SILTSTONE, MUDSTONE MEDIUM INTERBEDDED
			35		
			36.11		SANDSTONE, SILTSTONE, MUDSTONE THINLY INTERBEDDED, 70° TO CORE CARBONACEOUS, SWIRLED BEDDING, SHARP STRUCTURES
		LOWER SEAM 5.14/4.15 (80%)	37.84		COAL - CLEAN, BRIGHT & BLOCKY, MEDIUM HARD TO HARD SILTSTONE ROOF COAL FINELY CRUSHED 42.56 - 43.0, HIGH ASH?
			40		
			42.56		
			43.0		MUDSTONE, SOFT, CARBONACEOUS 43.0 - 43.30
			43.30		SANDSTONE, MEDIUM GRAIN, SWIRLED SILTS, 75° TO CORE
		Marker "B"	43.94		MUDSTONE, VERY CARBONACEOUS, SOFT
			44.38		COAL, BLOCKY TO CRUSHED, CLEAN .48/.15
			44.86		
			45.31		MUDSTONE, SOFT, VERY CARBONACEOUS
			45		SANDSTONE, THINLY INTERBEDDED MUDSTONE - SILTSTONE FINE GRAIN, HIGHLY CONVOLUTED BEDDING, 80° TO CORE ABUNDANT CLAM SHELLS
			48.93		MUDSTONE, SOFT, VERY CARBONACEOUS
			50		
			50.60		END OF HOLE
			55		

PR-Burnt River 80(3)A

BR-49

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 49

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNA AREA

HOLE Nº BR-49 CORE SIZE NQ

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED

COLLAR ELEVATION _____ METRES

DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 82.9 M.

LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS

FORMATION: COMMOTION

MEMBER: SUKUNKA

DISTANCE FROM DATUM / COLUMNAR SECTION

DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
0	OVERBURDEN
.6	SANDSTONE – GRAYISH, WHITE, HARD, MEDIUM GRAINS, UNIFORM GRAIN SIZE BEDDED 75° TO CORE (ONLY 5 FEET IN CORE BOX) WEATHERED
4.8	MUDSTONE – GRAYISH BLACK, MEDIUM - HARD, SLIGHTLY CARBONACEOUS BROKEN - RUBBLY
5.4	COAL – BLACK, HARD, MEDIUM BRIGHT, RUBBLY
6.1	MUDSTONE – BLACK, MEDIUM - HARD, BROKEN, HIGHLY FRACTURED, OCCASIONAL INTERBEDS OF $FeCO_3$, MINOR COALY LENSES, CONTORTED BEDDING, WEATHERED WITH $Fe O_2$ STAINING
16.7	SILTSTONE – GRAYISH BLACK, HARD, FINE, THIN LAMINATIONS OF VERY FINE SAND AND SILTS. CROSS BEDDED, TRENDING 70° TO CORE, WEATHERED TO 24.3, MINOR INTERBEDS OF MUDSTONE 25.9 - 27.4, HIGHLY FRACTURED 26.3 - 27.4, POSSIBLE THIN VOLCANIC ASH @ 26.7
27.4	SILTSTONE – LIGHT GRAY, HARD, THINLY BEDDED, CROSS BEDDED, BROKEN, BEDDING 60° TO CORE
32.9	SANDSTONE – LIGHT GRAY, HARD, FINE GRAINED, THINLY BEDDED, 60° TO CORE, BROKEN, WITH THIN SHALY INTERBEDS
35	SILTSTONE – MEDIUM, MEDIUM - HARD, FINE GRAINED, SLIGHTLY SANDY SILTSTONE - BROKEN
41.4	SILTSTONE – GRAY & GRAYISH BLACK, MEDIUM - HARD, FINE, SLIGHTLY SHALY SILTSTONE - GRADING TO A SLIGHTLY SANDY SILTSTONE, BROKEN, BEDDING 70° TO CORE
51.2	SANDSTONE – GRAY - HARD, BROKEN, FINE - MEDIUM GRAINED, BEDDING 70° TO CORE, CALCITE INFILLING ON FRACTURES, 35° TO CORE PERPENDICULAR TO BEDDING
52.4	SILTSTONE – GRAYISH BLACK - BLACK, HARD, BROKEN, WITH MINOR INTERBEDDED BLACK MUDSTONE – MEDIUM - HARD, CARBONACEOUS TO COALY, THIN 2" VOLCANIC ASH @ 55.1, GRADING 56.6 - 57.9 COALY MUDSTONE, BLACK, MEDIUM - HARD, BROKEN, BEDDING 60° TO CORE, FRACTURED 55 - 60° TO CORE, PARALLEL TO BEDDING
57.04	FOR DETAILS SEE SEAM THICKNESS LOG
65.94	MIXED UNIT OF BLACK MEDIUM - HARD, BROKEN MUDSTONE, AND GRAYISH BLACK SANDY SILTSTONE, WITH MINOR INTERBEDDED FINE GRAINED SANDSTONE
72.5	MUDSTONE AND SILTSTONE – BASICALLY 50/50 GRADING FROM ONE TO ANOTHER
73.4	72.5 - 73.4 SILTSTONE
74.6	73.4 - 74.6 MUDSTONE
76.5	74.6 - 76.5 SILTSTONE
78.0	76.5 - 78.0 MUDSTONE
79.4	78.0 - 79.4 SILTSTONE
80.5	79.4 - 80.5 MUDSTONE
82.9	SANDSTONE – LIGHT GRAY, VERY HARD, FINE GRAINED, THIN COALY BEDS IN BOTTOM 6", CALCITE VEINS IN ALL FRACTURES, RUNNING GENERALLY 35° TO CORE
	END OF HOLE

PR-Burnt River 82C/3A

BR-50

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 50

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-50 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 73.1 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED Aug 11, 1980

DATE FINISHED Aug 14, 1980

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION SUKUNKA	GATES	0		OVERBURDEN
			18.3		MUDSTONE - BLACK, MODERATE HARD, HIGHLY FRACTURED PARALLEL TO CORE WITH HIGHLY POLISHED SLICKENSIDES
			23.1		MUDSTONE - BLACK, HARD, HIGHLY FRACTURED, BROKEN TO RUBBLY NUMEROUS FRACTURES FILLED WITH $CaCO_3$ PROBABLE MAYOR FAULT ZONE
			FAULT ZONE		
			32.3		MUDSTONE - BLACK, HARD, BROKEN, MINOR CALCITE VEINS PARALLEL TO BEDDING 55° TO CORE
			45.4		SANDSTONE - GRAY, HARD, FINE GRAINED, BEDDING 65° TO CORE
			48.4		MUDSTONE - BLACK, MODERATE HARD - HARD IN SANDY AREAS. MINOR INTERBEDDED, SILTSTONE AND SANDSTONE MUDSTONE AREAS HAVE AN UNEVEN FRACTURE. SILTSTONE AND SANDY AREAS ARE COMPETENT GRADATIONAL CONTACTS
			73.1		END OF HOLE

PR-Burnt River 80 (3) A

BR-51

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 51

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-51 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 110.9 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED Aug. 14, 1980

DATE FINISHED Aug. 18, 1980

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			4.3		OVERBURDEN
			5		SANDSTONE
		MARKER 'D'	9.4 / 10.0		
			15		SANDSTONE - GRAY, HARD, BROKEN, WEATHERED TO 21.7 BEDDING 70 - 75° TO CORE FINE GRAINED
			20		
	GATES		24.7		
			25		MUDSTONE - GRAYISH BLACK TO BLACK, SOFT TO MEDIUM HARD, BROKEN, RUBBLY, SLIGHTLY COALY, MINOR $FeCO_3$ CONTENT
			29.3		
			30		SANDY MUDSTONE - BLACK, HARD, BROKEN, FINE GRAINED SAND. THROUGHOUT. GRADING TO SANDSTONE @ 33.5
			33.5		
		COMMOTION	35		SANDSTONE - GRAY, HARD, BROKEN, FINE TO MEDIUM GRAINED BEDDING 60 - 65° TO CORE
			38.7		
			40		MUDSTONE - BLACK, MEDIU HARD, BROKEN, COALY (43.5 - 43.9) MINOR FINE GRAINED SANDSTONE (44.5 - 45.4)
			43.4		
		MARKER 'C'	44.4		
			45		
			50		
			50.8		
			55		SANDSTONE - GRAY - GRAYISH WHITE, VERY HARD, BROKEN TO COMPETENT, FINE GRAINED GRADING TO MEDIUM GRAINED @ 58.8 - 62.5 COALY LENSES 58.8 - 62.5 BEDDING 70° TO CORE
			60		
			62.5		
			65		MUDSTONE - BLACK, MEDIUM HARD - HARD, BROKEN, FRACTURES 65° TO CORE, SLICKENSIDED PARALLEL TO DOWN DIP OF FRACTURE PLANE AND PARALLEL TO BEDDING 65° TO CORE
			68.2		
			70		SANDSTONE - DARK GRAYISH BLACK, HARD, BROKEN, PYRITE IN CONTORTED BEDDING 68.2 - 68.8, FINE GRAINED, BEDDING 70° TO CORE
			74.0		
		UPPER	74.9		COAL - BLACK, HARD, RUBBLY, FRACTURED 60° TO CORE, SLICKENSIDES PARALLEL TO DOWN DIP ON FRACTURE PLANES
			75		
		SEAM	76.1		MUDSTONE - BLACK, MODERATE HARD - HARD, COALY, BROKEN
			76.8		COAL - BLACK, MODERATE HARD - PLATY, RUBBLY
			78.0		MUDSTONE - BLACK, HARD, COALY IN THIN LENSES, BROKEN
			80		
			85		SILTY SANDSTONE - GRAYISH BLACK, HARD, BROKEN, SOUND CORE BEDDING 65° TO CORE IN THIN WISPY LAMINATIONS
			90		
			95		
			98.48		SANDY SILTSTONE
			98.68		
			100		COAL - BLACK, HARD, BRIGHT, CLEAN, BROKEN BEDDING 70° TO CORE BASICALLY SOLID COMPETENT CORE
		LOWER			
		SEAM	104.76		MUDSTONE
			105.0		
			105		MUDSTONE - BLACK, MODERATE HARD, BROKEN, SLIGHTLY CARBONACEOUS THIN SILTY AND SANDY INTERBEDS BECOMING SANDY @ 108.5 - 110.9
			110		
			110.9		END OF HOLE
			115		

LOWER CRETACEOUS

PR-Burnt River 80(3)A

BR 52

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-52

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BR-52 CORE SIZE NQ

DATUM G.L.

CO-ORDINATES _____ N _____ E

DATE STARTED _____

COLLAR ELEVATION _____ METRES

DATE FINISHED _____

HOLE ANGLE -90° TOTAL DEPTH 109.8 M.

LOGGED BY G.GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0	OVERBURDEN
			8.5	MUDSTONE - CARBONACEOUS TO COALY, MED. - HARD, BROKEN
			14.9	SANDSTONE - GRAY, HARD, BROKEN, FINE GRAINED. BEDDING 75° TO CORE
			24.3	SANDSTONE - GRAY, HARD, FINE - GRAINED, BROKEN SANDSTONE WITH INTERBEDDED BLACK, MED. - HARD, BROKEN, SLIGHTLY COALY MUDSTONE.
			32.3	MUDSTONE - BLACK, MED. - HARD, BROKEN, HIGHLY CARBONACEOUS TO COALY. MINOR INTERBEDDED SANDSTONE @ 32.9
			36.0	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN, BEDDING 70° TO CORE
			37.5	MUDSTONE - MED. - HARD, BROKEN, THIN COALY LENSES. SLICKENSIDES PARALLEL TO CORE
			38.7	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN, BEDDING 70° TO CORE.
			40.8	MUDSTONE - CARBONACEOUS, MED. - HARD, BROKEN, MINOR $FeCo_3$
			41.5	SANDSTONE - GRAY, HARD, FINE GRAINED, GRADING TO MED. GRAINED (49.9 - 51.8)
		MARKER SEAM	51.8	COAL - 30 cm, HARD, BRIGHT, BLOCKY, BRIGHT & DULL BANDING 65°-70° TO CORE
			52.1	MUDSTONE - GRAY. - BROWN, SLIGHTLY CARBONACEOUS, POSSIBLY SOME VOLCANIC ASH.
			53.9	MUDSTONE - MED. - HARD, BROKEN. CARBONACEOUS TO COALY LENSES 65°-70° TO CORE
			55.5	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN. MINOR THIN INTERBEDS OF MUDSTONE WITH COALY LENSES. BEDDING 70° TO CORE
			63.2	COALY MUDSTONE - BLACK, HARD, RUBBLY
			63.4	SANDSTONE - LT. GRAY - WHITE, HARD, FINE GRAINED, THINLY BEDDED 65° 70° TO CORE
			64.6	MUDSTONE - BLACK, MED. - HARD, A FEW THIN COALY LENSES, DIPS 70° TO CORE.
			70.7	SANDSTONE - GRAY TO GRAY. - WHITE, HARD, FINE GRAINED. THINLY BEDDED 70° TO CORE
			77.64	MUDSTONE - CARBONACEOUS, HARD, COAL PARTINGS
			78.0	COAL - HARD, BRIGHT, BROKEN
			78.68	MUDSTONE - CARB. TO COALY, BROKEN TO MED. - HARD. PULVERIZED & SHEARED IN PART.
			79.70	COAL - HARD, BRIGHT, FRACTURED 10° - 20° TO CORE. BEDDING 65° TO CORE
			80.60	MUDSTONE - MED. - HARD, CARBONACEOUS
			81.60	SANDSTONE - GRAY, HARD, FINE GRAINED. THINLY BEDDED. SOLID CORE. BEDDING 70° TO CORE
			95.7	MUDSTONE - BLACK, MED. - HARD, BROKEN, CARBONACEOUS TO COALY
			97.24	COAL - HARD, BRIGHT, BLOCKY, COMPETENT CORE
			102.80	COAL - HARD, MINOR SHALY COAL, RUBBLY, HIGH CORE LOSS.
			103.76	MUDSTONE - CARBONACEOUS, MED. - HARD, BROKEN. COALY LENSES
			105.48	COAL - HARD, BRIGHT, BLOCKY, RUBBLY
			105.88	MUDSTONE - GRAY. - BLACK, HARD, BROKEN, SILTY @ 105.88 - 106.08, SANDY @ 106.08 - 109.8
			109.8	END OF HOLE

PR-Burnt River 80(3)A

BR-53

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR - 53

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER
HOLE Nº BR-53 CORE SIZE NQ
CO-ORDINATES _____ N _____ E
COLLAR ELEVATION _____ METRES
HOLE ANGLE -90° TOTAL DEPTH 91.7 M.

LOCATION SUKUNKA
DATUM _____
DATE STARTED Aug. 21, 1980
DATE FINISHED Aug. 23, 1980
LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
					OVERBURDEN
			7.9		MIXED SANDSTONE AND MUDSTONE – BLACK TO GRAY, MEDIUM HARD-HARD, SLIGHTLY FISSILE MUDSTONE WITH 50% INTERBEDDED FINE GRAINED VERY HARD SANDSTONE, BEDDING 80° TO CORE
			12.8		
					SANDSTONE – GRAY, HARD, FINE GRAINED WITH MINOR THIN INTERBEDDED MUDSTONE. CROSSBEDDED. BEDDING GENERALLY 80 - 90° TO CORE
			24.7		MUDSTONE – BLACK, MEDIUM HARD, BROKEN, CARBONACEOUS, CONTORTED IN PLACES
			26.8		SILTSTONE – DULL GRAYISH BLACK, MEDIUM HARD, BROKEN
			29.6		SANDSTONE – LIGHT GRAY, HARD, BROKEN, FINE GRAINED, CROSS-BEDDED, BEDDING 85 - 90° TO CORE
			32.6		MUDSTONE – DARK GRAY, MEDIUM HARD, BROKEN
			33.6		COAL – BLACK, HARD, RUBBLY-CRUSHED, DULL METALLIC GRAY LUSTRE FRACTURES.
					MUDSTONE – GRAY, HARD, HIGHLY BRECCIATED, NUMEROUS CALCITE VEINS, HIGHLY CONTORTED, HIGHLY FRACTURED
			38.1		SANDSTONE – DARK GRAY, MEDIUM HARD, 30 % MUDSTONE, SANDSTONE IS FINE GRAINED, BEDDING CONTORTED 30° TO CORE
			40.8		MUDSTONE – BLACK TO DARK GRAYISH BLACK, MEDIUM HARD, SLIGHTLY FISSILE
			43.9		SANDSTONE – LIGHT GRAY, HARD, BROKEN, BEDDING 90° TO CORE, CROSSBEDDED
			46.6		MUDSTONE – GRAYISH BLACK, HARD, SLIGHTLY COALY, BROKEN TO RUBBLY
			47.52		COAL – BLACK, HARD, DULL, RUBBLY
			48.16		MUDSTONE – BLACK, MEDIUM TO SOFT, BROKEN
			49.96		COAL – HARD, DULL, RUBBLY, CORE LOSS, INTERBEDDED WITH SOFT RUBBLY MUDSTONE @ 50.16 - 50.28
			50.88		MUDSTONE – BLACK, MEDIUM TO HARD, SLIGHTLY FISSILE, BROKEN
			52.0		COAL – REFER TO GEOPHYSICAL LOG
			52.76		MUDSTONE – BLACK, MEDIUM - HARD, SLIGHTLY FISSILE, BROKEN
			54.6		
					SANDSTONE – LIGHT GRAY, HARD, FINE GRAINED, BEDDING 90° TO CORE
			67.1		MUDSTONE – BLACK, MEDIUM - HARD, MASSIVE, BROKEN
			68.36		COAL – HARD, BRIGHT, BLOCKY, BROKEN @ 68.36 - 69.0 HARD, BRIGHT, BROKEN, BEDDING 90° TO CORE @ 69.0 - 70.0 HARD, HIGHLY SHEARED, RUBBLY - CRUSHED - PULVERIZED @ 70.0 - 71.0 HARD, BROKEN, DULL @ 71.0 - 73.0 HARD, RUBBLY, MEDIUM BRIGHT, BROKEN, BEDDING IN THIN LAMINATIONS @ 73.0 - 74.0 HARD, RUBBLY, BROKEN, @ 74.0 - 76.18
			76.18		MUDSTONE – BLACK, MEDIUM - HARD, BROKEN
			76.40		
					MUDSTONE – BLACK, HARD, BROKEN, SLIGHTLY FISSILE WHITE SPECKLED MUDSTONE 80.1 - 80.4 MINOR COAL (6") @ 77.7 AND (6") @ 83.8 AND (6") @ 84.4 MINOR FINE GRAINED SANDSTONE @ 79.8 - 80.7
			83.8		
			84.4		
			85.0		
					SANDSTONE – LIGHT GRAY, HARD, BROKEN, FINE GRAINED, THINLY BEDDED, CROSSBEDDED @ 85 - 90° TO CORE
			91.7		END OF HOLE

LOWER CRETACEOUS
COMMOTION
GATES
SUKUNKA
MARKER C'
FAULT
UPPER SEAM
LOWER SEAM

PR-Burnt River 80(3)A

BR-54

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-54

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-54 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 46.0 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED Aug 23, 1980

DATE FINISHED Aug 24, 1980

LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		OVERBURDEN
			3.0		SANDSTONE - GRAY, HARD, FINE GRAINED, WEATHERED, BROKEN
			4.5		MUDSTONE - BLACK, MED. - HARD, RUBBLY, MINOR BROKEN SANDSTONE @ 6.7 - 6.73
		UPPER SEAM	8.0		COAL; REFER TO GEOPHYSICAL LOG.
			8.7		MUDSTONE - GRAY, MED. - HARD, RUBBLY, CARBONACEOUS
			14.0		SANDSTONE - GRAY, HARD, FINE GRAINED, THINLY BEDDED, CROSSBEDDED BEDDING 70° TO CORE, MINOR MUDSTONE @ 26.4 - 28.4
			28.4		MUDSTONE - GRAYISH - BLACK, MED. - HARD, BROKEN
			28.6		COAL - MED. - HARD, HIGHLY SHEARED, PLATY
			30.0		COAL - HARD, BROKEN
			31.0		COAL - HARD, HIGHLY FRACTURED, PARALLEL TO BEDDING
			32.0		COAL - HARD, HIGHLY SHEARED, RUBBLY
			33.0		COAL - HARD, FRACTURED 60° TO CORE, PARALLEL TO BEDDING
			34.0		COAL - HARD, BRIGHT, BROKEN TO RUBBLY
			35.0		COAL - HARD, HIGHLY CRUSHED
			36.0		COAL - HARD, BROKEN
			37.0		COAL - DULL, BROKEN
			38.0		COAL - HARD, BROKEN, TO RUBBLY
			39.0		COAL - DULL, HARD, BROKEN TO CRUSHED
			40.14		MUDSTONE - GRAY, HARD, SILTY
			40.32		MUDSTONE - & MINOR SANDSTONE, GRAY. - BLACK, MED. - HARD, FRACTURED 90° TO CORE, BROKEN
			43.6		SILTSTONE & SANDSTONE - GRAY. - BLACK, HARD, FINE GRAINED SANDSTONE WITH 50% INTERBEDDED SILTSTONE, BEDDING @ 46 m. 80° TO CORE
			46.0		END OF HOLE
LOWER CRETACEOUS	GETHING				

PR - Burnt River 80(3)A

BR 55

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-55

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-55 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED Aug 24, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED Aug 26, 1980

HOLE ANGLE -70° — TOTAL DEPTH 108.5 M. — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING	UPPER SEAM	0	OVERBURDEN
			3.04	
			5	SANDSTONE - GRAY, HARD, FINE GRAINED, WEATERED, BROKEN, THINLY BEDDED 75 - 80° TO CORE.
			10	
			10.9	MUDSTONE - GRAY, MED. - HARD, BROKEN, WITH MINOR INTERBEDDED SILTSTONE. BEDDING 60 - 65° TO CORE. MINOR COAL @ 16.1 - 16.4 CRUSH. - RUBBLY
			14.96 15	COAL - HIGHLY CRUSHED, RUBBLY, HIGH CORE LOSS
			16.56 16.76	MUDSTONE
			20	SILTSTONE - GRAY, MED. - HARD, BROKEN, WITH 50% INTERBEDDED MUDSTONE
			22.6	
			24.7 25	SANDSTONE - GRAY, HARD, FINE GRAINED, THINLY BEDDED & CROSSBEDDED, BROKEN.
			26.3 27.3	MUDSTONE - BLACK, MED. - HARD, SLIGHTLY SILTY, CARB., BROKEN, CONTORTED IRONSTONE 26.2 - 26.5
			30	COAL - HARD, BRIGHT, BROKEN, RUBBLY.
			35	MUDSTONE - BLACK, MED. - HARD, BROKEN, CARBONACEOUS, MINOR COALY AREAS. MINOR SANDSTONE @ 28.6 - 29.2, 35.3 - 36.8, 38.4 - 39.0
			40	
			42.1	
			45	
			50	
			55	SANDSTONE - GRAY, HARD, FINE GRAINED, THINLY BEDDED, CROSSBEDDED. BEDDING 65° TO CORE MINOR MUDSTONE @ 47.5 - 48.1 & 59.1 - 61.3 (WITH COALY LENSES)
			60	
			65	
			67.4	MUDSTONE - GRAYISH - BLACK, HARD, BROKEN, CARBONACEOUS, UNEVEN FRACTURE
			70.1 70	SANDSTONE - GRAY, VERY HARD, MED. TO COARSE GRAINED, WITH COALY LENSES BEDDING 70 - 80° TO CORE
			74.1 74.6 75	COAL - HARD, LIGHTWEIGHT, 10 c.m. RECOVERED
				MUDSTONE - GRAYISH - BLACK, HARD, MINOR $FeCO_3$ CONTENT, BROKEN
			80	
			85	SANDSTONE - GRAY, VERY HARD, MED. TO FINE GRAINED, GRADING TO SANDY SILTSTONE @ 90.2 - 95.7. BEDDING 65 - 70° TO CORE
			90	
			95	
			95.7	MUDSTONE - GRAYISH - BLACK TO BLACK, MED. - HARD, BROKEN, SLIGHTLY CARB.
			97.96	
			100	COAL - HARD, BROKEN TO RUBBLY, OCCASIONAL CRUSHING, BEDDING 75° TO CORE
			102.80 103.00	MUDSTONE - GRAYISH - BLACK, HARD, BROKEN, SLIGHTLY SANDY
			105	SANDSTONE - GRAYISH - BLACK, HARD, SLIGHTLY SHALY @ 103 - 105.5. HIGHLY CARBONACEOUS TO COALY 103 - 105.5 PYRITE IN FRACTURES 107.6 - 108.5 CALCITE IN FRACTURES - 20° TO CORE @ 107.5
			108.5	END OF HOLE
			110	
			115	

PR-Burnt River 80(3)A

BR 56

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-56

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BR-56 CORE SIZE NQ

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 56.9 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED AUG. 27-'80

DATE FINISHED AUG. 28-'80

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING	SEAM 60	0		OVERBURDEN
			5		
			10		SANDSTONE – LIGHT GREY, VERY HARD, HIGHLY FRACTURED, FINE GRAINED BROKEN, MINOR MUDSTONE 9.7 – 11.8 MASSIVE AND BROKEN NUMEROUS CALCITE VEINS 12.4 – 15.6 HIGHLY FRACTURED
			15		
			20		
			25		
			30		MUDSTONE – MEDIUM HARD, MASSIVE, BROKEN TO OCCASIONALLY HIGHLY FRACTURED – HIGHLY SLICKENSIDED 10° TO CORE MINOR VERY FINE GRAINED SANDSTONE. CARBONACEOUS TO COALY 24.6 – 26.9 RUBBLY HIGHLY FRACTURED 27.4 – 29.3 AND 31.2 – 31.5 VERY FINE SANDSTONE 32.6 – 35.6
			35		
			40		
			45		
			45.80		COAL MEDIUM HARD TO HARD, RUBBLY. HIGHLY FRACTURED 10-20° TO CORE HIGLY SLICKENSIDED, HIGH CORE LOSS
			49.04		MUDSTONE FROM 49.04 – 49.24
			49.24		
			50		
			52.44		MUDSTONE – HARD, CONTORTED, HIGHLY FRACTURED 10° TO CORE HIGHLY SLICKENSIDED, RUBBLY TO BROKEN,
			55		
			56.90		END OF HOLE
			60		

PR-Burnt River 80(3)A
BR 57

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-57

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-57 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED Aug 29, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED Aug 30, 1980

HOLE ANGLE -90° — TOTAL DEPTH 39.9 M. — LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING	SEAM 60	0		OVERBURDEN
			3.0		
			5		SANDSTONE - GRAVISH-BLACK, VERY HARD, BROKEN TO RUBBLY, OXIDIZED
			8.8		
			10		MUDSTONE - BLACK, HARD, MASSIVE, CARBONACEOUS TO COALY, WITH THIN COALY LENSES, @ 11.5 - 11.8. BEDDING 30-50° TO CORE.
			15		
			16.1		SANDSTONE - DARK GRAY, HARD, FINE GRAINED, THINLY BEDDED, WITH INTER-BEDDED MUDSTONE. BROKEN. BEDDING 60° TO CORE
			17.0		
			20		MUDSTONE - DARK GRAY, MED. TO HARD, MASSIVE, BROKEN, SOLID CORE, SLIGHTLY FISSILE, BEDDING 55-60° TO CORE. MINOR SANDSTONE
			21.12		SHALY COAL - BLACK, HARD, SHALY, BROKEN
			21.60		COAL - HARD, BRIGHT, BLOCKY, GENERALLY BROKEN WITH SOME VITRAIN CONTENT
			24.32		SANDSTONE - GRAYISH-BLACK, FINE GRAINED, WITH MINOR SANDY MUDSTONE
			24.52		MUDSTONE - GRAYISH-BLACK, MED.-HARD, BROKEN, BEDDING 55° TO CORE.
			25		COAL - HARD, RUBBLY, FRACTURED PARALLEL TO CORE, DULL TO MED. BRIGHT.
			25.76		MUDSTONE - GRAYISH-BLACK, SHALY, CARBONACEOUS, BROKEN, MINOR COALY LENSES.
			26.52		
			26.92		
			30		MUDSTONE - DARK GRAY, MED.-HARD, MAINLY MASSIVE, BROKEN WITH MINOR INTERBEDDED SANDSTONE @ 27.4 - 29.3 MINOR COAL @ 35.4 (20 cm.) & 35.9 - 36.2 THIN COALY LENSES @ 34.7 - 38.7 CHUNKS OF COAL @ 38.4 (DRILL GRINDING) BEDDING -: 55-60° TO CORE @ 27.4 55-60° TO CORE @ 36.8
			35		
			39.9		END OF HOLE
			40		
			45		
			50		

PR-Burnt River 80(3)A

BR 58

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-58

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE № BR-58 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED Aug 30, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED Sept 2, 1980

HOLE ANGLE -90° — TOTAL DEPTH 114.3 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0	OVERBURDEN
			3.0	
			5	SILTSTONE - GRAY, MED - HARD, SLIGHTLY SANDY, BROKEN
			9.7	
			10	MUDSTONE - BLACK, MED. - HARD, CARBONACEOUS TO COALY, BROKEN TO RUBBLY
			14.0	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN
			14.6	
			15	MUDSTONE - BLACK, MED. - HARD, BROKEN, BEDDING 70° TO CORE
			16.0	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN
			17.0	MUDSTONE - BLACK, MED. - HARD, SLIGHTLY SANDY, MINOR COAL @ 17 - 17.2, GRAY CLAY @ 18.3 - 18.4
			20.1 20	SILTSTONE - GRAY, HARD, SLIGHTLY SANDY, BROKEN.
			21.6	
			25	MUDSTONE - BLACK, MED. - HARD, SLIGHTLY SANDY, MINOR SANDSTONE @ 36.6 - 40.2
			30	
			35	
			40.2 40	MUDSTONE - BLACK, MED. - HARD, SLIGHTLY SANDY
			45	
			45.84	MUDSTONE - GRAY, MED. - HARD, BROKEN
			46.04	COAL - HARD, BRIGHT, GENERALLY RUBBLY
			49.84	MUDSTONE - GRAY, MED. - HARD, BROKEN
			50.04 50	MUDSTONE - BROWNISH BLACK, SOFT - MED. TO HARD, RUBBLY
			51.30	MUDSTONE - GRAY, HARD, BROKEN, COALY
			51.46	COAL - HARD, BRIGHT, BROKEN TO PULVERIZED
			53.12	MUDSTONE - BLACK, HARD, COALY, BROKEN
			53.32	
			55	MUDSTONE - BLACK, SOFT - MED. TO HARD, CARBONACEOUS WITH THIN INTERBEDS OF SANDSTONE AND SILTSTONE. BROKEN TO RUBBLY
			60	
			60.9	IRONSTONE/MUDSTONE - GRAY, HARD, BROKEN, BRECCIATED MUDSTONE WITH $CaCO_3$ INFILLING IN FRACTURES
			61.8	COAL - HARD; CRUSHED
			62.0	MUDSTONE - GRAYISH - BROWN, MED. - HARD, BROKEN
			63.0	
			65	SANDSTONE - DARK - GRAYISH WHITE, HARD, FINE GRAINED BECOMING MEDIUM GRAINED @ 66.4 - 68.3, BROKEN
			68.2	
			70	MUDSTONE - GRAYISH - BLACK, MED. - HARD, BROKEN
			72.5	
			73.7	SANDSTONE - GRAYISH WHITE, HARD, BEDDING 60° TO CORE
			75	MUDSTONE - DARK GRAY, MED. - HARD, BROKEN, RUBBLY 77.7 - 78.3 WITH MINOR COALY SHALE
			78.3	
			80	SANDSTONE - GRAY, HARD, FINE GRAINED, THINLY BEDDED, BROKEN
			85	
			87.8	
			90	MUDSTONE - GRAY TO GRAYISH - BLACK, MED - HARD TO HARD MUDSTONE WITH MINOR, INTERBEDDED, FINE GRAINED SANDSTONE, BROKEN
			95	
			96.3	
			100	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN
			103.6	
MARKER C			104.80 105	COAL
			105.60	
			110	MUDSTONE - GRAY TO GRAYISH - BLACK, HARD, WITH FINE GRAINED INTERBEDDED SANDSTONE MINOR MICACEOUS MUDSTONE (VOLCANIC ASH?) @ 103.9 - 104.0 MINOR SANDSTONE @ 110.0 - 110.6, 113.7 - 114.3 BEDDING 70° TO CORE
			114.3	END OF HOLE
			115	
			120	

PR-Burnt River 80(3)A
BR-59
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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-59

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-59 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED SEPT 2, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED SEPT 4, 1980

HOLE ANGLE -90° — TOTAL DEPTH 88.7 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0	OVERBURDEN
			4.8 / 5	SANDSTONE - GRAY TO GRAYISH-BLACK, HARD, BROKEN TO RUBBLY, FINE GRAINED, OCCASIONALLY SHALY
			9.4 / 10	SANDSTONE - GRAYISH-WHITE, HARD, MEDIUM GRAINED, BEDDING 60-70° TO CORE, BROKEN
			15	
		MARKER 'C'	16.7	MUDSTONE - BLACK, MED.-HARD, HIGHLY BROKEN TO RUBBLY. MINOR COAL @ 17.0
			18.5	
			20	SANDSTONE - GRAY, HARD, THINLY BEDDED, FINE GRAINED, BROKEN BEDDING 60-70° TO CORE
			25	
			28.9	
			30	MUDSTONE - GRAYISH-BLACK, MED.-HARD, CARBONACEOUS WITH THIN COALY LENSES. MINOR SILTSTONE, MINOR SANDSTONE.
			33.2	
			35	SANDSTONE - GRAYISH-WHITE, HARD, FINE GRAINED, BROKEN.
			40	
			41.0	
			45	SANDSTONE - GRAYISH-WHITE, HARD, MED. GRAINED, SALT & PEPPER TEXTURE. THINLY INTERBEDDED SILTSTONE WITH WISPS OF COAL.
			47.5	
			49.1	MUDSTONE - GRAYISH-BLACK', MED.-HARD, BROKEN, SLIGHTLY FISSILE, MASSIVE
			50	COAL - HARD, BRIGHT, BROKEN
			50.8	
			Poss. FAULT	SANDSTONE - GRAYISH-WHITE, HARD, HIGHLY FRACTURED, NUMEROUS CALCITE VEINS, MEDIUM GRAINED, RUBBLY, POSSIBLE FAULT.
			55	
			56.1	
			60	SANDSTONE - GRAY, HARD, FINE GRAINED, WITH INTERBEDDED MUDSTONE.
			61.3	SANDSTONE - GRAYISH-WHITE, HARD, MED.-COARSE GRAINED, SALT & PEPPER THIN WISPY CARBONACEOUS COALY LENSES.
			64.0	
			65	SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN
			67.4	
			70	SILTSTONE - GRAYISH BLACK, MED.-HARD, SLIGHTLY SANDY, BROKEN
			74.9 / 75	MUDSTONE - GRAY, MED.-HARD, SLIGHTLY SANDY, BROKEN
			76.92	
			80	COAL - HARD, BRIGHT, BLOCKY, BROKEN
				MUDSTONE - GRAY, MEDIUM-HARD, SILTY, BROKEN
				SILTSTONE - BLACK, HARD, SLIGHTLY SANDY, BROKEN
				MUDSTONE - BLACK, HARD, COALY, BROKEN
			85	COAL - BLACK, HARD, BRIGHT, RUBBLY
				MUDSTONE - GRAY, HARD, BROKEN, COALY LENSES
				SILTSTONE - GRAYISH-BLACK, HARD, SLIGHTLY
			88.7	END OF HOLE
			90	
			95	

PR-Burnt River 80(3)A

BR 60

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-60

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR-60 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED

COLLAR ELEVATION ____ METRES — DATE FINISHED

HOLE ANGLE -90° — TOTAL DEPTH 90.2 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			5		OVERBURDEN
			10		
			10.3		MUDSTONE - GRAYISH BLACK, MEDIUM - HARD, BROKEN - RUBBLY, UNEVEN FRACTURE WITH POLISHED SLICKENSIDES.
			14.0		
			15		SANDSTONE - DARK GRAY, HARD, SILTY, FRACTURED PARALLEL TO CORE WITH CALCITE INFILLING
			20		
			21.0		
			25		MUDSTONE - DARK GRAY, MEDIUM - HARD, CONTORTED BEDDING 45° TO CORE, BROKEN
			27.7		
			30		SANDSTONE - LT. GRAY, HARD, FINE GRAINED, MINOR THIN BEDS OF SHALE, BEDDING 65 - 70° TO CORE. HIGHLY FRACTURED WITH CONTORTED BEDDING.
			35		
			37.1		
			40		
			45		
LOWER CRETACEOUS		GETHING	50		MUDSTONE - GRAYISH BLACK TO BLACK, SOFT - MED. BROKEN - RUBBLY, CARBONACEOUS - MINOR SANDSTONE @ 40.8 - 41.1, 50.6 - 51.5, 54.7 - 55.5, 58.2 - 58.8, 60.0 - 60.5 - WHITE SPECKLED SHALE @ 41.7 - 42.4, 44.2 - 44.8 WITH PEBBLES (1/4") OF VOLCANIC ASH OR SANDSTONE. - COALY LENSES @ 46.3 - 46.9 - RUBBLY TO CRUSHED, & HIGHLY SHEARED (POSSIBLE FAULT ZONE) @ 49.3 - 50.3, 56.2 - 57.3, 57.9 - 58.2
					FAULT ZONE
			55		
			60		
			67.7		
			70		
			75		SANDSTONE - LT. GRAY, HARD, FINE GRAINED, BROKEN BEDDING 70-75° TO CORE @ 74.2 - 1/4" CALCITE IN FRACTURES @ 72.8, 75.1 - MICACEOUS MUDSTONE @ 80.1 - 80.3 (POSSIBLE ASH OR FISH SCALES) - 1/2" CALCITE VEIN @ 89.9 PERPENDICULAR TO BEDDING - BEDDING 60° TO CORE
			80		
			85		
			90.2		END OF HOLE
			90		
			95		

PR-Burnt River 80(3) A

BR-61

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-61

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BR-61 CORE SIZE

DATUM

CO-ORDINATES N E

DATE STARTED

COLLAR ELEVATION METRES

DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 92.0 M.

LOGGED BY G.GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	SUKUNKA	0		OVERBURDEN
			58.8		SANDSTONE - DARK GREY, HARD. FINE TO MEDIUM GRAINED
			64.3		SILTSTONE : DARK GREY, HARD, FINE TO MEDIUM GRAINED, BROKEN, THINLY BEDDED - 65° - 70° TO CORE IRON OXIDE STAINED 61.8 – 63.7 BRECCIATED SANDSTONE AT 289 (10 CM) CALCITE INFILLED.
			68.8		MUDSTONE - SOFT, MEDIUM HARD, RUBBLY TO CRUSHED, POSSIBLE FAULT GOUGE 70.7 - 71.3
			71.6		SILTSTONE - GREY, MEDIUM HARD, WITH INTERBEDS OF MUD AND CLAYSTONE
			77.3		SANDSTONE - LIGHT GREY, HARD, FINE GRAINED, FINE BEDDING 55° TO CORE MINOR IRON STAINING AT 78.3 (WATER LOSS NOTED AT 78.8)
			79.5		MUDSTONE MEDIUM HARD TO HARD, UNEVEN FRACTURES BROKEN BEDDING : 60° TO CORE
			81.6		SILTSTONE - GREYISH BLACK, HARD WITH INTERBEDS OF CARBONACEOUS MUDSTONE 85.2 - 86.3 AND 87.3 - 87.8 MINOR SANDY SILTSTONE 85.5 - 85.3 MINOR FINE GRAINED SANDSTONE 86.2 - 87.3. BEDDING 60° TO CORE.
			89.0		MUDSTONE - GREYISH BLACK, MEDIUM HARD CARBONACEOUS APPEARES TO BE HEALED FAULT GOUGE 89.9 - 91.4
			92.0		END OF HOLE

PR-Burnt River 60(3)A

BR-62

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BR-62

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BR 62 — CORE SIZE NQ — DATUM

CO-ORDINATES ____ N ____ E — DATE STARTED SEPT 10, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED SEPT 11, 1980

HOLE ANGLE -90° — TOTAL DEPTH 65.5 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			7.3		OVERBURDEN
			8.5		SANDSTONE - GRAY, HARD, FINE GRAINED, CROSS BEDDED, BROKEN
			10.7		MUDSTONE - GRAYISH BLACK, MED.- HARD, MINOR PYRITE $\frac{1}{4}$" LENSES @ 9.7, BROKEN
			12.8		SILTSTONE - DARK GRAY, MED. - HARD, UNEVEN FRACTURE, BROKEN
			14.3		MUDSTONE - BLACK, MED. - HARD, BROKEN - RUBBLY, HIGHLY FRACTURED, CALCITE INFILLING @ 13.1
			20		SANDSTONE - GRAYISH BLACK, HARD, FINE GRAINED, WITH MINOR INTERBEDDED BLACK, MED. - HARD MUDSTONE, AND GRAYISH BLACK, HARD, SILTSTONE. GENERALLY BROKEN, OCCASIONALLY RUBBLY. MUDSTONE @ 20.1 - 20.7, 25.9 - 26.2 SILTSTONE @ 22.8 - 23.5, 28.8 - 29.3 RUBBLY @ 16.1 - 17.0, 20.1 - 21.0, 25.6 - 25.9, 27.1 - 27.4
			30		
			31.5		MUDSTONE - BLACK, MED. - HARD, RUBBLY, MINOR INTERBEDDED SANDSTONE
			32.2		SANDY SILTSTONE - THINLY BEDDED 31.8 - 32.4, SHARP LOWER CONTACT
			32.4		COAL - MED. SOFT, HIGHLY SHEARED, RUBBLY, PULVERIZED. HIGH CORE LOSS
		UPPER SEAM	35.0		COAL - SOFT, CRUSHED TO PULVERIZED. HIGH CORE LOSS.
			36.14		MUDSTONE - GRAYISH BLACK, HARD, BROKEN, CARBONACEOUS
			36.34		
LOWER CRETACEOUS			40		SANDSTONE - GRAY, HARD, FINE GRAINED, GRADING TO SILTSTONE @ 46.0 - 47.5 SHARP LOWER CONTACT
			45		
	GETHING		47.6		SILTSTONE - GRAY, HARD, BROKEN
			47.8		
		LOWER SEAM	50		COAL - HARD, GENERALLY BRIGHT & BROKEN, BEDDING 60° TO CORE.
			55		
			56.0		SILTSTONE - GRAY, HARD, SLIGHTLY SANDY, BROKEN.
			56.2		
		LOWER MARKER B	60		MUDSTONE - GRAYISH BLACK, MED. - HARD, WITH INTERBEDDED SANDSTONE AND SILTSTONE. SANDSTONE @ 57.9 - 58.2, 62.1 - 63.5 SILTSTONE @ 60.9 - 61.2
			65		END OF HOLE
			70		

PR-Burnt River 80 (3)A

BW 32

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 32

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA

HOLE Nº BW-32 — CORE SIZE AX — DATUM GROUND LEVEL

CO-ORDINATES _____ N _____ E — DATE STARTED June 7, 1980

COLLAR ELEVATION _____ METRES — DATE FINISHED June 9, 1980

HOLE ANGLE -90° — TOTAL DEPTH 15.8 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	SEISMIC SEAM	0		MUDSTONE - MAINLY GRAY TO GRAYISH BROWN CROSS BEDDED WITH GRAY OR GRAYISH WHITE, FINE GRAINED SANDSTONE. BEDDING 70° TO CORE. CONTACTS INDISTINCT
			5		
			7.1		COAL - GRAYISH BLACK TO BLACK, DULL TO BRIGHT COAL, PLATY FRACTURE PARALLEL TO BEDDING, HARD, LIGHTWEIGHT, FAIRLY CLEAN, MINOR PYRITE (VENIFORM), DIP 70° TO CORE
			10		
			12.5		FINE GRAINED, HARD SANDSTONE
			12.8		MAINLY SHALY COAL - DULL LUSTER WITH MINOR CARBONACEOUS MUDSTONE CONTENT SLICKENSIDED PARALLEL TO DIP, DIP 80° TO CORE.
			15		MUDSTONE - GRAYISH BLACK TO GRAYISH BROWN, MODERATELY HARD, WITH INTER BEDDED FINE GRAINED SANDSTONE WITH DIFUSE AND INDISTINCT BEDDING CONTACTS. SANDSTONE AREAS ARE CROSSBEDDED AND SLIGHTLY CALCAREOUS
			15.8		END OF HOLE
			20		
			25		

PR - Burnt River 80(3)A

BW 33

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 33

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION ____

HOLE Nº BW-33 CORE SIZE A.X. — DATUM ____

CO-ORDINATES ____ N ____ E — DATE STARTED JUNE 8, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED JUNE 9, 1980

HOLE ANGLE -90° TOTAL DEPTH 16.1 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		MUDSTONE - SOFT, BROKEN, SLIGHTLY CARBONACEOUS, BROKEN TO RUBBLY
			1.6		SANDSTONE - LIGHT GRAY, BROKEN, FINE GRAINED, HARD, CROSS BEDDED, BEDDING TREND 50° TO CORE @ 13.8
			4.8		MUDSTONE - LIGHT GRAY TO BROWN, BLOCKY, BROKEN TO RUBBLY, SLIGHTLY CARBONACEOUS BEDDING AND FRACTURING 60° TO CORE. SILTY IN PLACES.
			7.1		
	SEISMIC		10		COAL - BLACK, BRIGHT, BLOCKY, HARD, SLICKENSIDED TO BEDDING BEDDING 55° TO CORE @ 10.9 VITRIC CONTENT 5-8%, SOME CRUSHED AND PULVERIZED AREAS
		SEAM	14.2		
			15		SILTSTONE - BLACK TO DARK GRAY, MODERATELY HARD, INDISTINCT CONTACT WITH OVERLYING COAL
			16.1		END OF HOLE
			20		
	COMMOTION		25		

PR-Burnt River 80(3)A

BW 34

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

D.H. BW - 34

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA

HOLE Nº BW-34 CORE SIZE A.X. — DATUM GROUND LEVEL

CO-ORDINATES _____ N _____ E — DATE STARTED June 12, 1980

COLLAR ELEVATION _____ METRES — DATE FINISHED June 13, 1980

HOLE ANGLE -90° — TOTAL DEPTH 23.68 M. — LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	GATES	0		
			5		MUDSTONE CROSSBEDDED WITH FINE GRAINED SANDSTONE MINOR COAL @ 12.85 - 13.04, BEDDING 70° TO CORE @ 13.04
			10		
			15		
	SEISMIC SEAM		16.76		COAL - BLACK, BRIGHT, BLOCKY, 20% VITRAIN IN 1/16" LENSES, FRACTURE TREND 10° TO CORE, SEAM SANDED OUT
			17.70		
			20		SILTSTONE - DARK GRAY, GRADING TO FINE GRAINED SANDSTONE @ 22.2, SLIGHTLY CARBONACEOUS THROUGHOUT. SANDSTONE IS CROSSBEDDED.
		SUKUNKA	23.68		END OF HOLE
			25		
			30		

PR-Burnt River 80(3)A

BW 35

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

D.H. BW - 35

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BW-35 CORE SIZE A.X.

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90 TOTAL DEPTH 25.51 M.

LOCATION _____

DATUM G.L.

DATE STARTED June 14, 1980

DATE FINISHED June 16, 1980

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
					OVERBURDEN
			4.57		
			5		SILTSTONE INTERBEDDED WITH MUDSTONE - GRAY TO GRAYISH BLACK, MODERATELY HARD, BROKEN TO RUBBLY, INTERBEDDED, SLIGHTLY CARBONACEOUS, MINOR FINE GRAINED, CROSS-BEDDED SANDSTONE
		GATES	10.17		
			10		MUDSTONE - BLACK, HARD, MODERATELY CARBONACEOUS
			15		
			15.84		
		UPPER SEAM			COAL - BLACK, DULL TO MODERATELY BRIGHT (METALLIC LUSTER) FRACTURED 10° TO CORE, BROKEN
			18.89		
			20.11		MUDSTONE - GRAY TO GRAYISH BLACK, HARD, CROSS BEDDED FINE GRAINED SANDSTONE. CROSS BEDDING TREND 85°-90° TO CORE. MINOR $CA\,CO_3$ CONTENT IN SANDSTONE
			20		
					SANDSTONE - GRAY, HARD, FINE GRAINED, CROSS BEDDED, TRENDING 85°-90° TO CORE. MINOR $CA\,CO_3$ CONTENT.
			23.46		
					MUDSTONE - GRAY TO GRAYISH BLACK, MODERATELY HARD, UNEVEN FRACTURE, BROKEN. NO DISCERNABLE BEDDING.
			25		
		LOWER SEAM	25.51		3" COAL
					END OF HOLE
			30		
			35		
			40		
			45		
			50		
LOWER CRETACEOUS		COMMOTION			
		SUKUNKA			

PR-Burnt River 80(3)A

BW 37

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 37

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BW-37 CORE SIZE — DATUM

CO-ORDINATES — N — E — DATE STARTED

COLLAR ELEVATION — METRES — DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 37.6 M. — LOGGED BY

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			0.91		OVERBURDEN
					SANDSTONE, MUDSTONE, SILTSTONE THINLY INTERBEDDED SANDSTONE - FINE GRAINED, CONVOLUTED, SILTY IN PART 70° TO CORE
			5		
			10.3		MUDSTONE - CARBONACEOUS, SILTY IN PART
			13.5		SANDSTONE - MEDIUM GRAINED, S. AND P., COALY WISPS, 85° TO CORE
			15		
			15.94		COAL - BRIGHT, BLOCKY, CLEAN, STAINED ALONG VERTICAL FRACTURES MINOR ASH @ 18.19 - 18.34 2.40/2.40
		UPPER SEAM (97%)	18.34		MUDSTONE - VERY CARBONACEOUS .22/.22
			18.56		COAL - DULL TO BRIGHT, 80% CRUSHED .20/.12
			18.76		MUDSTONE - VERY SILTY
			20		
					BASICALLY SANDSTONE - CONVOLUTED, THINLY INTERBEDDED WITH SILTSTONE AND MUDSTONE, 80-88° TO CORE
			25		
			28.43		MUDSTONE - SILTY, MUD SEAM @ 29.5 - 29.65
			30		
			30.9		SANDSTONE - FINE GRAINED, THINLY INTER BEDDED MUDSTONE, 75-80° TO CORE
			31.88		MUDSTONE - BLACK AND CARBONACEOUS
		LOWER SEAM 3.32/3.04 (92%)	34.62		COAL - CLEAN, BRIGHT, AND BLOCKY, MINOR SOFT COAL, DULL AND HEAVY @ 33.18 - 33.40 2.74/2.61
			35		MUDSTONE - .22/.09
			35.2		COAL AND MUDSTONE MIX - COAL IS BRIGHT AND CLEAN TO DULL AND DIRTY
			36.3		MUDSTONE - VERY CARBONACEOUS, COAL PARTINGS
			36.6		COAL - BRIGHT, WITH DULL BANDS, HARD, BLOCKY .39/.27
			37.6		MUDSTONE - VERY SILTY
					END OF HOLE

PR - Burnt River 80(3)A

BW 38

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 38

VERTICAL SCALE 1 : 200

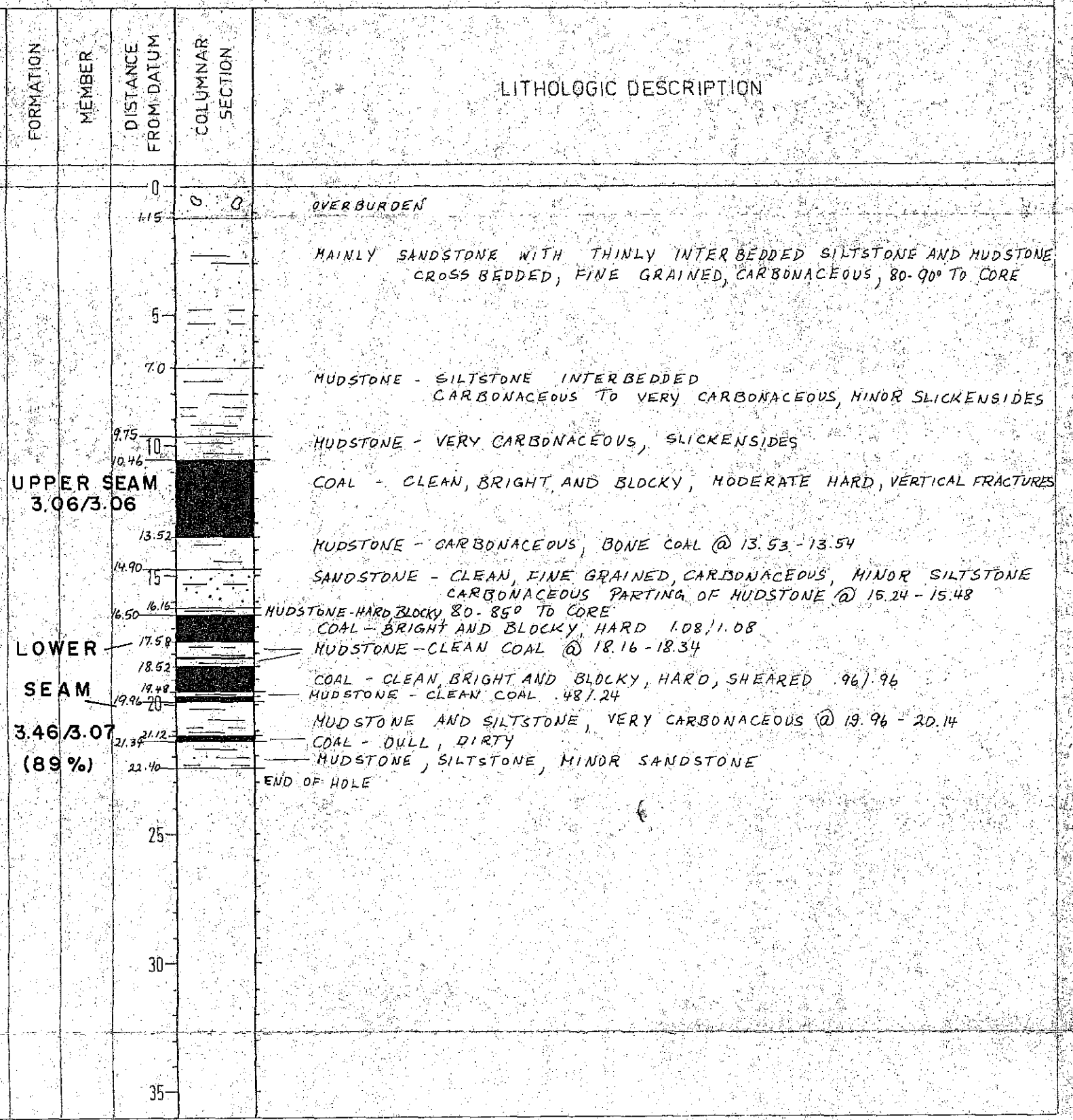
PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BW-38 — CORE SIZE — DATUM

CO-ORDINATES — N — E — DATE STARTED

COLLAR ELEVATION — METRES — DATE FINISHED

HOLE ANGLE -90° — TOTAL DEPTH 22.40 M. — LOGGED BY



PR-Burnt River 80C3A

BW 39

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 39

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA

HOLE Nº BW-39 — CORE SIZE AX — DATUM G.L.

CO-ORDINATES _____ N _____ E — DATE STARTED July 5, 1980

COLLAR ELEVATION _____ METRES — DATE FINISHED July 11, 1980

HOLE ANGLE -90° — TOTAL DEPTH 35.5 M. — LOGGED BY B.L.M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0		OVER BURDEN
			2.13		
			5		MUDSTONE
			9.6		
			10		MUDSTONE - SILTSTONE INTERBEDDED
			13.07		
			15		SILTSTONE - SANDY PHASES
			18.3		
			20		SANDSTONE - SILTY
			23.56		
		UPPER SEAM	25		COAL
			27.5		MUDSTONE, SILTSTONE
			28.84		COAL
			29.78		
		LOWER SEAM (SPLIT)	30		MUDSTONE, SILTY PHASES, COAL PARTING
			32.0		COAL
			32.84		MUDSTONE, COAL PARTING
			34.07		
			35		SILTSTONE
			35.5		END OF HOLE
			40		
			45		
			50		

PR-Burnt River 80(3)A

BW 41

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW-41

VERTICAL SCALE 1 : 200

PROJECT Burnt River

LOCATION Sukunka Area

HOLE Nº BW 41 CORE SIZE AX

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED July 13, 1980

COLLAR ELEVATION _____ METRES

DATE FINISHED July 14, 1980

HOLE ANGLE -90° TOTAL DEPTH 22.49 M.

LOGGED BY G. Green

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			1.1		OVERBURDEN
			5		MUDSTONE
			9.3		MUDSTONE.- GRAYISH BLACK, TO BLACK, HARD CARBONACEOUS, COALY
			9.7		
			10		COAL.- BLACK, MEDIUM, BRIGHT, HARD TO FRIABLE, BROKEN, BEDDING 85° TO CORE
			11.2		
			11.42		COAL.- BLACK, HARD, BROKEN TO 50% CRUSHED
					COAL.- BLACK, BLOCKY, HARD, BRIGHT, FRACTURED 20% TO CORE. BEDDING 80 TO 85° TO CORE
			13.22		
			13.52		COAL.- BLACK, HARD, SLIGHTLY SHALY, RUBBLY
					COAL.- BLACK, HARD, BLOCKY, BANDED 90° TO CORE
			15		
			16.64		MUDSTONE.- BLACK, HARD, BROKEN, COALY LENSES
			17.16		
			17.40		COAL.- BLACK, HARD, BRIGHT, BANDING 80° TO CORE, SLIGHTLY HEAVY FOR COAL
					MUDSTONE.- BLACK, HARD, BROKEN, THIN COALY LENSES, 85° TO CORE
			19.2		
			19.56		COAL.- BLACK, HARD
			20		MUDSTONE.- GRAYISH BLACK, MEDIUM TO HARD
			20.44		COAL.- BLACK, HARD, BRIGHT, SLIGHTLY SHALY
			20.84		MUDSTONE.- GRAYISH BLACK, MEDIUM TO HARD, BROKEN
			21.04		
					SILTSTONE.- GRAY, HARD, BROKEN, MINOR FINE GRAINED SANDSTONE, BEDDING 85° TO CORE
			22.5		END OF HOLE
			25		
			30		
	OMMOTION	GATES			

PR-Burnt River 80(3)A

BW 42

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW-42

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BW-42 CORE SIZE AX

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED

COLLAR ELEVATION _____ METRES

DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 11.3 M.

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0		OVERBURDEN
			2.7		MUDSTONE - SANDSTONE AND CARBONACEOUS MUDSTONE. BROKEN, MED. - HARD to HARD, SLIGHTLY OXIDIZED. MINOR LIMONITE STAIN ON SANDSTONE
			5		
			6.4		COAL - HARD, BRIGHT AND BLOCKY, BEDDING 85° TO CORE, MAINLY CLEAN. FRACTURES 50° TO CORE. SLICKENSIDES 80° TO DOWN DIP ON FRACTURE PLANE
			10.1 10.3		
			11.3		
			15		* NOTE : HOLE STOPPED AT 11.3 m. DUE TO CAVING
			20		
			25		
			30		
			35		
			40		
			45		
			50		

BW 43

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW-43

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BW-43 CORE SIZE AX

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED

COLLAR ELEVATION _____ METRES

DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 12.3 M.

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
		GATES	4.5		OVERBURDEN
			5		CARBONACEOUS MUDSTONE, BLACK, SOFT, FRACTURES UNEVENLY COAL, CLEAN, HARD, BLOCKY, FRACTURES 45° TO CORE CARBONACEOUS SHALE, BLACK, MEDIUM TO HARD
			6.2 6.4		COAL, CLEAN, BRIGHT, BLOCKY, BEDDING 80°-90° TO CORE, RUBBLY
			7.8		SILTSTONE, GRAY, HARD, BLOCKY, BEDDING 85° TO CORE, MINOR OXIDIZED STAINING ON FRACTURES, MINOR INTERBEDDED FINE GRAIN SANDSTONE
			10 10.0		COAL, BLACK, HARD, RUBBLY, BEDDING 80° TO CORE
			12.3		END OF HOLE
			15		
			20		

PR-Burnt River 80(3)A

BW 44

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 44

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BW-44 CORE SIZE A.X.

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED

COLLAR ELEVATION _____ METRES

DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 23.1 M.

LOGGED BY G. GREEN

SERIES: LOWER CRETACEOUS

FORMATION: SUKUNKA

MEMBER: GATES

COMMOTION

DISTANCE FROM DATUM	LITHOLOGIC DESCRIPTION
0	OVER BURDEN
1.0	SANDSTONE - GRAY, HARD, BROKEN, FINE GRAINED, CROSS BEDDED, OXIDIZED, MINOR INTERBEDDED MUDSTONE
3.3	MUDSTONE - GRAY, MODERATE HARD, BROKEN, MINOR INTERBEDDED SILTSTONE
5	
7.5	SANDSTONE - GRAY, HARD, FINE GRAINED, CROSS BEDDED, BROKEN, VERY MINOR YELLOW OXIDIZATION STAINING
9.8	SILTSTONE - GRAY, HARD, BLOCKY
10.0	
10	COAL - BLACK, HARD, BROKEN, BRIGHT, DULL AND BRIGHT BANDING 80-85° TO CORE MINOR ORANGE OXIDIZATION STAINING ON SOME FRACTURE PLANES FRACTURED 65° TO CORE. SHARP UPPER AND GRADATIONAL LOWER CONTACTS MINOR INTERBEDDED MUDSTONE. BLOCK, SOFT TO MODERATE HARD, PULVERIZED TO BROKEN, FRACTURED 90° TO CORE. PARALLEL TO BEDDING.
11.64	
11.96	
12.92	MUDSTONE - BLACK, MODERATE HARD, BROKEN, MINOR ORANGE OXIDIZATION STAINING ON FRACTURE SURFACES.
15	SILTSTONE - GRAY, HARD, BROKEN, FINE GRAINED, SEVERAL VERY FINE GRAINED CALCITE VEINS 80° TO CORE, MINOR YELLOW OXIDIZATION STAINING.
16.6	
16.8	COAL - BLACK, HARD, BRIGHT TO 17.7, BECOMING A DULL METALLIC GRAY SKREEN FROM THEN ON BEDDING 85° TO CORE. DISTINCT BRIGHT AND DULL BANDING.
20.0	CARBONACEOUS MUDSTONE - BLACK, MODERATE HARD, RUBBLY, HIGHLY CARBONACEOUS
20.48	SANDSTONE - GRAY, HARD, BLOCKY, BEDDING 80-85° TO CORE.
23.1	END OF HOLE
25	
30	
35	
40	
45	
50	

PR - Burnt River 80(3)A

BW 45

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 45

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BW-45 CORE SIZE A.X

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 17.03 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED _____

DATE FINISHED _____

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	GATES	0		OVERBURDEN
			7.8		SANDSTONE - GRAY, HARD, BROKEN, OXIDIZED, BEDDING 80° TO CORE, CROSSBEDDED IN THIN WISPY BEDS
			8.8		COAL - BLACK, HARD, BRIGHT TO BLOCKY, JOINTED PARALLEL TO CORE BASICALLY CLEAN COAL. GRADATIONAL LOWER CONTACT, SHARP UPPER CONTACT.
			12.4		CARBONACEOUS MUDSTONE - MODERATE HARD, RUBBLY TO PULVERIZED
			12.7		SANDSTONE - GRAY, HARD, CROSSBEDDED. BEDDING 85°-90° TO CORE.
			14.9		MUDSTONE - CARBONACEOUS TO COALY MUDSTONE. BLACK, MODERATE HARD, THIN INTERBEDDED COALY (10%) FRACTURED PARALLEL TO BEDDING. 90° TO CORE.
			15.5		SANDSTONE - GRAY, HARD, BLOCKY, CROSSBEDDED, VERY SOUND CORE
			17.0		END OF HOLE
			20		
			25		
			30		
			35		
			40		
			45		
			50		

PR-Burnt River 80(3)A

BW 47

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 47

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BW-47 CORE SIZE A.X.

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 20.0 M

LOCATION SUKUNKA

DATUM G.L.

DATE STARTED July 29, 1980

DATE FINISHED July 31, 1980

LOGGED BY B. I. M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	COMMOTION	GATES	0		MAINLY MUDSTONE, MEDIUM INTERBEDDED SILTSTONE, MEDIUM GRAINED SANDSTONE 15%, 75-80° TO CORE
			11.20		COAL - GENERALLY BRIGHT, CLEAN, BLOCKY, FRIABLE DULL HIGHLY CRUSHED COAL, BONE, MUDSTONE @ 13.28-13.80 15.72-15.92
		SEAM 60	13.28 13.80		
		6.56/5.21			
		80%	17.76		MUDSTONE - VERY CARBONACEOUS MINIMUM CLEAN COAL @ 19.90-19.95
			20.0		END OF HOLE

PR-Burnt River 80(3)A

BW 48

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW-48

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BW-48 CORE SIZE AX

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 62.5 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED _____

DATE FINISHED _____

LOGGED BY G.GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	GATES	0		OVERBURDEN .....
			5		SANDSTONE – GREY, HARD, BROKEN, WEATHERED
			6.5		MUDSTONE – GREYISH
					SANDSTONE – GREY, HARD, BROKEN, WEATHERED, BEDDING 90° TO CORE
			8.88		MUDSTONE – , MEDIUM HARD, SLIGHTLY SANDY.
			9.08		FAULTED UPPER SEAM
			9.28		COAL – BLOCKY, HARD, BRIGHT, HIGHLY FRACTURED, RUBBLY, BEDDING 85°-90° TO CORE
			10		
			10.56		MUDSTONE – MEDIUM HARD, FRACTURED 80° TO CORE.
		MARKER SEAM	11.16		COAL – BLOCKY, HARD, BRIGHT, RUBBLY, FRACTURED 60° TO CORE.
			12.32		MUDSTONE – , MEDIUM HARD, BROKEN
			12.64		
			15		SANDSTONE – GREY, HARD, BROKEN, FRACTURES ARE WEATHERED
			20		
			21.3		FAULTED SANDSTONE – CALCITE VEINS UP TO 1/2" THICK. NUMEROUS VEINS AT VARIOUS ANGLES.
			24.9		FAULT
			25		MUDSTONE – BEGINING OF REPEAT. GREYISH, BLACK, MINOR SANDSTONE, BROKEN ADDITIONAL FAULT GAUGE AT 26.2.
		COMMOTION	28.5		
			30		SANDSTONE – GREY, HARD, BROKEN. BEDDING 80-85° TO CORE
			33.8		MUDSTONE – , MEDIUM HARD, BROKEN
			34.08		COAL – BRIGHT, HARD, BROKEN, DULL GREY
			35		MUDSTONE – HARD, BROKEN
		UPPER SEAM	35.11		
			35.72		COAL – BRIGHT, HARD, BROKEN, FRACTURES 75° TO CORE WITH SLICKENSIDES PARALLEL TO DOWN DIP
			36.88		
			37.08		MUDSTONE
			40		
			45		SANDSTONE – GREY, HARD, THINLY BEDDED, BROKEN, VERY HARD SOLID CORE
			50		
			54.56		MUDSTONE – HARD, BROKEN
			54.76		MUDSTONE – CARBONACEOUS, SOFT, MEDIUM HARD, BROKEN
			55		
		LOWER SEAM			COAL – BRIGHT, HARD AND BLOCKY, DULL AND PEBBLY FROM 61.50 - 61.60
			60		
			61.60		MUDSTONE – HARD, SLIGHTLY SANDY, BROKEN
			61.80		SANDSTONE – GREY, HARD, BROKEN, BEDDING 85° TO CORE
			62.5		END OF HOLE
			65		
			70		

PR-Burnt River 80L3DA BW 49

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 49

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA AREA

HOLE Nº BW-49 CORE SIZE — DATUM —

CO-ORDINATES — N — E — DATE STARTED —

COLLAR ELEVATION — METRES — DATE FINISHED —

HOLE ANGLE -90° TOTAL DEPTH 29.78 M. — LOGGED BY —

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		OVERBURDEN
			1.5		SANDSTONE - MAINLY FINE TO MEDIUM GRAINED, CLEAN INTERBEDDED MUDSTONE AND SILTSTONE @ 2.3 - 3.35, 70° TO CORE
			5		
			7.3		SANDSTONE - COARSE GRAINED TO PEBBLY (PEBBLES < 3 mm)
			8.84		MUDSTONE - SOFT, CARBONACEOUS, SANDY @ 8.84 - 9.45
			10		
			12.50		SANDSTONE - FINE TO MEDIUM GRAINED, FAIRLY CLEAN
			15		
			16.0		SANDSTONE - COARSE GRAINED, CLEAN, V. LAND MINOR COAL WISPS, MEDIUM PEBBLES, VERY COARSE GRAINED @ 18.5 - 20.10
			20.10 20		SANDSTONE - MEDIUM GRAINED, SILTY, 70° TO CORE
			23.47		SANDSTONE - COARSE GRAINED, GRADING TO CONGLOMERATIC PEBBLES 25mm COAL WISPS, CALCITE VEINING
			25		
			29.78 30		END OF HOLE
			35		

PR - Burnt River 80(3)A

BW 50

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 50

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BW-50 CORE SIZE

DATUM

CO-ORDINATES N E

DATE STARTED

COLLAR ELEVATION METRES

DATE FINISHED

HOLE ANGLE -90° TOTAL DEPTH 31.12 M.

LOGGED BY

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
			5.02		OVERBURDEN
			10.20		SANDSTONE - MUDSTONE, THIN TO MEDIUM INTERBEDDED, CROSS BEDDED, PARTLY SILTY, MEDIUM GRAINED, 65° TO CORE
			13.41		MUDSTONE - BLACK, SOFT, CARBONACEOUS
			17.16		SILTSTONE - MUDSTONE, MEDIUM INTERBEDDED, MINOR SANDSTONE
			17.80		COAL - CLEAN, BRIGHT AND BLOCKY 34/.21 (62 %)
			17.72		MUDSTONE
		SEAM 60	20.06		COAL - CLEAN, BRIGHT AND BLOCKY @ 20.06 - 20.28 2.92/2.37 (81%)
			20.64		COAL - DULL, HIGHLY CRUSHED
			21.30		MUDSTONE - COAL PARTINGS 1.44/.91 64%
			22.08		COAL - BLOCKY, DULL TO BRIGHT, HIGH ASH, VESCICULAR TEXTURE
			23.3		COAL - BROKEN, BLOCKY, GENERALLY BRIGHT 1.22 / 1.16. (95 %) MINOR ASH OBSERVED
			26.20		MUDSTONE - GRAY TO BLACK, CARBONACEOUS, Fe CONC.
			26.47		CLEAR COAL
			29.17		
			29.47		CLEAR COAL
			31.12		SILTSTONE GRADING TO COARSE GRAINED SANDSTONE, 65° TO CORE.
					END OF HOLE

PR-Burnt River 80(3)A BW 51

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW-51

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BW-51 CORE SIZE AX

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 30.1 M.

LOCATION SUKUNKA AREA

DATUM _____

DATE STARTED Sept 5, 1980

DATE FINISHED Sept 9, 1980

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0		OVERBURDEN - CLAY, GRAVEL, SAND, COBBLES, DIRT.
			15.8		SANDSTONE - GRAY, HARD, FINE GRAINED, BROKEN, WITH INTERBEDDED MUDSTONE @ 16.8, 18.8, 23.1. BEDDING GENERALLY 80° TO CORE
			28.0		SILTSTONE - GRAYISH-BLACK, MED.-HARD, SLIGHTLY SANDY
			28.2		COAL - HARD, BRIGHT, BLOCKY, BROKEN. BEDDING 80° TO CORE IN THIN LAMINATIONS
			29.4		CARBONACEOUS MUDSTONE - MED.-HARD, CARB. TO COALY, RUBBLY
			30.1		END OF HOLE

PR-Burnt River 80(35)A

BW 53

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 53

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

LOCATION SUKUNKA AREA

HOLE Nº BW-53 CORE SIZE N.Q

DATUM

CO-ORDINATES _____ N _____ E

DATE STARTED Sept. 14, 1980

COLLAR ELEVATION _____ METRES

DATE FINISHED Sept. 15, 1980

HOLE ANGLE -90° TOTAL DEPTH 20.3 M.

LOGGED BY G. GREEN

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	SUKUNKA	COMMOTION	0		OVERBURDEN
			0.9		SANDSTONE - GRAY, HARD, FINE GRAINED, WITH MINOR SILT CONTENT, BROKEN, INDISTINCT BEDDING 70-75° TO CORE, CROSSBEDDED IN THIN LAMINATIONS
			8.2		MUDSTONE - GRAYISH BLACK, MODERATE HARD, SLIGHTLY FISSILE, BROKEN, RUBBLY
		GATES	10.3		SANDSTONE - GRAYISH BLACK, HARD, FINE GRAINED, MINOR SILT CONTENT, INDISTINCT BEDDING
			10.9		MUDSTONE - GRAYISH BLACK, MODERATE HARD, SLIGHTLY FISSILE, BROKEN
			11.3		COAL - BLACK, HARD, BRIGHT, BLOCKY, BROKEN, BEDDING 85° TO CORE IN THIN LAMINATIONS
			14.6		MUDSTONE - BLACK, MODERATE HARD, FRACTURED 90° TO CORE, BLOCKY
			15.2		SANDSTONE - GRAYISH BLACK, MODERATE HARD TO HARD, BROKEN, MINOR MUDSTONE CONTENT
			15.5		MUDSTONE - BLACK, MODERATE HARD, BROKEN
			16.4		COAL - BLACK, HARD, BRIGHT, BLOCKY, BEDDING 85° TO CORE
			17.3		SILTSTONE - BLACK, HARD, CARBONACEOUS, BROKEN
			19.0		COAL - BLACK, HARD, BLOCKY, RUBBLY, HIGHLY FRACTURED
			20.1		MUDSTONE - BLACK, MODERATE HARD, CARBONACEOUS, RUBBLY
			20.2		END OF HOLE

PR-Burnt River 80(3)A

BW 54

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 54

VERTICAL SCALE : 1 : 200

PROJECT BURNT RIVER — LOCATION

HOLE № BW-54 — CORE SIZE AX — DATUM G.L.

CO-ORDINATES ____ N ____ E — DATE STARTED Sept. 19, 1980

COLLAR ELEVATION ____ METRES — DATE FINISHED Sept. 27, 1980

HOLE ANGLE -90° — TOTAL DEPTH 32.92 M. — LOGGED BY B.I.M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING		0		OVERBURDEN
			1.2		SANDSTONE - MEDIUM GRAINED, HARD, CONVOLUTED BEDDING, 65° TO CORE, SILTY TO CLEAN
			3.75		MUDSTONE - CARBONACEOUS, SILTY PHASES, DARK GRAY TO BLACK, MINOR SLICKENSIDES, COAL WISPS
			13.72		SILTSTONE - VERY SANDY, GRADING TO SILTY, VERY HARD, SANDSTONE MEDIUM TO DARK GRAY, FINE TO MEDIUM GRAINED, FINE CALCITE VEINING
			16.30		SANDSTONE MAINLY, SILTY PHASES, FINE TO MEDIUM GRAINED, CALCITE VEINED, COAL WISPS, CONVOLUTED BEDDING 60° TO CORE
			23.32		MUDSTONE - DARK GRAY TO BLACK, SOFT TO MEDIUM HARD
			26.15		SANDSTONE - SILTSTONE - MUDSTONE MEDIUM INTERBEDDED 60 - 65° TO CORE
			29.35		SANDSTONE IS FINE TO MEDIUM GRAINED, VERY HARD
			30		MUDSTONE - BLACK, CARBONACEOUS TO VERY CARBONACEOUS, MINOR PYRITE, Fe CONCRETIONS
			32.92		END OF HOLE
			35		
			40		
			45		
			50		
			55		

PR-Burnt River 80(3)A

BW 56

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 56

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER

HOLE Nº BW-56 CORE SIZE A.X.

CO-ORDINATES _____ N _____ E

COLLAR ELEVATION _____ METRES

HOLE ANGLE -90° TOTAL DEPTH 46.18 M.

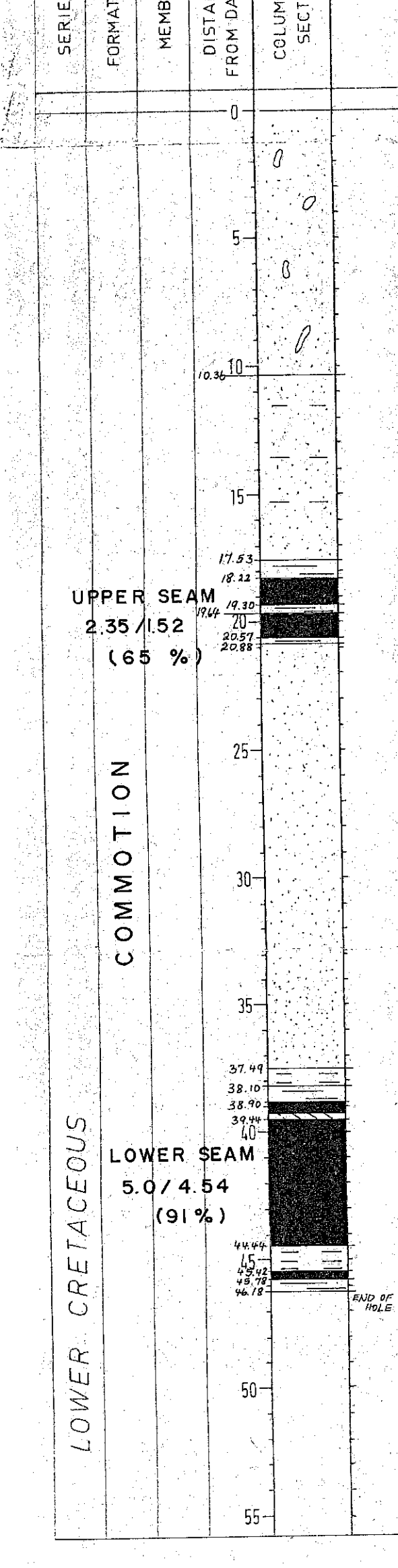
LOCATION SUKUNKA

DATUM G.L.

DATE STARTED Oct. 1, 1980

DATE FINISHED Oct. 4, 1980

LOGGED BY B.I.M.



LITHOLOGIC DESCRIPTION

OVERBURDEN

SANDSTONE - FINE GRAINED, BASICALLY CLEAN, HARD, INTERBEDDED SILTSTONE 10%

CALCITE VEINING THROUGHOUT, MINOR SLICKS
SOLID CORE, 75° TO CORE

MUDSTONE - CARBONACEOUS, SOLID CORE
COAL - CLEAN, BRIGHT, BLOCKY TO CRUSHED
MUDSTONE PARTING
MUDSTONE - SILTY, CARBONACEOUS

BASICALLY SANDSTONE - FINE GRAINED, DARK GRAY, CROSS BEDDED, VERY HARD, VERY SILTY PHASES, SOLID CORE
80-90° TO CORE

SILTSTONE
MUDSTONE - CARBONACEOUS
COAL - @ 38.90 - 39.17. BONE COAL @ 39.17 - 39.44, COAL IS HARD, MAINLY BRIGHT

COAL - GENERALLY CLEAN, BRIGHT, BLOCKY TO FINELY CRUSHED (10%)
MINOR ASH @ 44.20
SOFT, FRIABLE @ 43.4 - 44.2

SILTSTONE - GRADING TO CARBONACEOUS MUDSTONE
COAL - CLEAN AND BRIGHT, MODERATE HARD
MUDSTONE - SILTSTONE

PR-Burnt River 80(3)A

BW 55

489

TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 55

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA RIVER

HOLE Nº BW-55 CORE SIZE A.X. — DATUM G.L.

CO-ORDINATES _____ N _____ E — DATE STARTED Sept. 26, 1980

COLLAR ELEVATION _____ METRES — DATE FINISHED Sept. 30, 1980

HOLE ANGLE -90° TOTAL DEPTH 32.31 M. — LOGGED BY BIM

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
LOWER CRETACEOUS	GETHING	MARKER SEAM "C"	0		OVERBURDEN
			4.36		MUDSTONE, SILTSTONE, SANDSTONE MEDIUM INTERBEDDED 50-30-20 MUDSTONE IS DARK GRAY TO BLACK, COAL WISPS SOFT TO MEDIUM HARD, VOLCANIC ASH BANDS? MINOR MUD SEAMS, 60-70° TO CORE
			17.68		SANDSTONE - FINE GRAINED, SILTY
			18.9		SANDSTONE - COARSE GRAINED TO GRITTY, CLEAN, COAL WISPS, MUD PEBBLES, SHARP LOWER CONTACT WITH SILTSTONE
			20.27		SANDSTONE - SILTSTONE - MUDSTONE MEDIUM INTERBEDDED SANDSTONE IS FINE GRAINED, CLEAN TO SILTY, CONVOLUTED BEDDING, MINOR CALCITE, 65 - 70° TO CORE
			27.74		MUDSTONE - CARBONACEOUS, 65 - 70° TO CORE BENTONITE BANDS @ 28.9 AND 30.0
			29.54		COAL - CLEAN, BRIGHT AND BLOCKY, MEDIUM HARD, MINOR BONE @ 30.0 1.03 / .76 (74 %)
			30.57		MUDSTONE - BLOCKY TO BROKEN, CARBONACEOUS, VOLCANIC ASH BANDS?
			32.31		END OF HOLE

PR-Burnt River 80(3)A

BW 57

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TECK CORPORATION

STRATIGRAPHIC LOG

OF

BW - 57

VERTICAL SCALE 1 : 200

PROJECT BURNT RIVER — LOCATION SUKUNKA

HOLE Nº BW-57 — CORE SIZE A.X — DATUM G.L.

CO-ORDINATES _____ N _____ E — DATE STARTED Oct. 5, 1980

COLLAR ELEVATION _____ METRES — DATE FINISHED Oct. 6, 1980

HOLE ANGLE -90° — TOTAL DEPTH 20.12 M. — LOGGED BY B.I.M.

SERIES	FORMATION	MEMBER	DISTANCE FROM DATUM	COLUMNAR SECTION	LITHOLOGIC DESCRIPTION
			0		
					OVERBURDEN
			3.05		
					SANDSTONE - SILTSTONE - MUDSTONE CROSSBEDDED SANDSTONE IS FINE GRAINED, HARD, CROSSBEDDED, 60 - 80° TO CORE.
			5		
			7.10		
					MUDSTONE - VERY CARBONACEOUS IN PART, SILTY, BROKEN TO BLOCKY, MODERATE HARD
			9.75		
			10		
UPPER SEAM			10.82		COAL - CLEAN, BRIGHT AND BLOCKY, MODERATE HARD TO HARD.
			11.89		
			12.10		MUDSTONE - BLACK, CARBONACEOUS
			13.05		COAL - CLEAN AND BRIGHT, BLOCKY TO BROKEN, MODERATE HARD
					MUDSTONE GRADING SILTSTONE GRADING MUDSTONE
			15.3		
			15		
			15.85		COAL - CLEAN, BRIGHT AND BLOCKY, MODERATE HARD TO HARD, MINOR SLICKS
LOWER SEAM					
			18.14		
			18.9 18.6		MUDSTONE - COAL PARTINGS
			19.5		MUDSTONE - SILTY
			20.12 20		SILTSTONE - SANDY
					END OF HOLE
			25		

APPENDIX II

BULK SAMPLE QUALITY

CONFIDENTIAL

CLIENT : Teck Mining Corporation

BULK SAMPLE QUALITY

PROJECT :

I.D.	SAMPLE I.D.	ADM%	PROXIMATE MOIST	ASH %	VOL%	F.C.%	S%		BTU/LB	SG		HGI	CALC * BASIS
6541	Upper Seam	3.4	0.7	6.4	13.0	79.9	0.38		14486	1.36		57	a.d.b.
				6.4	13.1	80.5	-		14588	-		-	d.b.
6542	Lower Seam	4.4	0.5	8.6	13.4	77.5	0.39		14235	1.36		65	a.d.b.
				8.6	13.5	77.9	-		14307	-		-	d.b.
6543	Seam 60	6.2	0.7	11.7	16.4	71.2	0.36		13546	1.38		79	a.d.b.
				11.8	16.5	71.7	-		13641	-		-	d.b.
6544	Upper Dilution Rock		0.7	79.0	6.8	13.5	0.14		-	2.28		49	a.d.b.
				79.6	6.8	13.6	-		-	-		-	d.b.
6545	Lower Dilution Rock		0.6	63.3	8.2	27.9	0.21		4421	1.97		60	a.d.b.
				63.7	8.2	28.1	-		4448	-		-	d.b.
6546	"60" Dilution Rock		1.1	78.5	7.8	12.6	0.15		-	2.23		43	a.d.b.
				79.4	7.9	12.7	-		-	-		-	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 WESTERN INDUSTRIES LTD

CLIENT: TECK MINING GROUP

PROJECT: BULK SAMPLE - SEAM 60

LAB NO.: 6543

WASHABILITY TEST ON RAW COAL CRUSHED TO -2"

HEAD RAW ANALYSIS

ADM%	MOIST%	ASH%	VOL%	FC%	S%	F.S.I.	CALC. BASIS
6.2	0.7	11.7	16.4	71.2	0.36	1	a.d.b.
	6.9	11.0	15.4	66.7	0.34	-	a.r.b.
		11.8	16.5	71.7	0.36	-	d.b.

SIZE AND RAW ANALYSIS , a.d.b.

SIZE FRACTION	WT%	RM%	ASH%	VOL%	FC%	S%	F.S.I.	CUMULATIVE WT%	CUMULATIVE ASH%
2 " x 3/4"	19.9	0.8	7.1	16.9	75.2	0.30	1	19.9	7.1
3/4"x 3/8"	8.5	0.7	8.9	16.6	73.8	0.29	1	28.4	7.6
3/8"x 28M	53.0	0.9	12.5	16.5	70.1	0.29	1	81.4	10.8
28M x 100M	10.6	1.6	14.3	16.3	67.8	0.35	1	92.0	11.2
100M x 0	8.0	1.6	17.6	16.1	64.7	0.52	N.A.	100.0	11.7

WT% + 2" = 6.8% , crushed to pass 2"

SINK-FLOAT ANALYSIS,a.d.b.:2" x3/4"

SG FRACTION	WT%	ASH%	F.S.I.	CUMULATIVE WT%	CUMULATIVE ASH%
- 1.30	30.6	1.9	2 1/2	30.6	1.9
1.30 - 1.35	51.8	3.6	1/2	82.4	3.0
1.35 - 1.40	8.4	9.8	1/2	90.8	3.6
1.40 - 1.45	3.8	14.4	1/2	94.6	4.0
1.45 - 1.50	1.1	18.6	1/2	95.7	4.2
1.50 - 1.60	0.5	25.4	1/2	96.2	4.3
1.60 - 1.70	0.3	36.7	1/2	96.5	4.4
1.70 - 1.80	0.2	42.4	N.A.	96.7	4.5
1.80 - 1.90	0.1	50.7	N.A.	96.8	4.5
+1.90	3.2	83.0	N.A.	100.0	7.0

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD.

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE - SEAM 60

LAB NO. 6543

WASHABILITY TEST ON RAW COAL CRUSHED TO -2"

SINK-FLOAT ANALYSIS, adb: 3/4" x 3/8"					
				CUMULATIVE	
S.G. FRACTION	WT%	ASH%	F.S.I.	WT%	ASH%
- 1.30	51.8	2.4	2 1/2	51.8	2.4
1.30- 1.35	28.6	4.4	1	80.4	3.1
1.35- 1.40	6.7	11.7	1	87.1	3.8
1.40- 1.45	3.1	17.1	1	90.2	4.2
1.45- 1.50	1.8	22.3	1	92.0	4.6
1.50- 1.60	1.7	29.5	1/2	93.7	5.0
1.60- 1.70	1.2	38.1	1/2	94.9	5.5
1.70- 1.80	0.8	47.4	1/2	95.7	5.8
1.80- 1.90	0.4	57.9	1/2	96.1	6.0
+1.90	3.9	80.8	N.A.	100.0	8.9

SINK-FLOAT ANALYSIS, adb: 3/8" x 28M					
				CUMULATIVE	
S.G. FRACTION	WT%	ASH%	F.S.I.	WT%	ASH%
- 1.30	44.5	1.9	2 1/2	44.5	1.9
1.30 - 1.35	27.4	3.6	1/2	71.9	2.5
1.35 - 1.40	6.9	9.0	1/2	78.8	3.1
1.40 - 1.45	2.9	14.7	1/2	81.7	3.5
1.45 - 1.50	2.4	19.3	1/2	84.1	4.0
1.50 - 1.60	3.8	27.8	1/2	87.9	5.0
1.60 - 1.70	2.6	37.2	N.A.	90.5	5.9
1.70 - 1.80	1.5	45.4	N.A.	92.0	6.6
1.80 - 1.90	0.9	54.0	N.A.	92.9	7.0
+1.90 -	7.1	80.6	N.A.	100.0	12.3

Birtley Coal
& Minerals Testing

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE - SEAM 60

LAB NO.: 6543

WASHABILITY TEST ON RAW COAL CRUSHED TO -2"

Sink-Float Analysis, a.d.b.: 28M x 100M					
				CUMULATIVE	
S.G. FRACTION	WT%	ASH%	F.S.I	WT%	ASH%
- 1.30	23.6	2.2	3 1/2	23.6	2.2
1.30- 1.35	33.3	3.3	1	56.9	2.8
1.35- 1.40	7.2	6.4	1/2	64.1	3.2
1.40- 1.45	9.6	10.8	N.A.	73.7	4.2
1.45- 1.50	4.8	16.8	N.A.	78.5	5.0
1.50- 1.60	6.0	23.9	N.A.	84.5	6.3
1.60- 1.70	4.8	34.2	N.A.	89.3	7.8
1.70- 1.80	2.7	43.8	N.A.	92.0	8.9
1.80- 1.90	1.4	53.6	N.A.	93.4	9.6
+1.90	6.6	78.9	N.A.	100.0	14.1

FROTH-FLOATATION TEST, adb: 100M x 0					
				CUMULATIVE	
PRODUCT	WT%	ASH%	F.S.I.	WT%	ASH%
STAGE 1	26.3	14.4	N.A.	26.3	14.4
STAGE 11	7.9	17.3	N.A.	34.2	15.1
TAILINGS	65.8	18.9	N.A.	100.0	17.6

F.F. Parameters-

Pulp Density	=10%
Reagent	=4:1=Kerosene:MIBC
Dosage	=0.50 lbs/Ton
Conditioning Time	=60 seconds
Stage 1	=1st minute froth
Stage 11	= 2nd minute froth

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (A) Seam 60(25%) + Upper (35%) + Lower (40%)

LAB NO.: 6588

HEAD RAW ANALYSIS

ADM%	MOIST%	ASH%	VOL%	FC%	S%	FSI	CALC. BASIS
4.5	0.5	8.8	14.2	76.5	0.41	1/2	a.d.b.
	5.0	8.4	13.6	73.0	0.39	-	a.r.b.
		8.8	14.3	76.9	0.41	-	d.b.

SIZE AND RAW ANALYSIS, adb

SIZE FRACTION	WT%	RM%	ASH%	VOL%	FC%	S%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
2" x 3/4"	16.6	0.7	6.1	12.7	80.5	0.37	1/2	16.6	6.1
3/4" x 3/8"	12.5	0.7	7.9	13.6	77.3	0.35	1/2	29.1	6.9
3/8" x 28M	51.5	0.6	9.0	13.5	76.6	0.39	1/2	80.6	8.2
28M x100M	12.3	0.6	10.4	14.2	74.8	0.45	1/2	92.9	8.5
100M x 0	7.1	0.8	12.9	14.8	71.5	0.55	N.A.	100.0	8.8

SINK-FLOAT ANALYSIS, a.d.b.: 2" x 3/4"

S.G. FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
- 1.30	11.6	1.8	2	11.6	1.8
1.30 - 1.35	74.5	3.0	1/2	86.1	2.8
1.35 - 1.40	4.6	8.8	1/2	90.7	3.1
1.40 - 1.45	3.3	13.1	1/2	94.0	3.5
1.45 - 1.50	1.5	18.6	1/2	95.5	3.7
1.50 - 1.60	1.0	29.4	1/2	96.5	4.0
1.60 - 1.70	0.5	36.3	1/2	97.0	4.2
1.70 - 1.80	0.8	44.3	1/2	97.8	4.5
1.80 - 1.90	0.2	54.8	N.A.	98.0	4.6
+1.90	2.0	81.6	N.A.	100.0	6.1

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (A) Seam 60(25%) + Upper (35%) + Lower(40%)

LAB NO.: 6588

SINK-FLOAT ANALYSIS,adb: 3/4" x 3/8"					
				CUMULATIVE	
S.G. FRACTION	WT%	ASH%	FSI	WT%	ASH%
- 1.30	26.1	2.0	1 1/2	26.1	2.0
1.30- 1.35	55.8	3.1	1/2	81.9	2.7
1.35- 1.40	6.0	8.5	1/2	87.9	3.1
1.40- 1.45	2.8	13.6	1/2	90.7	3.5
1.45- 1.50	1.9	17.6	1/2	92.6	3.8
1.50--1.60	1.4	28.4	1/2	94.0	4.1
1.60- 1.70	1.1	37.8	1/2	95.1	4.5
1.70- 1.80	0.8	45.4	1/2	95.9	4.9
1.80- 1.90	0.4	55.0	N.A.	96.3	5.1
+1.90	3.7	80.0	N.A.	100.0	7.8

SINK-FLOAT ANALYSIS,adb: 3/8"x28M					
				CUMULATIVE	
S.G. FRACTION	WT%	ASH%	FSI	WT%	ASH%
- 1.30	48.8	1.6	2	48.8	1.6
1.30 - 1.35	32.4	3.7	1/2	81.2	2.4
1.35 - 1.40	4.2	9.2	1/2	85.4	2.8
1.40 - 1.45	2.9	13.6	1/2	88.3	3.1
1.45 - 1.50	1.9	19.8	1/2	90.2	3.5
1.50 - 1.60	1.7	28.8	1/2	91.9	3.9
1.60 - 1.70	1.3	37.1	1/2	93.2	4.4
1.70 - 1.80	1.0	44.3	N.A.	94.2	4.8
1.80 - 1.90	0.7	53.2	N.A.	94.9	5.2
+1.90	5.1	76.7	N.A.	100.0	8.8

Birtley Coal
& Minerals Testing

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (A) Seam 60(25%) + Upper (35%) + Lower (40%)

LAB NO.: 6588

SINK-FLOAT ANALYSIS,a.d.b.:28Mx100M					
				CUMULATIVE	
S.G. FRACTION	WT%	ASH%	FSI	WT%	ASH%
- 1.30	42.2	1.6	2	42.2	1.6
1.30 - 1.35	29.4	3.0	1/2	71.6	2.2
1.35 - 1.40	7.8	6.3	1/2	79.4	2.6
1.40 - 1.45	4.9	10.9	1/2	84.3	3.1
1.45 - 1.50	2.4	16.4	1/2	86.7	3.4
1.50 - 1.60	3.4	23.1	1/2	90.1	4.2
1.60 - 1.70	2.1	34.9	N.A.	92.2	4.9
1.70 - 1.80	1.3	44.6	N.A.	93.5	5.4
1.80 - 1.90	1.1	54.1	N.A.	94.6	6.0
+1.90	5.4	77.0	N.A.	100.0	9.8

FROTH FLOTATION TEST,adb:100Mx0					
				CUMULATIVE	
PRODUCT	WT%	ASH%	FSI	WT%	ASH%
STAGE 1	58.7	7.6	1/2	58.7	7.6
STAGE 11	8.3	14.4	N.A.	67.0	8.4
TAILINGS	33.0	20.3	N.A.	100.0	12.4

F.F. Parameters: 10% P.D.

Reagent	=4:1=Kerosene:MIBC
Dosage	=0.50 lb/Ton
Conditioning Time	=1 minute
Stage 1	=1st minute froth
Stage 11	=2nd minure froth

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WESTERN STEEL INDUSTRIES LTD

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (B) -COMPOSITE "A" (90%) + DILUTION ROCK"B" (10%).

LAB NO.: 6590

HEAD RAW ANALYSIS

ADM%	MOIST%	ASH%	VOL%	FC%	S%	FSI	CALC. BASIS
4.2	0.6	15.9	13.1	70.4	0.37	1/2	a.d.b.
	4.8	15.2	12.5	67.5	0.35	-	a.r.b.
		16.0	13.2	70.8	0.37	-	d.b.

SIZE AND RAW ANALYSIS, adb.

SIZE FRACTION	WT%	RM%	ASH%	VOL%	FC%	S%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
2 " x 3/4"	17.8	0.4	13.8	12.2	73.6	0.34	N.A.	17.8	13.8
3/4" x 3/8"	13.2	0.6	18.6	12.0	68.8	0.33	N.A.	31.0	15.8
3/8" x 28M	50.7	0.8	14.8	13.1	71.3	0.35	1/2	81.7	15.2
28M x 100M	11.2	0.7	12.5	14.5	72.3	0.43	1/2	92.9	14.9
100M x 0	7.1	0.9	15.3	14.7	69.1	0.52	1/2	100.0	14.9

SINK-FLOAT ANALYSIS, adb: 2"x3/4"

SG FRACTION	WT%	ASH%	FSI	CUMULATIVE WT%	CUMULATIVE ASH%
- 1.30	16.0	1.7	2	16.0	1.7
1.30 - 1.35	65.1	3.2	1/2	81.1	2.9
1.35 - 1.40	2.2	9.8	1/2	83.3	3.1
1.40 - 1.45	3.0	13.7	1/2	86.3	3.5
1.45 - 1.50	0.9	19.7	1/2	87.2	3.6
1.50 - 1.60	0.8	29.9	1/2	88.0	3.9
1.60 - 1.70	0.6	38.2	1/2	88.6	4.1
1.70 - 1.80	0.3	48.0	1/2	88.9	4.2
1.80 - 1.90	0.2	54.3	N.A.	89.1	4.4
+1.90	10.9	86.7	N.A.	100.0	13.3

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (B) -COMPOSITE "A"(90%) + DILUTION ROCK"B"(10%).

LAB NO.: 6590

SINK - FLOAT ANALYSIS, adb: 3/4"x3/8"					
				CUMULATIVE	
SG FRACTION	WT%	ASH%	FSI	WT%	ASH%
- 1.30	27.4	1.9	1 1/2	27.4	1.9
1.30- 1.35	46.9	3.6	1/2	74.3	3.0
1.35- 1.40	2.2	9.9	1/2	76.5	3.2
1.40- 1.45	2.5	14.3	1/2	79.0	3.5
1.45- 1.50	1.0	18.9	1/2	80.0	3.7
1.50- 1.60	1.2	26.8	1/2	81.2	4.1
1.60- 1.70	1.0	35.3	1/2	82.2	4.4
1.70- 1.80	0.8	46.1	N.A.	83.0	4.8
1.80- 1.90	0.5	51.4	N.A.	83.5	5.1
+1.90	16.5	86.0	N.A.	100.0	18.5

SINK - FLOAT ANALYSIS, adb: 3/8" x28M					
				CUMULATIVE	
SG FRACTION	WT%	ASH%	FSI	WT%	ASH%
- 1.30	49.2	1.9	2	49.2	1.9
1.30 - 1.35	24.5	3.9	1/2	73.7	2.6
1.35 - 1.40	4.7	9.0	1/2	78.4	3.0
1.40 - 1.45	2.1	13.8	1/2	80.5	3.2
1.45 - 1.50	1.6	18.2	1/2	82.1	3.5
1.50 - 1.60	1.9	27.5	1/2	84.0	4.1
1.60 - 1.70	1.2	35.6	1/2	85.2	4.5
1.70 - 1.80	1.0	44.0	N.A.	86.2	5.0
1.80 - 1.90	0.9	50.7	N.A.	87.1	5.4
+1.90	12.9	82.6	N.A.	100.0	15.4

Birtley Coal
& Minerals Testing

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (B) -COMPOSITE (90%) + DILUTION ROCK"B"(10%).

LAB NO.: 6590

SINK-FLOAT ANALYSIS,adb: 28Mx100M					
				CUMULATIVE	
SG FRACTION	WT%	ASH%	FSI	WT%	ASH%
- 1.30	38.5	1.6	1 1/2	38.5	1.6
1.30 - 1.35	26.1	3.3	1/2	64.6	2.3
1.35 - 1.40	10.3	6.1	1/2	74.9	2.8
1.40 - 1.45	6.3	10.1	1/2	81.2	3.4
1.45 - 1.50	2.1	15.8	1/2	83.3	3.7
1.50 - 1.60	3.2	23.3	N.A.	86.5	4.4
1.60 - 1.70	2.5	32.3	N.A.	89.0	5.2
1.70 - 1.80	1.6	44.7	N.A.	90.6	5.9
1.80 - 1.90	1.1	53.6	N.A.	91.7	6.5
+ 1.90	8.3	78.7	N.A.	100.0	12.5

FROTH -FLOTATION TEST,adb:100Mx0					
				CUMULATIVE	
PRODUCT	WT%	ASH%	FSI	WT%	ASH%
STAGE I	44.0	9.1	1/2	44.0	9.1
STAGE II	10.0	15.6	N.A.	54.0	10.3
TAILINGS	46.0	20.5	N.A.	100.0	15.0

F.F. Parameters: 10% P.D.
Regent = 4:1=Kerosene:MIBC
Dosage = 0.50 lb/Ton
Conditioning Time = 1 minute
Stage I = 1st minute froth
Stage II = 2nd minute froth

Birtley Coal
& Minerals Testing

CLIENT : TECK MINING GROUP

PROJECT: ANALYSIS OF RAW COAL, a.d.b.

BURNT RIVER SAMPLES

Lab No	Sample I.D.	Moist%	Ash%	Vol%	F.C.%	S%	BTU/lb	F.S.I.
6588	A. Comp.	0.6	8.0	-	-	-	-	-
6589	Dilution Rock Comp.	0.8	72.8	-	-	-	-	-
6590 #1	B. Comp.	0.6	14.2	13.7	71.5	0.36	13281	N.A.
6590 #2	B. Comp.	0.6	14.4	13.6	71.4	0.36	13231	N.A.
6590 #3	B. Comp.	0.6	14.1	13.7	71.6	0.36	13293	N.A.

ASH FUSION TEMPERATURES°F (on 6590#2)				
ATMOSPHERE	I.D.T.	S.T.	H.T.	F.T.
OXIDIZING	2470	2720	2770	2800
REDUCING	2390	2670	2710	2770

NOTES: 6588 - new composite (35kg) made up from air dried 1/4x0 retains of 6541:6542"6543 =35:40:25

6589 - new composite (5kg) made up from air dried 1/4x0 retains of 6544:6545:6546 =35:40:25

6590 - new composite (35kg) made up from air dried 1/4x0 retains of 6588:6589 =90.4:9.6
- 35 kg split into 3 subsamples #1,#2,and #3
- Approximately 10 kg each off #1,#2 and #3 packaged for pick-up by John Wright

Birtley Coal & Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD

CLIENT : TECK MINING GROUP

PROJECT: BULK SAMPLE (A) Seam 60(25%) +. Upper(35%) + Lower(40%)

LAB NO. : 6588 R

MINERAL ANALYSIS OF ASH										
SiO2	Al203	TiO2	Fe203	CaO	MgO	Na20	K20	P205	S03	Undet.
63.00	24.44	1.12	1.59	2.04	0.90	1.46	1.42	1.06	1.25	-1.72

PROJECT: BULK SAMPLE (B) -COMPOSITE"A"(90%) +DILUTION ROCK"B"(10%)

LAB NO.: 6590 R

MINERAL ANALYSIS OF ASH										
SiO2	Al203	TiO2	Fe203	CaO	MgO	Na20	K20	P205	S03	Undet.
68.86	21.29	1.12	1.40	1.32	0.83	0.92	1.87	0.68	0.64	-1.07

Birtley Coal
& Minerals Testing

A DIVISION OF GREAT WEST STEEL INDUSTRIES LTD