



Energy, Mines and
Resources Canada
Geological Survey of Canada
100 West Pender, Vancouver
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Énergie, Mines et
Ressources Canada
Commission géologique du Canada
100, ouest, rue Pender, Vancouver
V6B 1R8

Windy Craggy
114 P/13
676030

7 June, 1983

Your file *Voire référence*

Our file *Notre référence*

Dr. John B. Gammon
Falconbridge Nickel Mines Ltd.
6415 - 64 Street
Delta, B.C. V4K 4E2

Dear John:

I received the following two Pb isotope analyses from Ottawa on March 28, 1983, refer to my memo of Dec. 15, 1982:

GSC No.	Falcon. No.	$^{206}\text{Pb}/^{204}\text{Pb}$	$^{207}\text{Pb}/^{204}\text{Pb}$	$^{208}\text{Pb}/^{204}\text{Pb}$
DY 2541	3421	18.703	15.573	38.285
DY 2542	3422	18.703	15.579	38.306

I have plotted these values with selected data on the accompanying two 206/207 and 206/208 plots. The bulk of analyses are from Colin Godwin's Pb file. I have included some data from Zartman (*Ec. Geol.* v. 69, 1974) and Doe and Stacey (*Ec. Geol.* v. 69, 1974, Table 1).

For comparison, I have selected massive sulphide and volcanic-hosted vein deposits from the Insular, Coast Plutonic and Intermontane Belts, of Paleozoic to Jurassic age. You will note the close similarity in isotopic composition between the two Windy Craggy analyses and the averages of 21 upper Triassic volcanic-hosted deposits from the Intermontane Belt, 47 Jurassic deposits and the Cowichan Permo-Triassic massive sulphide from Vancouver Island. Granduc, Nifty and Britannia leads also plot close to Windy Craggy.

I have plotted the field of Zartman's 'Type III deposits' which, I gather, includes a considerable proportion of pluton-related veins and porphyries, hence its extension into the Cretaceous and Tertiary field of radiogenic leads associated with young plutons. The Windy Craggy leads show a strong affinity for other massive sulphides of similar age and tectonic setting, and little affinity for the Jurassic and younger 'pluton-related' radiogenic leads.

Since the host rocks at Windy Craggy may be accreted and/or obducted oceanic tholeiites and sediments which have not undergone subduction, I have included two points from Doe and Stacey for modern ocean ridge tholeiites and pelagic sediments associated with Mn nodules, representing primitive mantle lead and a homogeneous sedimentary lead, respectively. Lead from Windy Craggy and similar

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volcanic-related deposits plots intermediate to the two values, supporting a genetic model that involves mixing of leads from oceanic tholeiites and sediments.

I plan to obtain Pb isotope data from other late Triassic volcanic related deposits in the Insular Belt, including Greens Creek and the Kennecott District, from the USGS. Additional Pb-bearing deposits in the Windy Craggy area will also be analyzed for Pb isotopes if material can be collected this season.

Best regards,

A handwritten signature in cursive script, appearing to read "Ken Dawson", written in black ink.

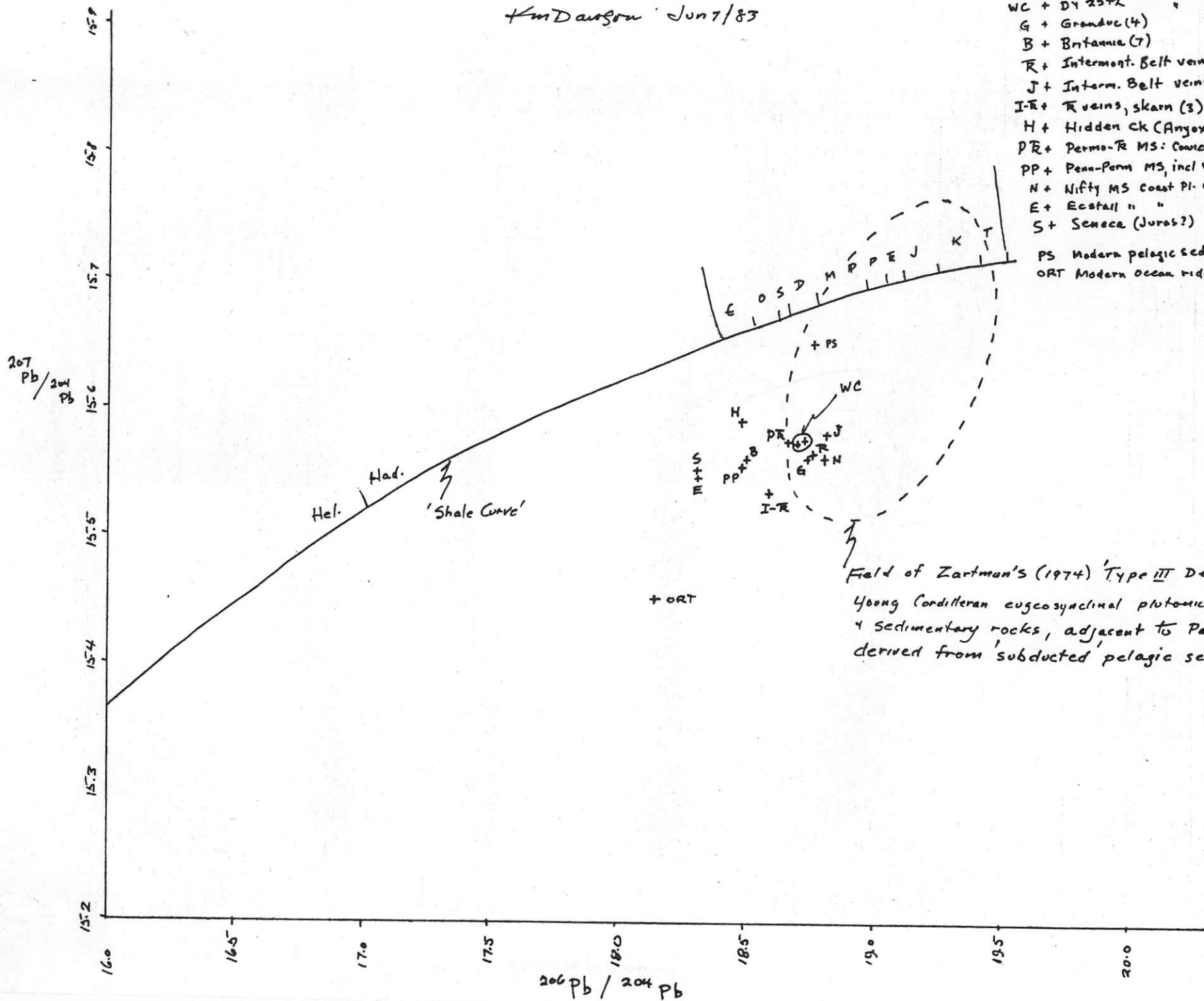
Kenneth M. Dawson

KMD/bv

Encl.

Windy Craggy Pb isotopes

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- WC + D42541 Windy Craggy (GSC)
- WC + D42542 "
- G + Granduc (4)
- B + Britannia (7)
- R + Intermont. Belt veins, MS. in volcs (2)
- J + Interm. Belt veins, MS. porph (47)
- I-R + R veins, skarn (3) Insular Belt
- H + Hidden Ck (Anox)
- PR + Permo-Tr MS: Cowichan, Ins. Belt (3)
- PP + Penn-Perm MS, incl Westmin, Ins. Belt (7)
- N + Nifty MS coast Pl. Complex
- E + Ecstall " " "
- S + Seneca (Juras?) Int. Belt. C.P. Cplx.
- PS Modern pelagic sed's (Mn nodules) (7)
- ORT Modern ocean ridge thalates (11)

Windy Craggy Pb isotopes

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- WC + BY 2541 Windy Craggy - GSC
- WC + DY 2542 Windy Craggy - GSC
- G + Granduc (4)
- B + Britannia (7)
- UR + UR vein, MS, in volcs, Intm. Belt (4)
- J + Jur vein, MS, porph, Intm. Belt (4)
- I-E + IR veins, skarn (3) Invol. Belt
- PR + P-IR MS (Cowichee) Invol. Belt (5)
- PP + Penn-Perm MS incl Western Invol. Belt (7)
- ORT + Ocean Ridge tholeiites, modern (11)
- PS + modern pelagic sediments (7)
- Doo + Stacey (1984)

