

OPEN FILE

QUILCHENA

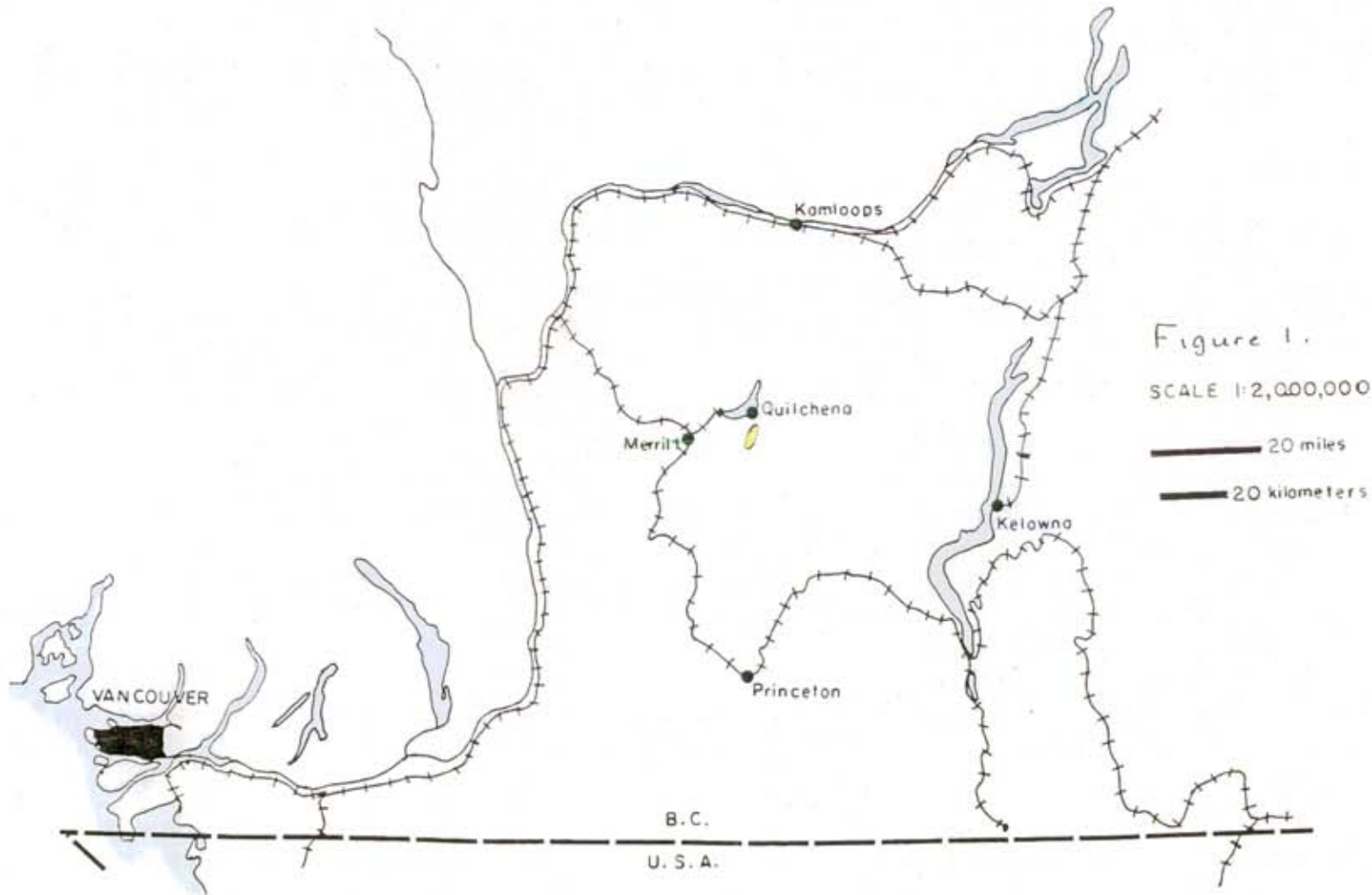
Literature Summary

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LOCATION MAP

SOUTHERN BRITISH COLUMBIA



QUILCHENA

INTRODUCTION

Purpose

A series of Tertiary, coal-bearing sedimentary rocks are exposed along Quilchena Creek in south-central British Columbia. This report is a summary of the information available concerning the Quilchena coal deposits and includes some recommended actions.

Location and Access

Quilchena Creek flows northerly into Nicola Lake with its mouth at the community of Quilchena. The area of interest begins two to three kilometres upstream and continues upstream for about 10 kilometres. This area is 20 to 25 kilometres east of the town of Merritt and 215 kilometres northeast of Vancouver.

Access over the property is limited to a few roads or trails of unknown quality. The terminus of the nearest railline is at Nicola, 13 kilometres west of the community of Quilchena, between Quilchena and Merritt.

Geography

The Quilchena prospect is located in the Interior Dry Belt of British Columbia. Typically, there is little tree growth with vegetation usually consisting of grasses and shrubs. Elevations over the prospect range from 670 metres (2200 feet) along Quilchena Creek to 1060 metres (3500 feet) above sea level. Nearby summits are over 1340 metres (4400 feet) above sea level.

The valley walls are steep and deeply incised by gullies, most of which contain intermittent streams. Above the valley, the area is generally a plateau. Aerial photographs of the area show extensive drumlin fields over the plateau suggesting extensive deposits of glacial debris.

Previous Work

The Diamond Vale Coal Company explored the Quilchena prospect

from 1904 to 1906 by trenching, drilling, and driving an adit and shaft. No development took place probably because of Diamond Vale's property nearer Merritt. R. W. Ells (1904, 1905) of the G.S.C. examined the area at the same time. Merritt and Quilchena are included on the regional geological map by Cockfield (1947). Imperial Metals and Power prospected and mapped the area in the early 1960's but did not acquire the land.

Land Status

Six coal licenses were held in the Quilchena area at one time but are marked as forfeited on the B.C. coal license maps. It is not known whether or not new licenses have been granted in the recent flurry of activity, but it is assumed the coal rights are open over the prospect except on an Indian Reservation which partially overlaps the area.

GEOLOGY

Regional Setting

The Nicola area, which includes Merritt and Quilchena, is in the geographic area known as the Interior Plateau. Regionally, the rocks range in age from Carboniferous to Tertiary.

The oldest rocks in the Nicola area are the Upper Triassic Nicola Group consisting predominantly of greenstone of volcanic origin with minor limestones. The plutonic rocks of the Coast Intrusions are in contact with the Nicola Group or older rocks.

Tertiary volcanic and sedimentary rocks occur in scattered areas over much of the southern Interior of British Columbia. The current hypothesis is these scattered occurrences are the erosional remnants of one or two continuous depositional troughs that were filled during the Tertiary period. Using this hypothesis, exploration changes from looking at each Tertiary outcrop area independently to making correlations between nearby areas.

The Kamloops Group of Tertiary rocks occur in the Nicola area. The age ranges from Eocene to Miocene with the basal unit being the Coldwater Formation. These strata rest unconformably on the Upper Triassic Nicola Group and consist of sandstone, shale, and commercial coal seams. At Merritt, there are at least seven major coal seams with an aggregate thickness of 25.3 metres (83 feet). The middle unit of the Kamloops Group consists of basaltic flows intercalated with tuffs and agglomerates. The uppermost unit is the Tranquile Beds or Formation consisting of conglomerate, sandstone, shale, tuff, and thin coal seams.

The most recent consolidated rock in the area are flat-lying valley basalts which are mainly vesicular.

Pleistocene and recent surficial deposits cover much of the area and may be especially thick in valleys. Larger valleys may have marginal terraces of sand, gravel, and clay.

The Triassic rocks are highly folded as well as having been intruded. The Coldwater Formation generally occurs in open folds with steep dips near the edges of each outcrop area. At Merritt, this unit is highly disturbed by faults and folds with northwest-southeast axes. The overlying strata generally have gentle dips or are near horizontal.

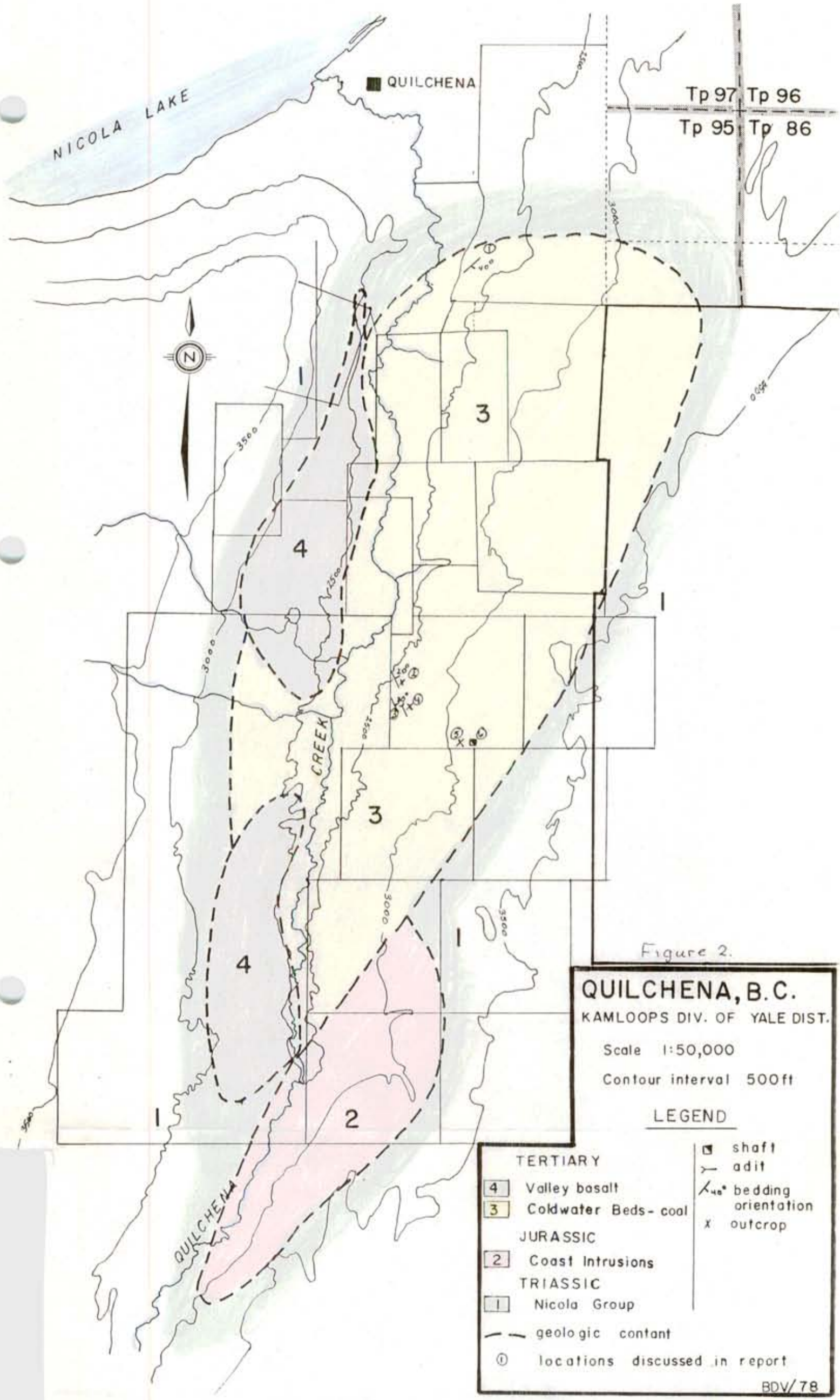


Figure 2.

QUILCHENA, B.C.
KAMLOOPS DIV. OF YALE DIST.

Scale 1:50,000
Contour interval 500ft

LEGEND

- | | | |
|-----------------|-------------------------------|--------------------------------------|
| TERTIARY | | ■ shaft |
| 4 | Valley basalt | — adit |
| 3 | Coldwater Beds-coal | ↙ _{40°} bedding orientation |
| JURASSIC | | x outcrop |
| 2 | Coast Intrusions | |
| TRIASSIC | | |
| 1 | Nicola Group | |
| - - - | geologic contact | |
| ① | locations discussed in report | |

Prospect Geology

At Quilchena, the Upper Triassic Nicola Group volcanics form the base of the succession. (See Figure 2 for geological map.) At the south end of the prospect, these volcanics are intruded by a small body of the Coast Intrusions.

The Kamloops Group is represented only by the basal unit, the Coldwater Formation. The formation consists ^{predominantly of shale with the proportion} of sandstone apparently increasing toward the south. The shales have been reported as being bentonitic. The one log of the 1904 diamond drilling which has been published (Ells, 1905) shows a number of coal seams over its 220 metre (720 foot) length but none were more than 0.8 metres (2.5 feet) thick. However, thicker seams have been reported by surface work and by exploration underground.

Figure 2 shows six numbered locations, the following descriptions of which are from Ells (1904, 1905).

1. Coal and carbonaceous shale totalling about 1.8 metres (6 feet) dipping toward S35°E (magnetic) at 40°.
2. Ledges of yellowish-grey sandstone grading upward into brown and grey shale with coal and carbonaceous shale. Location is about 105 metres (350 feet) to 122 metres (400 feet) above the creek and dipping N60°E (magnetic) at 20°.
3. Adit driven into 1.8 metre (6 foot) coal seam with two partings 2 to 4 centimetres thick. The seam dips N60°E (magnetic) at 30° and the roof and floor are grey sandstone. The tunnel mouth is about 84 metres (275 feet) above the creek bottom.
4. A seam outcrops 111 metres (365 feet) above the creek and is 1.8 metres (6 feet) or 2.1 metres (7 feet) thick.
5. At 236 metres (775 feet) above the valley floor, a 4.6 metre (15 foot) seam is exposed.
6. The seam exposed in location 5 was struck at a depth of 15.8 metres (52 feet) in a shaft a short distance to the northeast.

Overall, there are several coal seams which are thin with reports of a few thicker ones interbedded with shales and sandstones. The areal extent of the seams is unknown with the whole prospect being 11.5 kilometres in length and up to 3.5 kilometres in width.

The Coldwater Formation appear not be have been structurally disturbed and dips to the southeast at 40° in the north and to the northeast at 20° to 30° further south.

The rest of the Kamloops Group do not appear to be present in the Quilchena area. The youngest rocks in the area are ~~two~~ out-crop areas of flat-lying Tertiary valley basalts.

The configuration of the interface between the coal-bearing Coldwater Formation and the underlying volcanics is unknown. To accurately estimate the thickness of the Coldwater, more must be known about the contact and its slope. This is important in calculating reserves as well.

COAL QUALITY

The only coal analysis found so far from Quilchena was reported by Ells and is (unknown basis)

Moisture	6.95%
Ash	7.89%
Volatile Matter	37.21%
Fixed Carbon	47.95%

This sample yielded a firm, compact, coherent coke. At Merritt the coal is high volatile bituminous in rank with 10% ash, 0.6% sulphur, and 12,000 BTU/lb. Quilchena coal should be similar.

COAL RESERVES

Dolmage Campbell (1975) estimated the Quilchena coal reserve to be 63.5 million tonnes in a 1.5 metre (5 foot) seam over the area. There are indications other seams may be of mineable thickness in the area. The steep slopes would probably restrict recovery of this coal to underground mining methods.

CONCLUSIONS

The Quilchena prospect is one which has been shown to contain coal but insufficient work has been done to properly evaluate the prospect. Current reports concentrate on the northern outcrop of a 1.5 metre seam but no work has been done since 1905 on the report of a thicker seam further south.

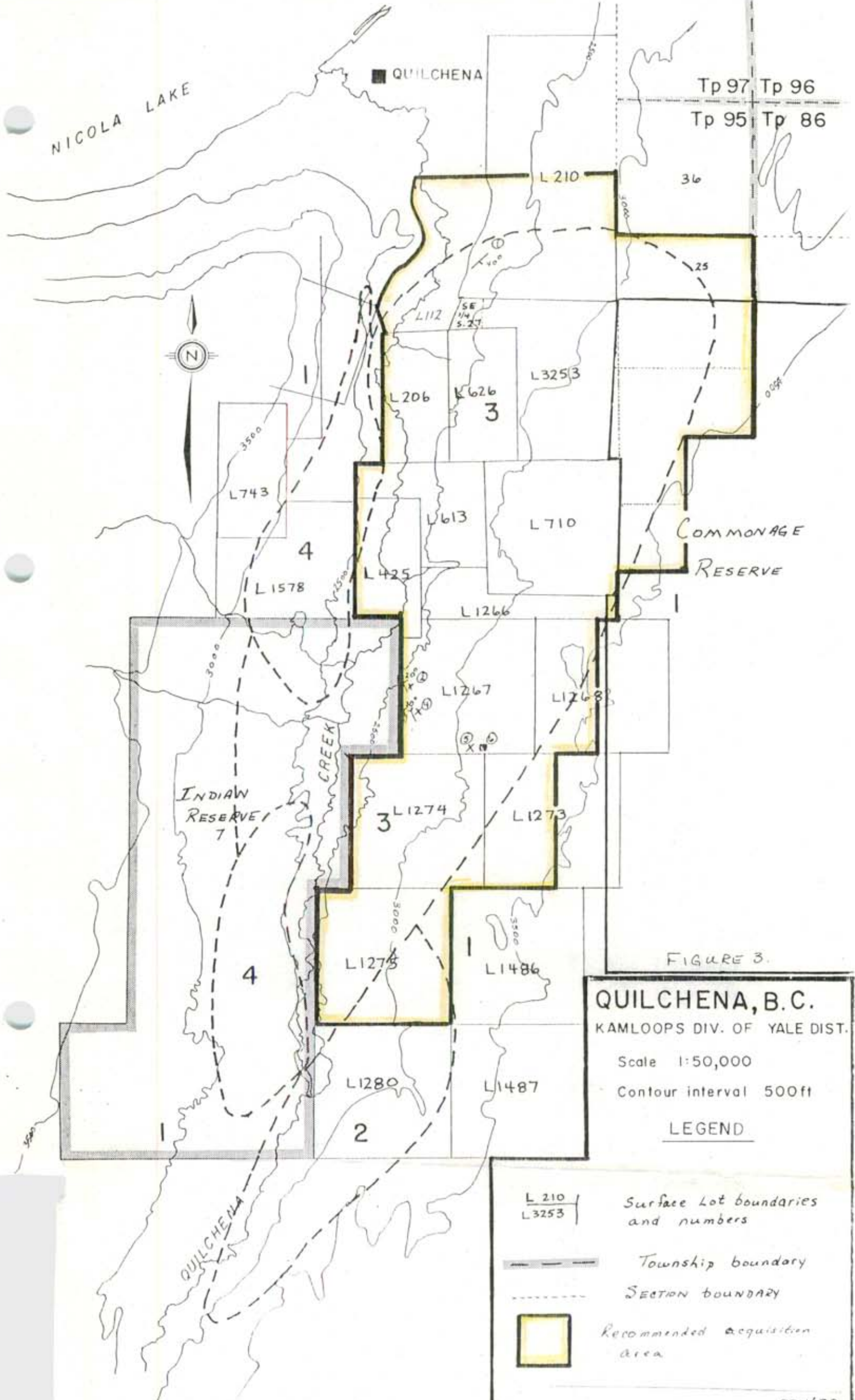
The dips may be somewhat steep for underground mining but the topography eliminates the possibility of surface mining. The reserve is of moderate size and the quality should be as good as that at Merritt.

The Quilchena prospect has sufficient qualifications for it to be acquired and for a reconnaissance exploration program to be conducted.

RECOMMENDATIONS

An application for coal licenses over the Quilchena prospect should be made with the B.C. Government. The area is outlined on Figure 3 and listed in Table 1 and totals approximately 7520 acres. The listing should be verified by the Land Department.

Subsequent to the application, assuming the land is available, an attempt to acquire more information should be made. This would necessitate a visit to the government office in Victoria. Unless very discouraging information is found in that search, an exploratory mapping and drilling program would be designed and conducted. The drilling would probably fulfill our work requirement for the first three years.



Tp 97 Tp 96
Tp 95 Tp 86

36

COMMONAGE
RESERVE

INDIAN
RESERVE
7

FIGURE 3.

QUILCHENA, B.C.

KAMLOOPS DIV. OF YALE DIST.

Scale 1:50,000

Contour interval 500ft

LEGEND

- L 210
L 3253 Surface Lot boundaries
and numbers
- Township boundary
- SECTION boundary
- Recommended acquisition
area

TABLE 1.

Land recommended for coal license application, Quilchena.

Within Kamloops Division of the Yale Land District:

Lot 1275
Lot 1274
W $\frac{1}{2}$ of Lot 1273
Lot 1267
W $\frac{1}{2}$ of Lot 1268
Lot 1266
Lot 425
Lot 613
Lot 710
Lot 206
Lot 626
Lot 3253
Lot 112
S $\frac{1}{2}$ of Lot 210
NW $\frac{1}{4}$ of Section 13, Township 95
N $\frac{1}{2}$ and SW $\frac{1}{4}$ of Section 24, Township 95
Portion of Section 23, Tp 95 not included in L3253
Section 25, Township 95
Portion of Section 26, Tp 95 not included in L3253
SE $\frac{1}{4}$ of Section 27, Tp 95

REFERENCES

Cockfield, W. E.

1947: "Nicola, Kamloops and Yale Districts,
British Columbia"; GSC Map 886A.

Dolmage Campbell & Associates

1975: "Thermal Coal Resources of British Columbia";
report to British Columbia Hydro and Power
authority.

Ells, R. W.

1904: "Preliminary Report on the Quilchena Coal
Basin, Nicola Valley, B.C."; report to Diamond
Vale Coal and Iron Mines Ltd., 5 pages.

1905: "Nicola Coal Basin, B.C."; GSC Annual Report,
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