PR- QUINTETTE 79(1)A

QUINTETTE COAL LIMITED.

1979 EXPLORATION ASSESSMENT REPORT

JANUARY 1980

613

OPEN FILE

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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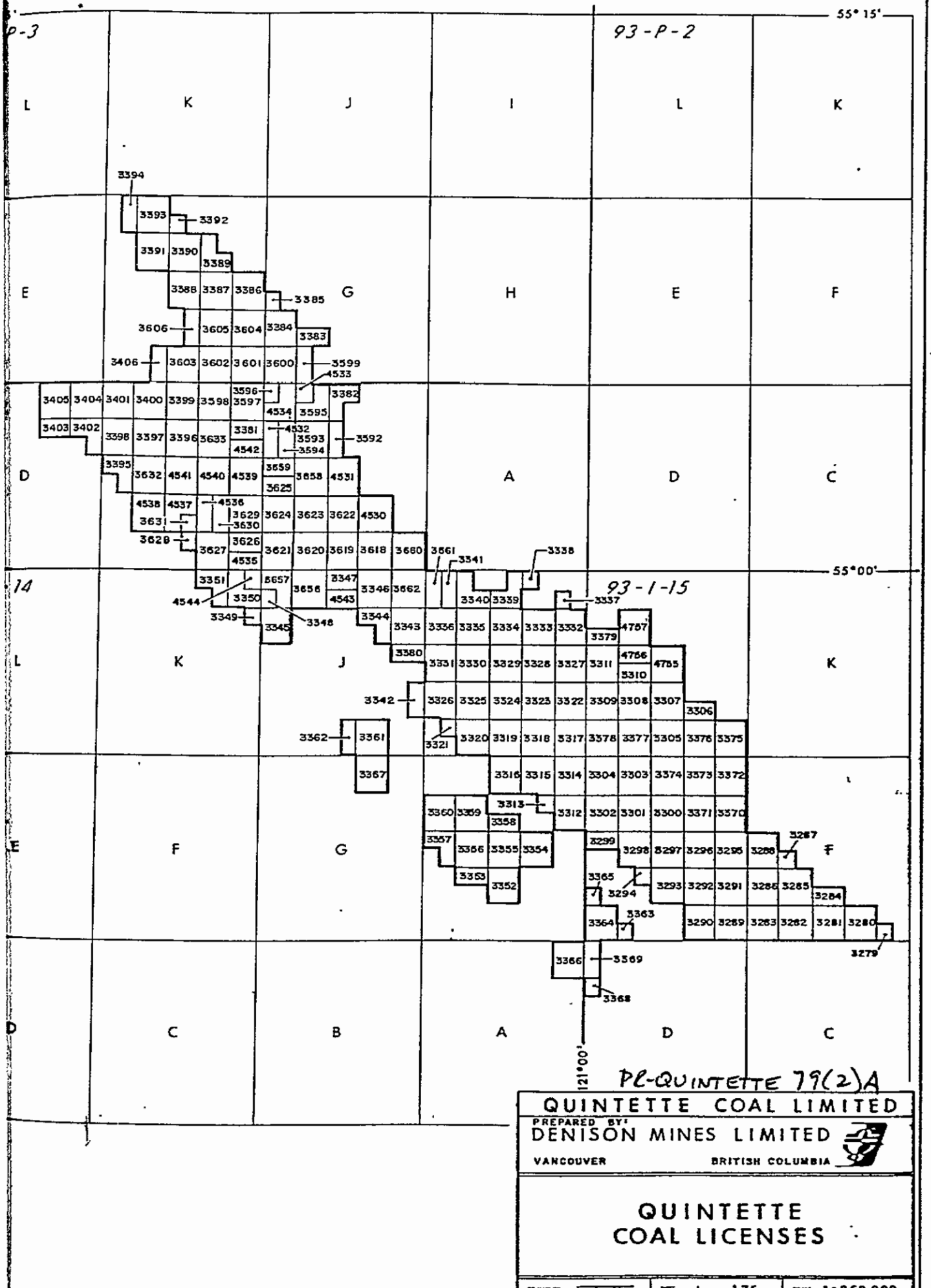
TABLE OF CONTENTS

LIST OF MAPS

PREFACE

The data presented in this report includes the work done during the 1979 field season on the new coal licences located in the Wolverine River Valley and along the eastern periphery of the property as shown in Figure No. 1.



PL-QUINTETTE 79(2)A

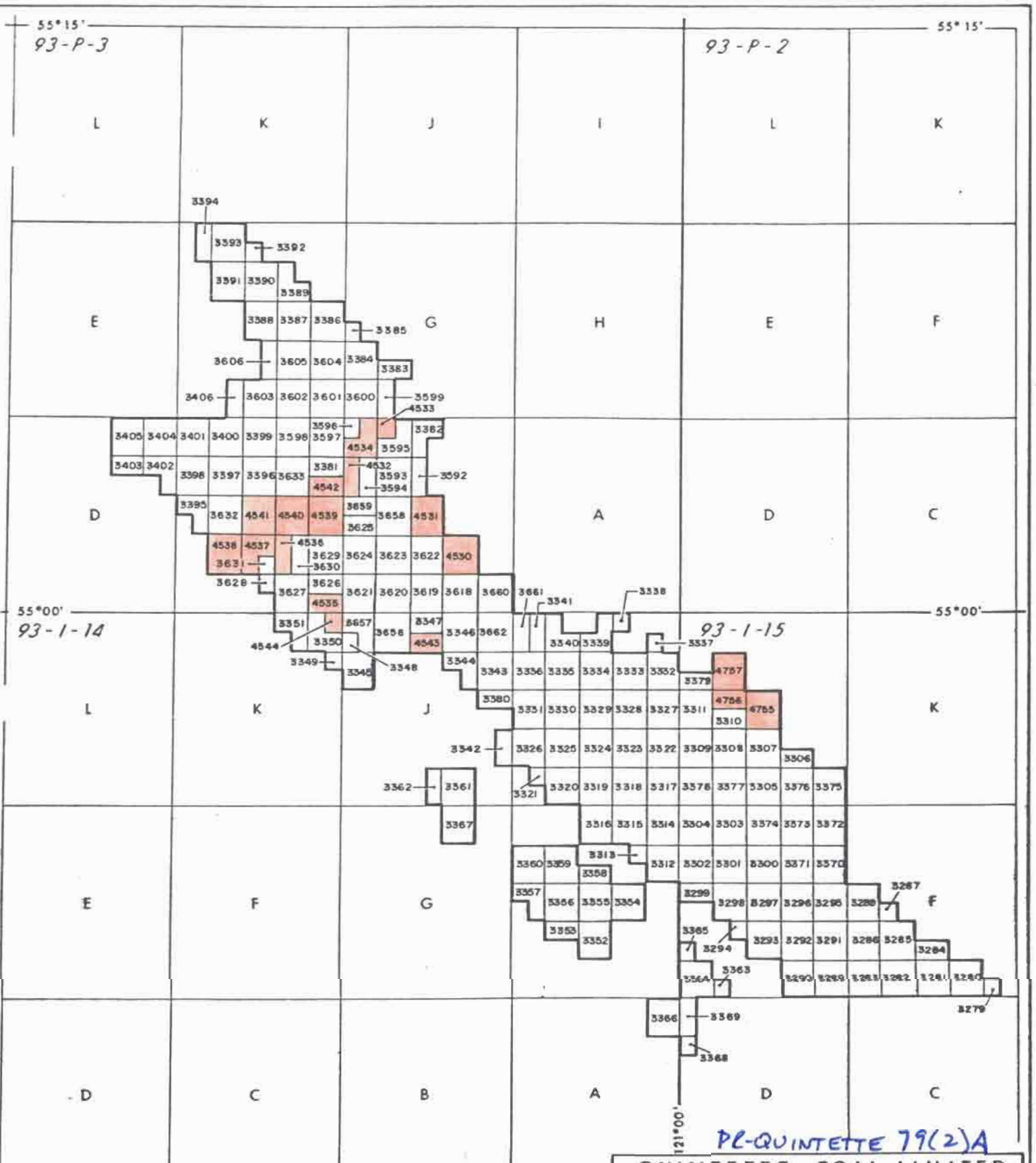
QUINTETTE COAL LIMITED

PREPARED BY:
DENISON MINES LIMITED
VANCOUVER BRITISH COLUMBIA

QUINTETTE COAL LICENSES

E. Toth	Apr. '75	1:250,000

FIG. 1



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QUINTETTE COAL LICENSES

DRAWN BY E. Toth	DATE Apr. '75	SCALE 1:250,000
APPROVED BY	DRAWING NO. QNTT 75 - 0563 - R05	

FIG. 1

1.0 INTRODUCTION

The 1979 Quintette field programme was carried out from the middle of June to the middle of July.

The exploration program consisted of helicopter supported reconnaissance work followed by detailed mapping on a scale of 1:2,500. A pre-existing road, constructed by Grizzly Valley Construction for Quasar Petroleum, was used for access in and out of the Babcock camp. The camp was moved in on June 20 on a site previously used by Quasar Petroleum and was in operation by June 23. Geological mapping ended on July 14, while reclamation of the camp site continued until July 18 when the camp was demobilized.

1.1 Geological Mapping

The geological mapping carried out in the 1979 Quintette exploration project was accomplished by two 2-man teams supported by a Hughes 500 Helicopter. The mapping was carried out on the new licences acquired on January 15, 1979 and April 15, 1979. Field mapping was done on map cards at a scale of 1:2,500 and later was transferred to a map of scale 1:25,000. A chain, compass, clinometer and a portable map board with sylva compass were used for accurate control of the data. Points such as creek confluences or survey control points shown on base maps were used to locate the beginning and the end of each traverse. Aerial photographs were also studied and utilized in planning of the traverses.

1.2 Field Camps

An 8 man trailer camp was set up just off the main road, north of Babcock Creek which served as a base camp for the field activities.

The camp was leased from Territorial Leasing Limited and catered by Westcamp Construction Catering Limited both out of Edmonton, Alberta.

2.0 GEOLOGY

2.1 Introduction

The Quintette property is located in North Eastern British Columbia along the foothills belt of the Rocky Mountains, approximately 100 kilometres south west of Dawson Creek. The majority of the new licences lie within the Wolverine River Valley situated in the northern half of the property, while the remaining are dispersed in the central and south eastern section of the Quintette property. Access to the property was gained through the use of a Hughes 500 Helicopter.

The 1979 exploration program consisted of helicopter reconnaissance work followed by detailed mapping on a scale of 1:2,500. The purpose was to further map the geology and to locate any potential coal measures.

2.2 Stratigraphy

Little geology was mapped on licences east of Babcock Mountain; all the bedrock exposure was restricted to the banks of the creeks. These rocks were of typical Shaftesbury marine shales, characterized by a medium to dark grey appearance, with lamination of siltstones and sandstones, and occasional bands of medium grained sandstone, and abundant iron stained concretions. No other Cretaceous rocks outcrop in this area. In the Murray area, on licences northeast of Sheriff Mountain, the Boulder Creek and Hulcross members are well exposed near the head waters of the Mesa Creek, and clearly defined on anticlinal structure. West of Mount Frame, the Cadomin and Nikanassin formation are exposed in an anticline with the Nikanassin exposed in the crest. In the Wolverine Valley, a complete sequence of Lower Cretaceous rocks are known to exist. The Cadomin, Nikanassin and Gething formations are well exposed in the western half of the

property. The eastern half of the Wolverine Valley is underlain by alluvium deposits, therefore no bedrock is exposed.

The lithologic description of the Lower Cretaceous rocks is well documented in Quintette Feasibility Study, July 1978.

2.3 Structure

East of Babcock Mountain, the structure defined by the Shaftesbury is a monoclinal sequence of predominantly shales, gently dipping to the north east, possibly forming the limbs of an anticline (well defined on Babcock Creek) with the axial plane trending in a north west south east direction.

In the Murray Area, east of Sheriff Mountain, the Boulder Creek conglomerate lies conformable over the Hulcross rocks, defining an anticline trending in a north westerly direction. West of Mount Frame, the Cadomin is well exposed forming an anticline that has been well defined on existing adjacent Quintette licences. This anticline has been interpreted to extend across the Wolverine River and as far north as the head waters of Perry Creek. To the south, the eastern limb is intercepted by a major fault (see Quintette Regional Geology Map).

In the Wolverine Valley, a problem existed with tracing the Cadomin conglomerates on the north slope across the river and up the south slope. A solution is apparent from a detailed study of the aerial photographs. An anticlinal structure is reflected on the south slope directly opposite the Cadomin in question on the north slope. Aerial photographs clearly indicate the two anticlinal structures are part of a major anticline with its axial plane perpendicular to the trend of the valley. The western limb of this anticline is cut by a south west dipping reverse fault, uplifting the Cadomin rocks on the west side of the fault and placing it against the Gething sediments. The

location of this fault has been reinterpreted based on new evidence. The new location is now believed to be on the west side of the creek rather than east side as thought previously. The location of the Moosebar formation is slightly affected by this new evidence, as shown on the revised Quintette Regional Geology. An alternate interpretation, based on visual examination of conglomerates, can be made. It involves changing the pre-1979 interpretation of the stratigraphy on the north slope from the Cadomin to Gething sediments, as a similarity of the conglomerates were revealed during mapping. Changing this, correlation of the geology can be established on both sides of the river.

3.0 RECLAMATION

The 1979 reclamation work for Quintette consisted of a major clean up of the camp site and a gate was installed to prevent motorists from using the access road into camp.

4.0 ACKNOWLEDGEMENTS

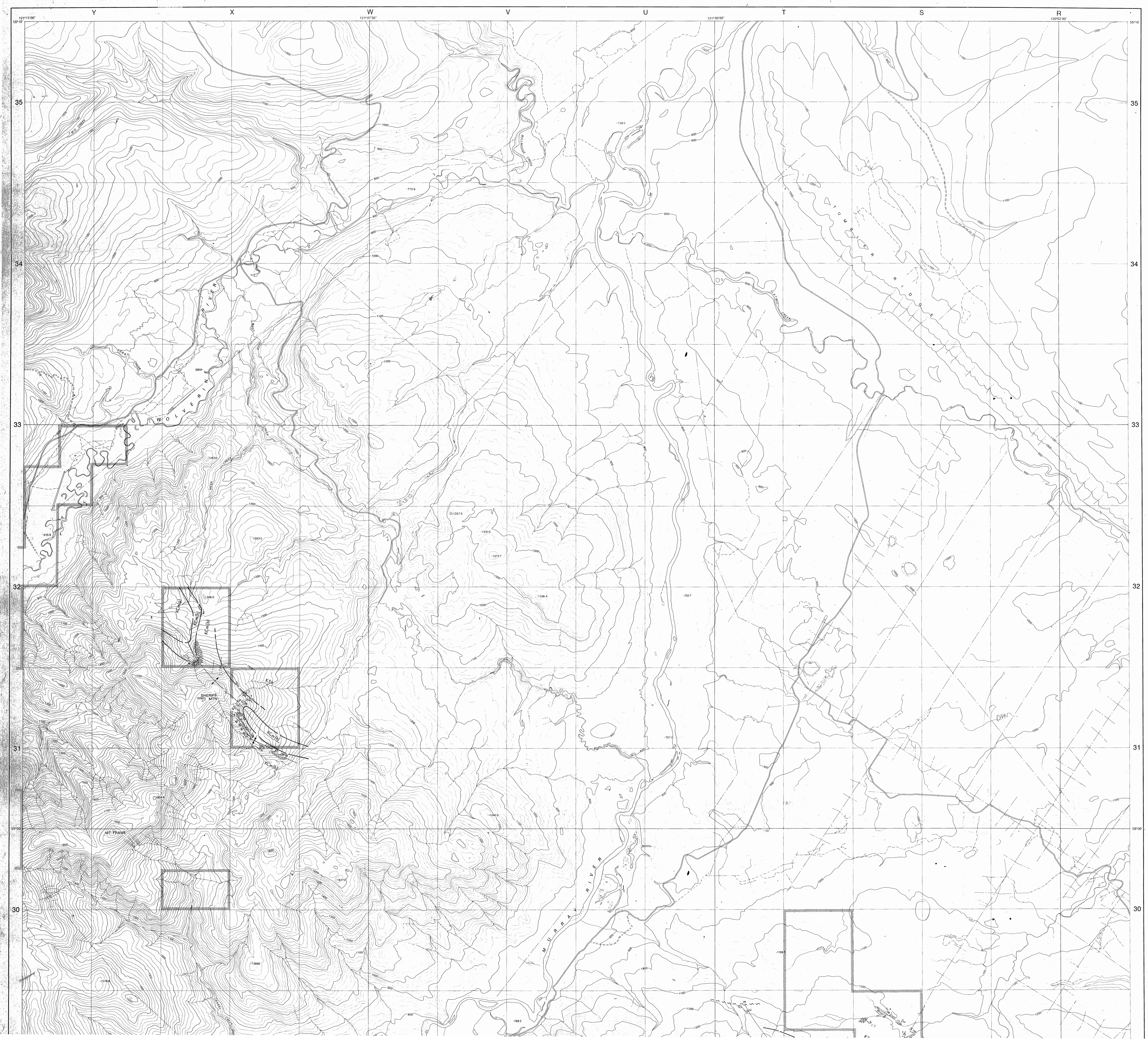
Contractors:

The following table summarizes the major contractors employed by Denison Mines on the Quintette project during the 1979 program and their areas of responsibility under Denison's supervison:

Quasar Helicopters Ltd.	Chartered Aircraft
Associated Helicopters Ltd.	Chartered Aircraft
Westcamp Construction Catering Ltd.	Catering
Territorial Leasing Ltd.	Field Camp Rental
Rentway Transportation Leasing Ltd.	Truck Rental
Canadian Propane Ltd.	Propane Supply

Denison Personnel:

G. P. Gormley	Manager of Exploration
R. Sagi	Chief Geologist
J. Perry	Project Geologist
F. Tumato	Geologist



Y
X
W
V
U
T
S
R
121°15'00"
121°07'30"
121°00'00"
120°52'30"
55°10'
55°00'
35
34
33
32
31
30
TWO CREEK
PERRY CREEK
WOLVERINE RIVER
MAST CREEK
MESA CREEK
BULLMOOSE CREEK
FLATBED CREEK
TUMBLER RIDGE
SHERIFF MTN
MT FRAME
MURRAY RIVER
CANARY CREEK
KCm(g)
KCm(h)
KCm(b)
KSh

GEOLOGICAL LEGEND

DRIFT COVERED AREA

GEOLOGICAL BOUNDARY (Defined, Approximate) (Assumed, Gradational)

LIMIT OF GEOLOGICAL MAPPING

BEDDING, TOPS KNOWN (Horizontal, Inclined) (Vertical, Overturned, Dip Unknown)

BEDDING TOPS UNKNOWN (Inclined, Vertical, Dip Unknown)

BEDDING TREND (Dip Unknown - Tops Unknown, Dip and Top Known, Dip Known - Top Unknown)

BEDDING, ESTIMATED DIP (Gentle, Moderate, Steep)

DRAG FOLD (Arrow Indicates Plunge)

STRUCTURAL TREND (From Aerial Photographs)

FAULT (Defined, Approximate, Assumed)

FAULT (Inclined, Vertical)

FAULT (Downthrow Side, Relative Movement)

THRUST FAULT (Points in Direction of Dip - Defined)

THRUST FAULT (Approximate, Assumed)

JOINT (Inclined, Vertical, Horizontal)

ANTICLINE (Defined, Approximate)

SYNCLINE (Defined, Approximate)

ANTICLINE (Overturned), SYNCLINE (Overturned)

ANTICLINE OR SYNCLINE (Arrow Indicates Plunge)

ESCARPMENT

FOSSIL LOCATION

COAL ZONES - DEFINED
INFERRED
ASSUMED

MESOZOIC

UPPER CRETACEOUS

KDu — DUNVEGAN FORMATION: Marine and non-marine sandstone and shale

LOWER CRETACEOUS — FORT ST. JOHN GROUP —

KSh — SHAFTESBURY FORMATION: Marine shale
* North of the Wolverine River the Shaftesbury Fm. is differentiated into Hasler, Goodrich & Cruiser Formations.

KCr — CRUISER FORMATION: Marine shale

KGo — GOODRICH FORMATION: Fine-grained sandstone

KHa — HASLER FORMATION: Dark marine shale

KCm — COMMOTION FORMATION
Undifferentiated

KCm(b) — COMMOTION FORMATION, Boulder Creek Member: conglomerate; coarse to fine-grained sandstone; shale; coal

KCm(h) — COMMOTION FORMATION, Hulcross Member: dark marine shale

KCm(g) — COMMOTION FORMATION, Gates Member: carbonaceous sandstone; shale; coal

KMb — MOOSEBAR FORMATION: dark marine shale

— BULLHEAD GROUP —

KGt — GETHING FORMATION: conglomerate; carbonaceous sandstone and shale; coal

KCd — CADOMIN FORMATION: massive conglomerate

JURASSIC AND CRETACEOUS LOWER CRETACEOUS AND EARLIER

KNk — NIKANASSIN FORMATION: fine-grained sandstone and carbonaceous shale

TOPOGRAPHIC LEGEND

ACCESS ROAD ALL WEATHER / LIMITED WEATHER

ACCESS TRAIL LIMITED WEATHER

RAILWAY

AIR STRIP

SEISMIC LINE CUT LINE

POWER TRANSMISSION LINE

TRENCH

ADIT OPEN CAVED

GAS WELL

DRY HOLE

DRILL HOLE ROTARY / DIAMOND

CAMPSITE

CAMPGROUND, PUBLIC

FOREST SERVICE LOOKOUT/STATION

HORIZONTAL AND VERTICAL CONTROL

RIVER

STREAM

LAKE

SWAMP

CONTOURS

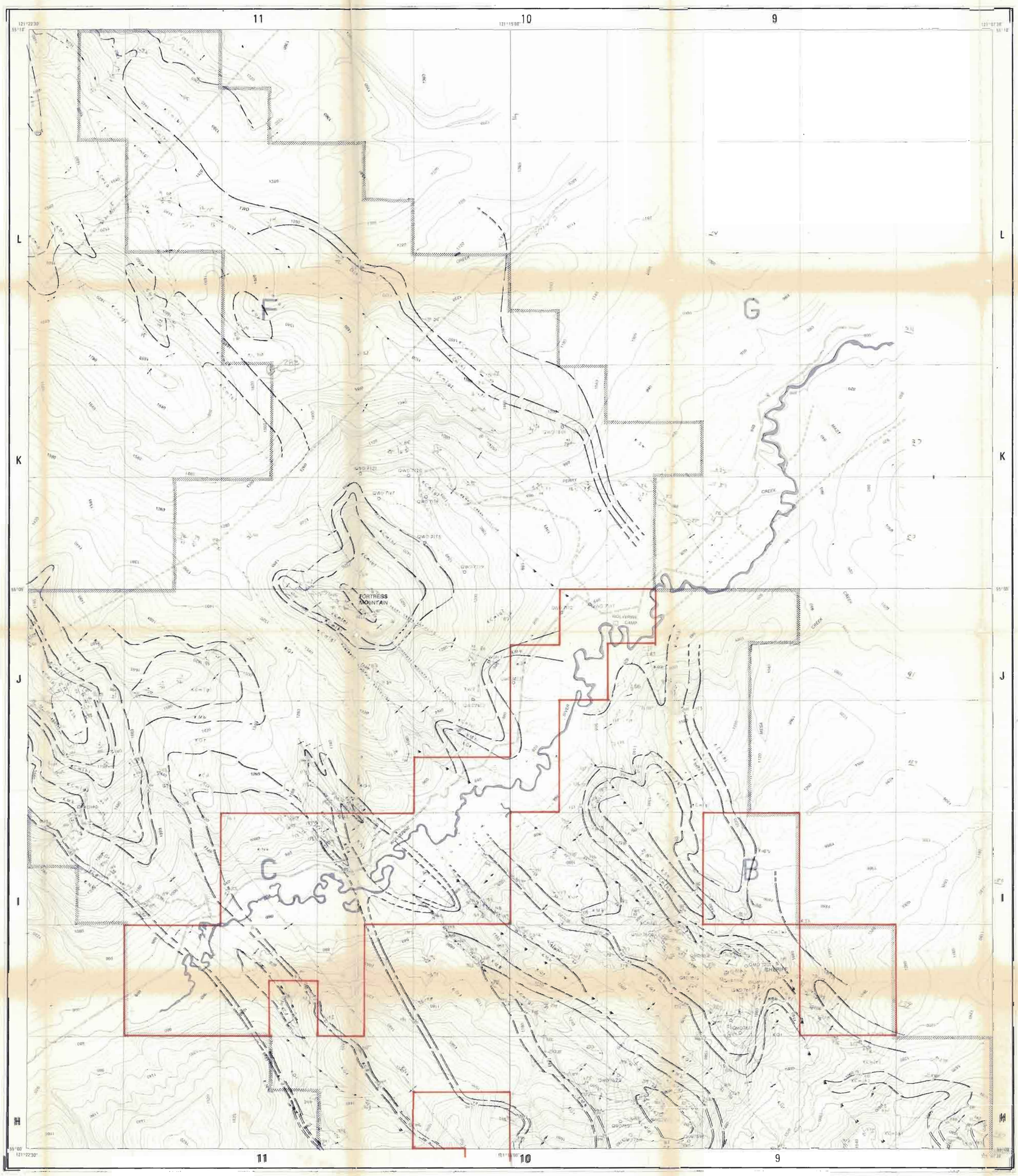
DEPRESSION CONTOUR

CONTROL SURVEY NOTE

The Horizontal and Vertical Co-ordinates were established by White, Vosford & Impey Ltd. Horizontal distances were reduced to mean sea level, elevations were derived by Trig Levelling.

Horizontal Co-ordinates shown are converted B.C. Government Polyconic Rectangular Co-ordinates, based on Clarkes 1866 Spheroid. Bearings referred to the Meridian through 121°West. Co-ordinates derived from Trig station Quintette E (2374) Lat 54°51'30.33" Long. 120°52'38.31". 28815.92 ft North, 84813.86 ft. East. Elevations shown are above mean sea level (Geodetic) derived from Trig station Quintette E (2374) Elevation 6044 ft.

Additional Control Survey was established by Burnett Resource Surveys Ltd. and Zhend Hi Burnett and Associates Ltd. utilizing MRA3 Tellurometers, H.P. 3800 Infra Red Distancers and Kern DKM2A Theodolites. Horizontal and Vertical Datum was derived from previously established control stations TF (elev. 6302.82 ft.) lat. 54°52' 56.269", Long. 121°01' 09.116", 37,312.22 Ft. North, 54,919.07 ft. East; and T9 (elev. 6126.2 Ft.) Lat. 54°56' 30.165", Long. 121°00' 07.049", 51,887.6 ft. North, 58,550.76 ft. East.



QUINTETTE REGION
BRITISH COLUMBIA

SCALE 1:25,000

Miles 0 1 2
Kilometres 0 1 2 3

CONTOUR INTERVAL 20 METRES

NOTE: 20 Metre contour was interpolated from photogrammetric mapping which was compiled from aerial photography taken 1970 to 1974 and from 1:50,000 National Topographic Series maps.

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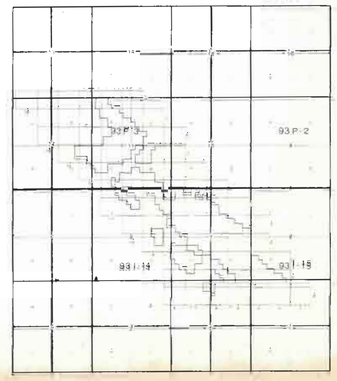
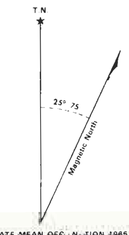
INDEX MAP SHOWING PHOTOGRAMMETRIC MAPS AND BRITISH COLUMBIA COAL LICENCES

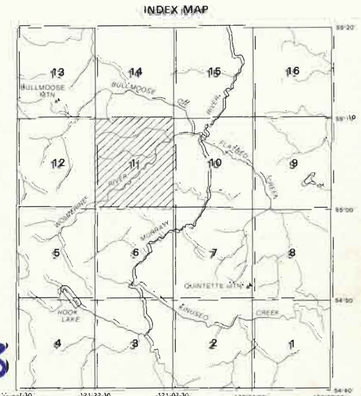




APPROXIMATE MEAN DECLINATION 1985
FOR CENTRE OF MAP
Annual Change Decreasing 0° 9'

LOCATION MAP

INDEX MAP



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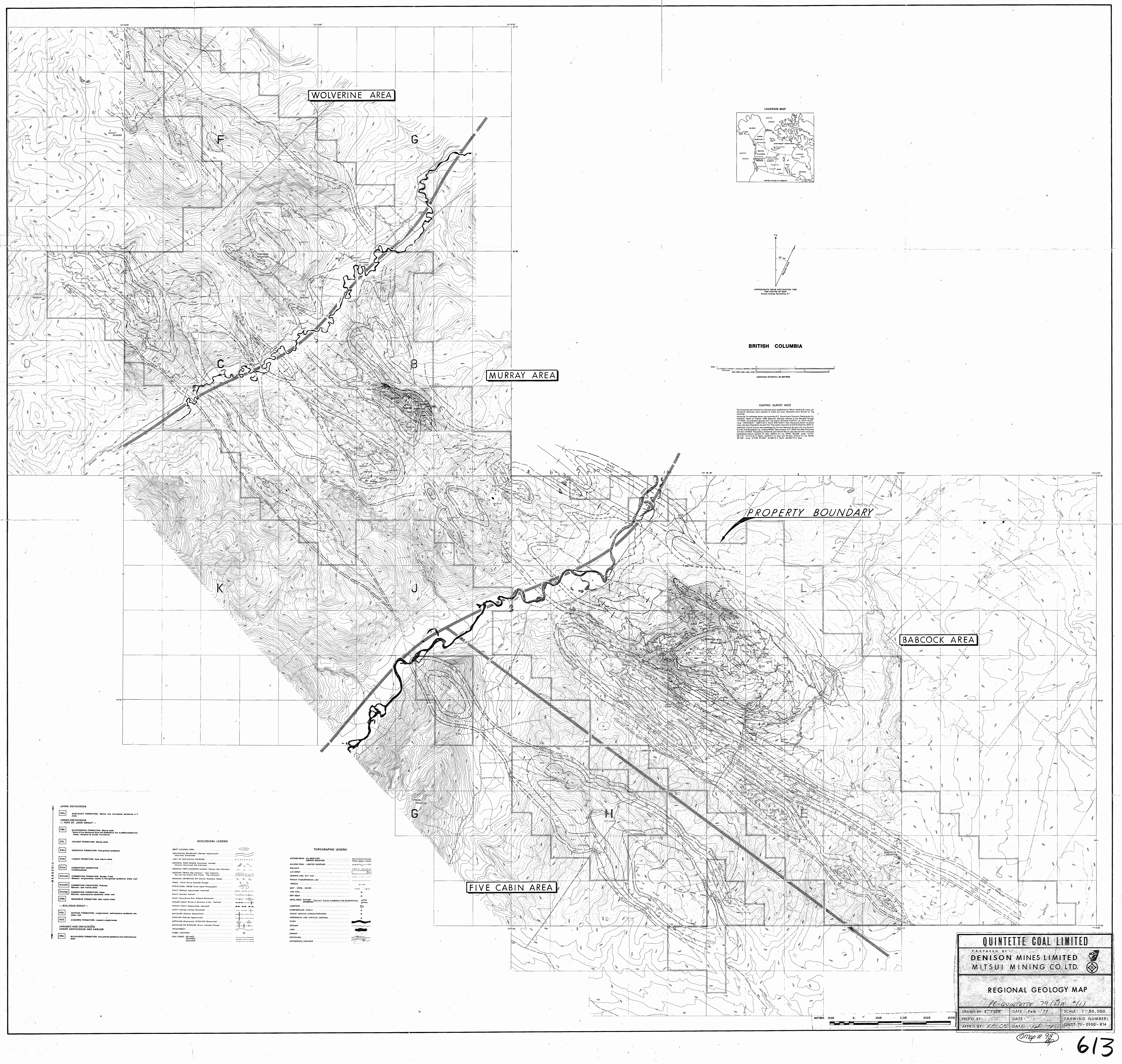
SHEET NO. 11

PR-QUINTETTE 79 (2374) 101


WOLVERINE AREA
MURRAY AREA
PROPERTY BOUNDARY
BABCOCK AREA
FIVE CABIN AREA
F
G
C
B
K
J
L
G
H
MOUNT SPIEKER
MOUNT REESOR
FORTRESS MOUNTAIN
WOLVERINE CAMP
MT. FRAME
MURRAY CAMP
BABCOCK MTN.
BABCOCK CAMP
KOSTUIK MTN.
ROMAN MTN.
TURNING MOUNTAIN
QUINTETTE MOUNTAIN
CAMP No. 3
LOCATION MAP
ARCTIC OCEAN
ALASKA
YUKON TERRITORY
WHITEHORSE
NORTHWEST TERRITORIES
YELLOWKNIFE
PACIFIC OCEAN
BRITISH COLUMBIA
CHETWYND
DAWSON CREEK
GRANDE PRAIRIE
QUINTETTE REGION
ALBERTA
EDMONTON
VANCOUVER
CALGARY
SASK.
REGINA
MAN.
WINNIPEG
HUDSON BAY
CHURCHILL
ONTARIO
UNITED STATES OF AMERICA
T.N.
25° 54'
Magnetic North
APPROXIMATE MEAN DECLINATION 1965
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LIMITED WEATHER
ACCESS TRAIL - LIMITED WEATHER
RAILWAY
AIR STRIP
SEISMIC LINE, CUT LINE
POWER TRANSMISSION LINE
TRENCH
ADIT - OPEN - CAVED
GAS WELL
DRY HOLE
DRILL HOLE - ROTARY - DIAMOND } SELECT HOLES NUMBERED FOR ORIENTATION
CAMPSITE
CAMPGROUND, PUBLIC
FOREST SERVICE LOOKOUT/STATION
HORIZONTAL AND VERTICAL CONTROL
RIVER
STREAM
LAKE
SWAMP
CONTOURS
DEPRESSION CONTOUR
METRES 1000 0 1000 2000 3000 4000
QUINTETTE COAL LIMITED
PREPARED BY:
DENISON MINES LIMITED
MITSUI MINING CO. LTD.
REGIONAL GEOLOGY MAP
PR-QUINTETTE 79 (2)A *(1)
DRAWN BY: E. Toth
DATE: Feb. '77
SCALE: 1:50,000
PREP'D BY:
DATE:
DRAWING NUMBER:
APPR'D BY: H.P. C.P.G.
DATE: Feb '78
QNTT 71-0100-R14
Map # 98
613