Ministry of Energy, Mines and Petroleum Resources
Geological Survey Branch

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Sheet 1 of 5

GEOLOGY OF THE TENQUILLE LAKE, OWL CREEK AND LILLOOET LAKE AREA

NTS 092J/1, 2, 7, 10

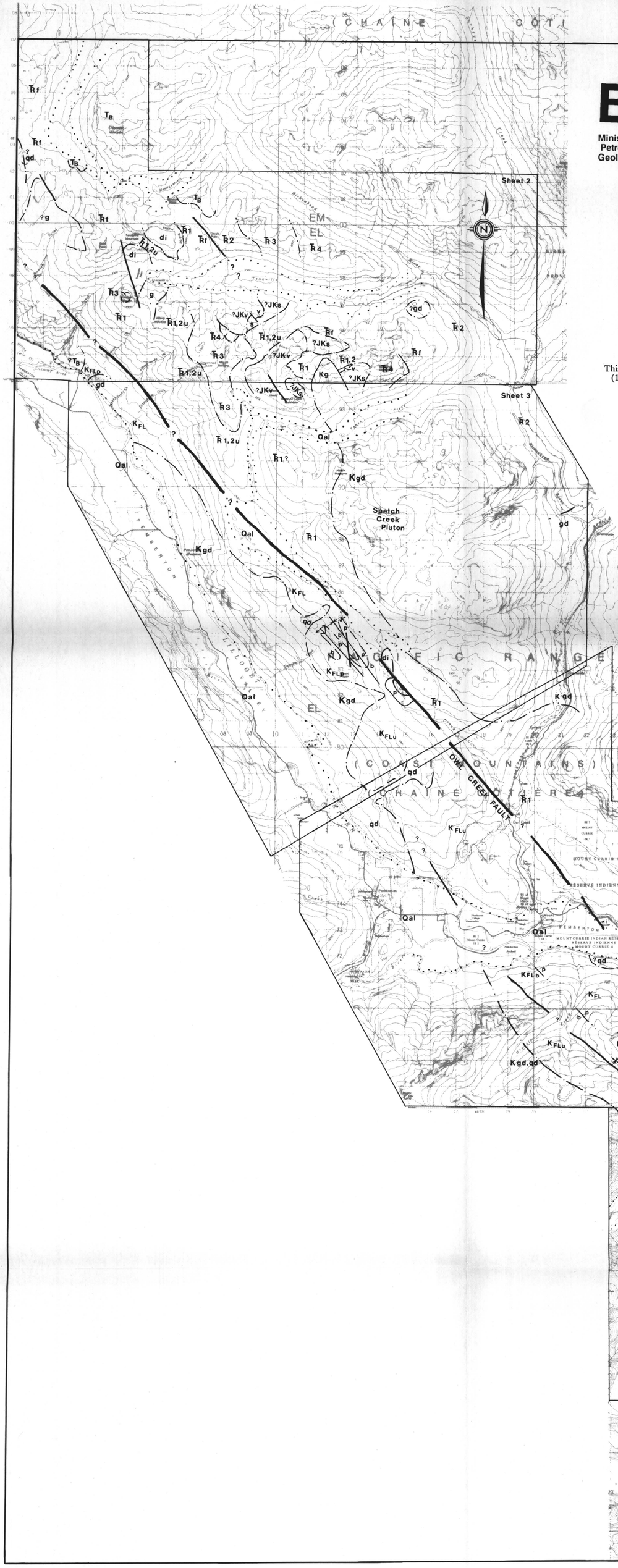
Geology by J.M. Riddell[1], S.M. Helm[1], and J.M. Pautler[2]

Compilation by J.M. Riddell

This map includes data from J.M. Journeay (unpublished), McLean (1989), Roddick and Hutchison (1977), Woodsworth (1977), and B.C. MEMPR Assessment Reports 2624, 4523, 4758 and 15597.

Scale 1:100 000

[1] Department of Geology, University of Montana, Missoula, MT
[2] Teck Explorations, Kamloops, B.C.



LEGEND
VOLCANIC AND SEDIMENTARY ROCKS

QUATERNARY

Qal — Alluvium

TERTIARY

T — Basalt flows, columnar basalt flows, basalt breccias, minor rhyolite.

CRETACEOUS

FIRE LAKE GROUP (GAMBIER EQUIVALENT)

KFLu — Undivided Fire Lake Group. Includes Brokenback Hill and Peninsula Formations, and overlying unnamed units comprising greenstone intruded by diorite, lithic and lapilli tuffs interbedded with black shales, siltstones, and minor conglomerate, banded pyroxene and feldspar tuffs, white feldspar-rich tuffaceous sandstones, minor chert.

Peninsula Formation

KFLp — Well bedded and graded quartz-bearing, feldspar-rich tuffaceous sandstone, brown sandstone with coaly beds and plant fossils, volcanic wacke with limestone concretions, black shale, pale green crossbedded feldspar tuff.

Brokenback Hill Formation

KFLb — Andesitic autobreccia with distinctive pale mauve and green colours, pale green feldspar crystal tuffs, and beige feldspar or feldspar-hornblende porphyry flows.

?POST-TRIASSIC

?JKs — Sedimentary section. Basal boulder conglomerate overlain by feldspar-rich calcareous sandstone, grey siltstone, and black shale. Conglomerate contains clasts of coarse plutonic rock, aphanitic and porphyritic volcanic rock, some argillite and chert.

?JKv — Volcanic section. Andesitic mauve and green autobreccia, massive and bedded feldspar crystal tuff, beige andesitic feldspar or hornblende-feldspar phyric flows. (This unit is very similar in appearance and composition to the Cretaceous Brokenback Hill Formation.

TRIASSIC
CORRELATIVE WITH THE CADWALLADER GROUP

Hurley Formation

TR 4 — Cobble conglomerate, feldspar-rich sandstones, grey siltstones, black shales. Locally sandstones are quartz-bearing. Calcareous matrix is common. White cherty beds are present.

TR 3 — Bedded lithic, lapilli, and feldspar crystal tuffs, .5 to 2 metre thick grey limestone beds with Norian conodonts, conglomerate, calcareous feldspar-rich wackes, grey siltstone, black shale, fine grained felsic tuffs with cherty tops, limestone breccias, limestone-bearing

TR 3b — Deep-maroon and green basalt breccia with some vesicular clasts. (Unit Tr3b is distinguished from Tr3 on Rampart Mountain (Sheet 5) where it outcrops over a large area. This unit is present in small amounts at Mount Barbour (Sheet 2), where it is included in unit Tr3. Outcrops are marked 'Bbx'.)

TR 2 — Massive andesitic lithic, lapilli, and feldspar crystal tuffs. Feldspar-phyric and aphanitic andesitic volcanic rocks are the most dominant clast types in the lithic and lapilli tuffs; aphanitic felsic clasts are abundant at almost all localities.

TR 1 — Mafic to intermediate massive flows with abundant feldspar-porphyritic phases, mafic to intermediate pyroclastic breccias with clasts 3 cm and smaller, limestone pods 2-30 metres across with associated epidote-garnet-magnetite skarns. Epidote clots and veins are common in the flows

TR 1, 2u — Units Tr1 and Tr2 undivided

TR f — Felsic flows and dikes intruded into, and interbedded with units Tr1 and Tr2. Quartz-feldspar porphyry dikes, white rhyolite flows with large quartz eyes or aggregates of quartz grains up to 1 cm across, minor quartz-eye tuffs.

PLUTONIC ROCKS

CRETACEOUS

K — Granodiorite, quartz diorite, granite, ~~diorite~~

UNKNOWN AGE

? — Granodiorite, quartz diorite, granite, diorite

TRIASSIC OR OLDER

TR — Diorite

REFERENCES

Cairnes, C.E. (1925): Pemberton Area, Lillooet District, British Columbia, *in* Summary Report 1924, Part A, *Geological Survey of Canada*, p 76-99.

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Roddick, J.A. and Hutchison, W.W. (1973): Pemberton (East Half) Map Area, British Columbia; *Geological Survey of Canada*, Paper 73-17, 21 pages.

Woodsworth, G.J. (1977): Pemberton (92J) Map Area, British Columbia; *Geological Survey of Canada*, Open File Map 482.

SYMBOLS

Geological contact (observed, approximate, inferred) . . . . . 

Syncline . . . . . 

Anticline . . . . .

Fault . . . . .

Thrust fault with evidence of movement sense . . . . .
(Teeth on overthrust side)

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Sheet 2 of 5

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Scale 1:25 000

SYMBOLS

- Geological contact (observed, approximate, inferred)
- Bedding, tops not observed
- Bedding, tops up
- Bedding, overturned
- Lineation (with plunge) (lineation, fold axis, slickensides)
- Outcrop (on 1:25000 scale maps only)
- Syncline
- Anticline
- Schistosity, shear foliation (inclined, vertical)
- Fault
- Thrust fault with evidence of movement sense (Teeth on overthrust side)
- Late-stage extension faults and rubble pits
- Fault - knob on downthrown side
- Macrofossil locality (F)
- Area of outcrop showing intense shear foliation

ABBREVIATIONS

A	andesite, andesitic
abx	autobreccia
arg	argillite
B	basalt
BA	basaltic andesite
bcg	boulder conglomerate
bd	bedded
bl	bleached
bx	breccia
ch	chert
ch tf	cherty tuff
chl	chlorite, chloritic
cont	contaminated
D	dacite
di	diorite
ep	epidote
flo	flows
fp	feldspar porphyry
fs	feldspar
fs x tf	feldspar crystal tuff
g	granite
gal	galena
gcg	granule conglomerate
gd	granodiorite
grns	greenstone
gt	garnet
hb	hornblende
hb-fp	hornblende-feldspar porphyry
hnfs	hornfelsed
incls	inclusions
lap tf	lapilli tuff
lith tf	lithic tuff
lst	limestone
mag	magnetite
mdst	mudstone
meta	metamorphosed
(mg)	mauve and green (autobreccia)
pcg	pebble conglomerate
ph	phyllite
pum cl	pumice clasts
px	pyroxene
pyrbx	pyroclastic breccia
qd	quartz diorite
qfp	quartz-feldspar porphyry
qp	quartz porphyry
R	rhyolite
RD	rhyo-dacite
sch	schist
ser	sericite
sh	shale
sil	silicic, silicified
slst	siltstone
sst	sandstone
tal	talc
tf	tuff
tf sst	tuffaceous sandstone
v sst	volcanic sandstone

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pum cl	pumice clasts
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pyrbx	pyroclastic breccia
qd	quartz diorite
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qp	quartz porphyry
R	rhyolite
RD	rhyo-dacite
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- Fault - knob on downthrown side
- Macrofossil locality
- Area of outcrop showing intense shear foliation

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122°30′

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