

URANIUM-LEAD AGE DETERMINATIONS IN THE STEWART AREA (104B/1)

By **D. J. Aldrick**
Ministry of Energy, Mines and Petroleum Resources
and
J. K. Mortensen
Geological Survey of Canada
and
R. L. Armstrong
University of British Columbia

Five concordant U-Pb dates have been determined for zircons from igneous rocks in the Stewart area. The sample locations and dates are listed in Table 30-1 and the relative position of the host lithologies within the stratigraphy is shown schematically on Figure 30-1. Uranium and lead analyses and data reduction were done by J. K. Mortensen at the University of British Columbia. Detailed

descriptions of the rock types, their distribution, and their field relationships are provided in Aldrick (1985).

Three samples of hornblende granodiorite and one sample of K-feldspar megacrystic plagioclase porphyry, or 'Premier Porphyry,' all yielded clear, deep pink, euhedral zircons. The narrow age range and the distinctive zircon colour are consistent with a

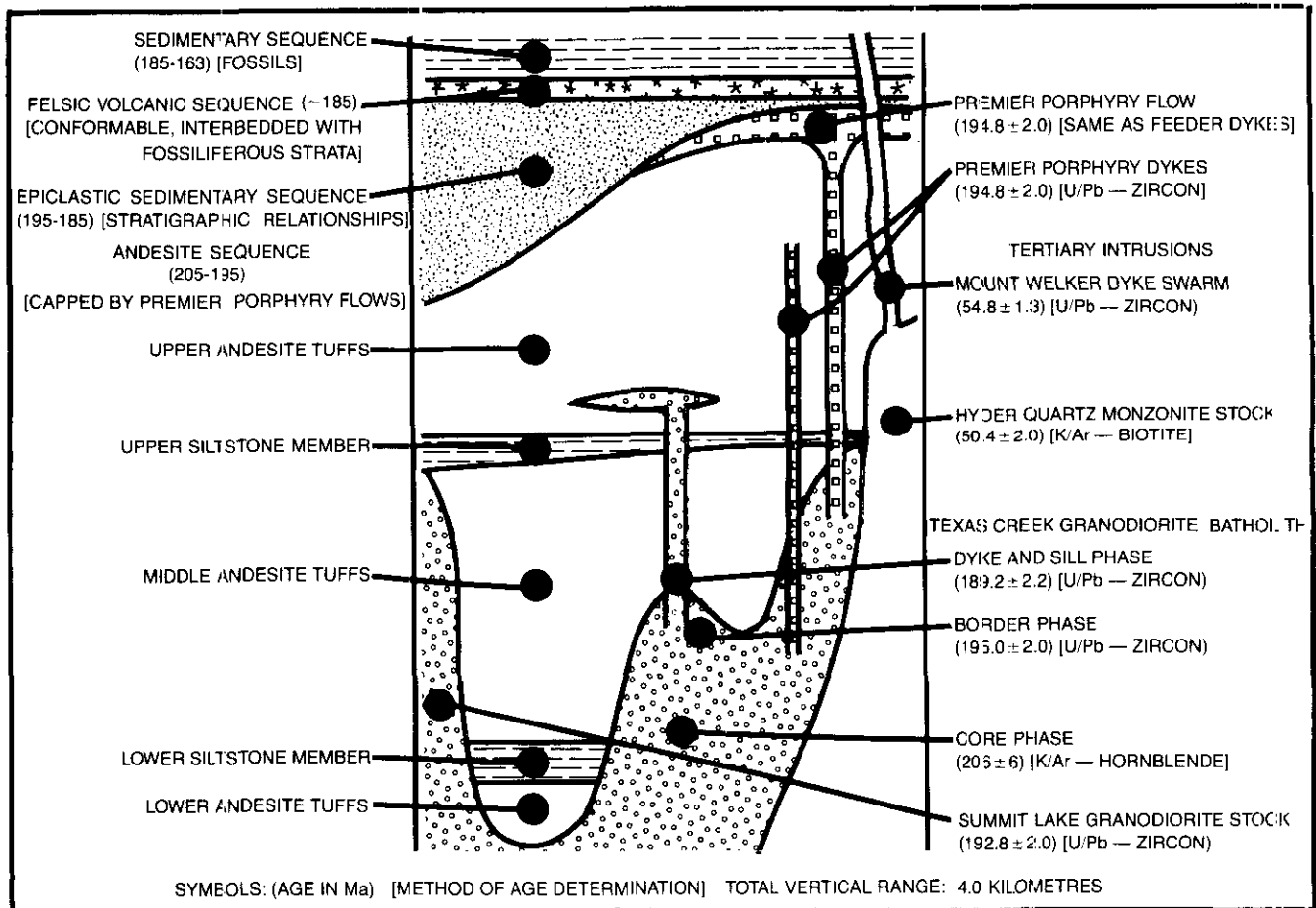


Figure 30-1. Schematic stratigraphic column for the Stewart mining camp (K/Ar dates from Smith, 1977; recalculated in Aldrick, 1985).

common magmatic origin for these four samples. Since the two stocks of hornblende granodiorite have dates of 192.8 ± 2.0 and 195.0 ± 2.0 Ma and intrude the lower part of the andesite sequence, this indicates a minimum Early Jurassic age for the lower volcanic sequence.

The K-feldspar megacrystic plagioclase porphyry dyke was sampled from a trench that exposes an ore zone at the 2 Level portal of the Silbak Premier mine (MI 104B-054). This two-feldspar porphyry dyke, which forms the structural hangingwall to the sulphide mineralization, gave a date of 194.8 ± 2.0 Ma. Since the dykes cut the upper part of the andesitic sequence this is also a minimum age for the upper volcanic sequence.

The two-feldspar porphyry dykes have been interpreted as feeder dykes for green to purple two-feldspar porphyritic flows that cap the andesite sequence (Aldrick, 1985, p. 329). The age of these flows is also virtually the same as the age of the andesite sequence if Fisher and Schmincke's (1984) estimate that the average 'lifespan' of one million years for an andesitic stratovolcano is correct.

One sample of feldspar-porphyritic granodiorite dyke (PS-34-3) has been analysed as part of a major regional mapping program by R. G. Anderson of the Geological Survey of Canada. The dyke crosses the Silbak Premier mine road southwest of the old millsite, and is one of a broad swarm of Tertiary dykes termed the 'Mount Welker dyke swarm' (Aldrick, 1985, p. 333). The zircon date of 54.8 ± 1.3 Ma correlates well with K/Ar dates from major Eocene

stocks of the Coast Range batholith (Smith, 1977; recalculated in Aldrick, 1985, p. 332).

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TABLE 30-1
URANIUM/LEAD DETERMINATIONS FROM THE STEWART AREA

Sample No.	Location Longitude	(UTM Zone 9) Latitude	Descriptive Location	Rock Type	Rock Name	Age (Ma)
A84-1	432250E	6232320N	Plateau north of Scottie Gold mine 3600 portal	Coarse-grained hornblende granodiorite stock	Summit Lake granodiorite	192.8 ± 2.0
A84-2	434400E	61216475N	Bed of Salmon River, 400 metres south of glacier toe. Dyke cuts A84-3	Coarse-grained hornblende granodiorite dyke, K-feldspar porphyritic	Dyke and sill phase, Texas Creek granodiorite	189.2 ± 2.2
A84-3	434400E	61216475N	Bed of Salmon River, 400 metres south of glacier toe	Coarse-grained hornblende granodiorite stock, K-feldspar porphyritic	Border phase, Texas Creek granodiorite	195.0 ± 2.0
A84-5	436760E	6208240N	2 Level trench, 20 metres north of 2 Level portal, Silbak Premier mine	K-feldspar megacrystic, plagioclase porphyritic diorite dyke	Premier Porphyry dykes and flows	194.8 ± 2.0
PS-34-3	436300E	6212130N	At third switchback on Silbak Premier mine road	Biotite granodiorite dyke, Feldspar porphyritic	Granodiorite phase, Mount Welker dyke swarm	54.8 ± 1.3