

# Drilling into Victoria's Lithium Potential

*Preliminary Insights from Diamond  
Drilling the Dorchap Dyke Swarm*

*Dr. Ben Hines*

*OREAS Victoria Minerals Roundup  
Ballarat 2023*



AUSTRALIAN  
INSTITUTE OF  
GEOSCIENTISTS



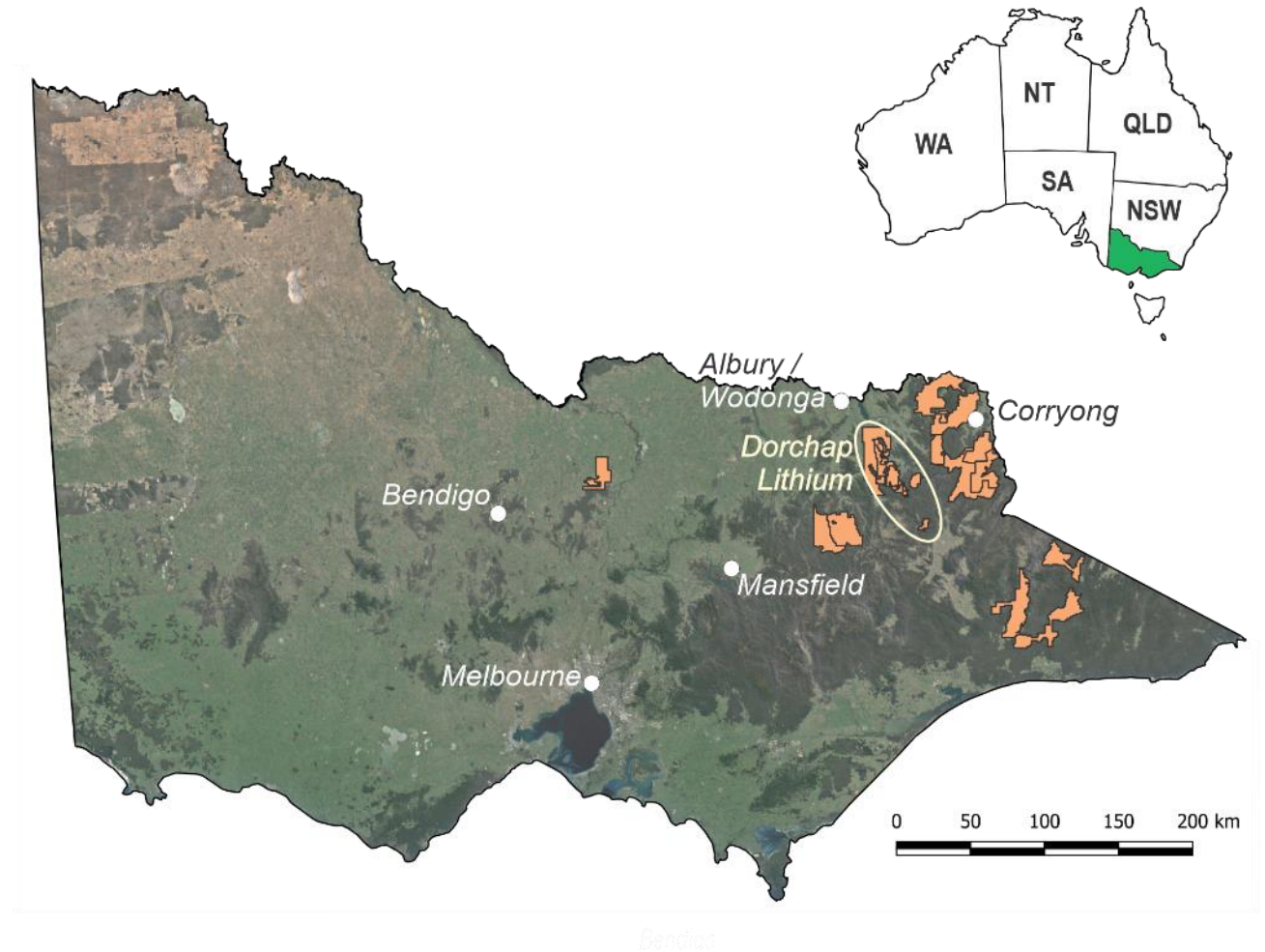
## FORWARD LOOKING STATEMENTS CAUTION

*Certain statements contained in this document constitute forward looking statements. Such forward-looking statements are based on a number of estimates and assumptions made by the Company and its consultants in light of experience, current conditions and expectations of future developments which the Company believes are appropriate in the current circumstances. These estimates and assumptions while considered reasonable by the Company are subject to known and unknown risks, uncertainties and other factors which may cause the actual results, achievements and performance of the Company to be materially different from the future results and achievements expressed or implied by such forward-looking statements.*

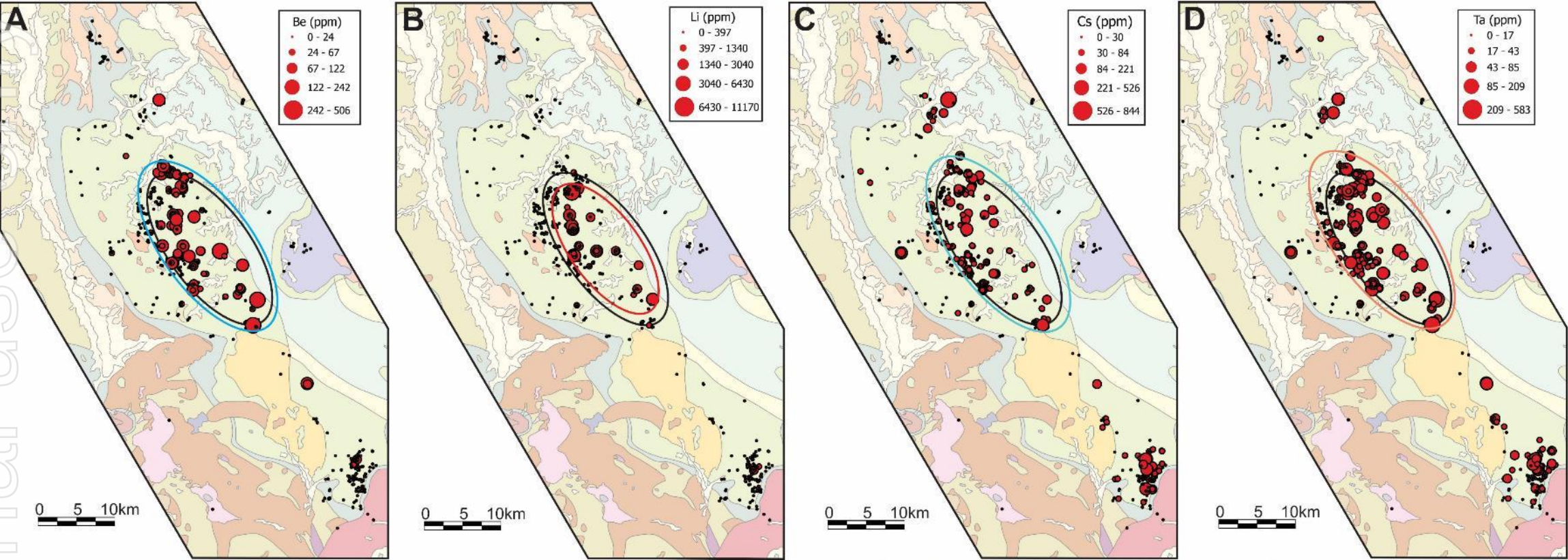
*Investors are cautioned that forward looking information is no guarantee of future performance and accordingly, investors are cautioned not to place undue reliance on these forward-looking statements.*

# GEOLOGY & SITE SETTING

- Northeast Victoria focus
- Central Lachlan Fold Belt
  - *Silurian to Devonian magmatism*
  - *S- & I-type granites*
  - *Three orogenic events*
- Diverse geological setting
  - *Orogenic Au*
  - *Porphyry Cu-Au, Mo-Cu-Ag*
  - *Li-Cs-Ta Pegmatites*



# GEOCHEMICAL TRENDS

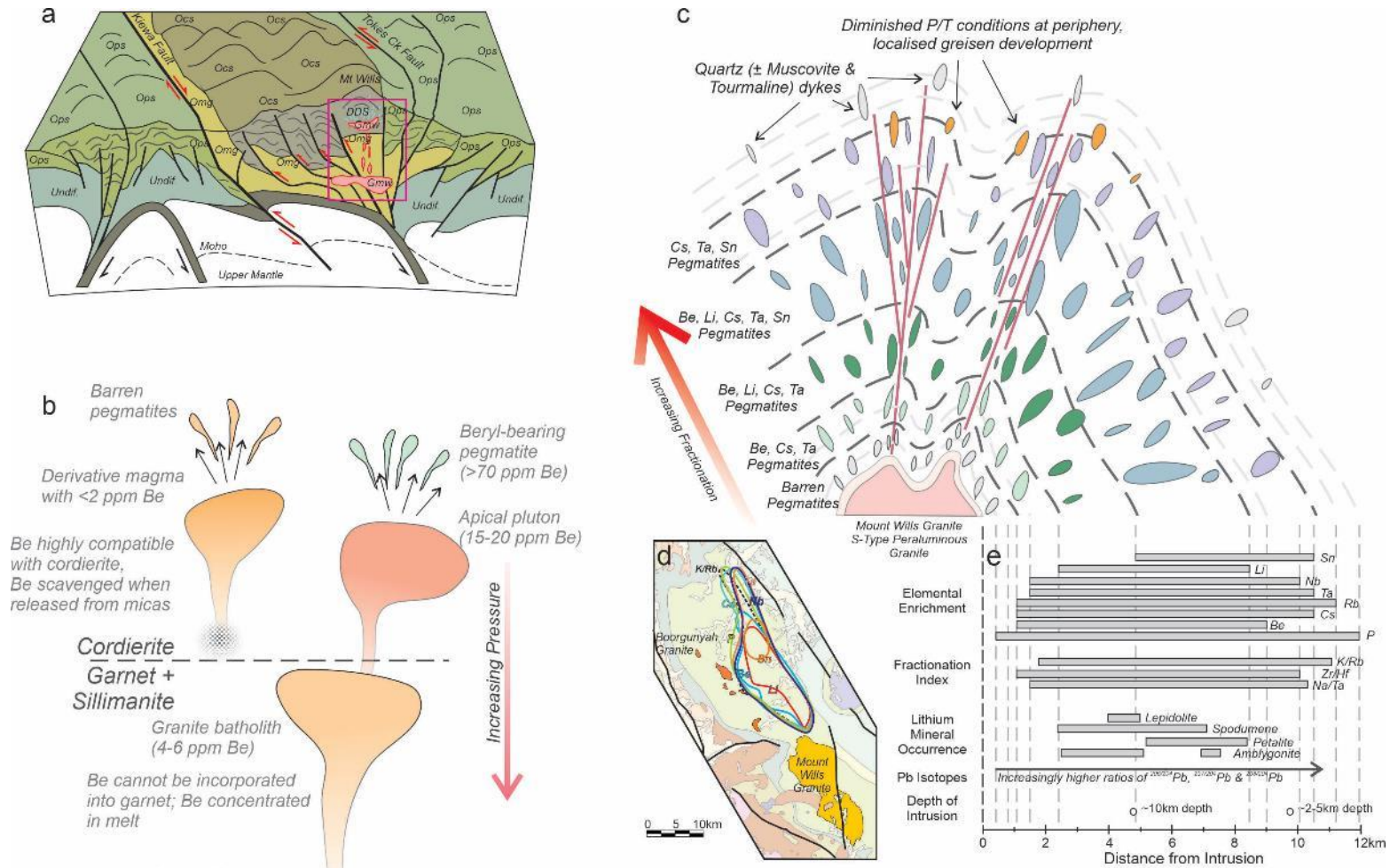


*LCT Fractionation zone well defined by chip sample geochemistry*

*Hines et al. (2023) Australian Journal of Earth Sciences*

# MINERALISATION MODEL

- Clearly defined fractionation trend
  - $P > Cs > Be > Nb \geq Ta > Li > Sn$
- Specific composition of primary magma required
- Timing & tectonic control integral to emplacement
- Depth of emplacement & distance from host pluton also key factors



Hines et al. (2023) Australian Journal of Earth Sciences

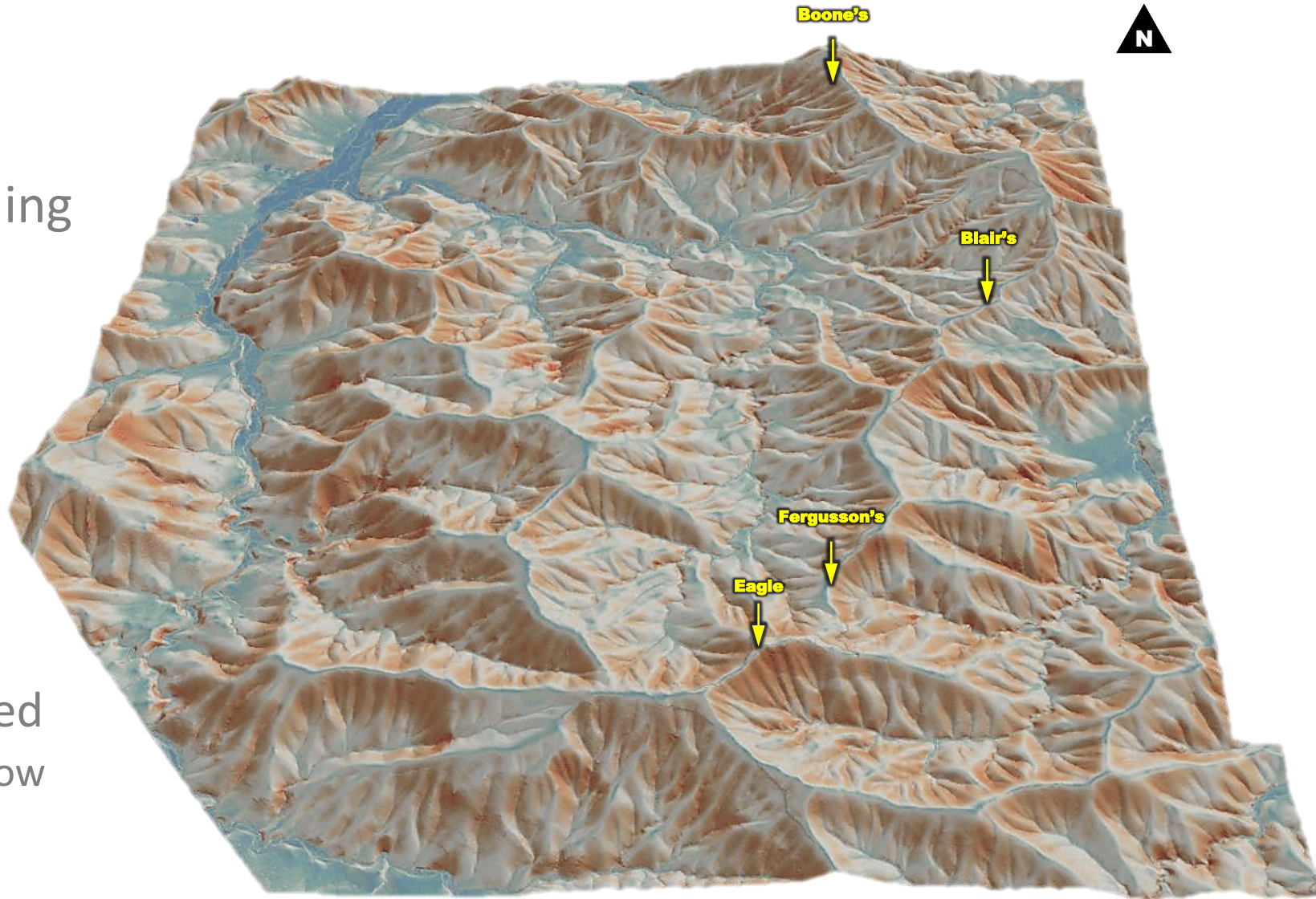


# DRILL TESTING

Personal use only

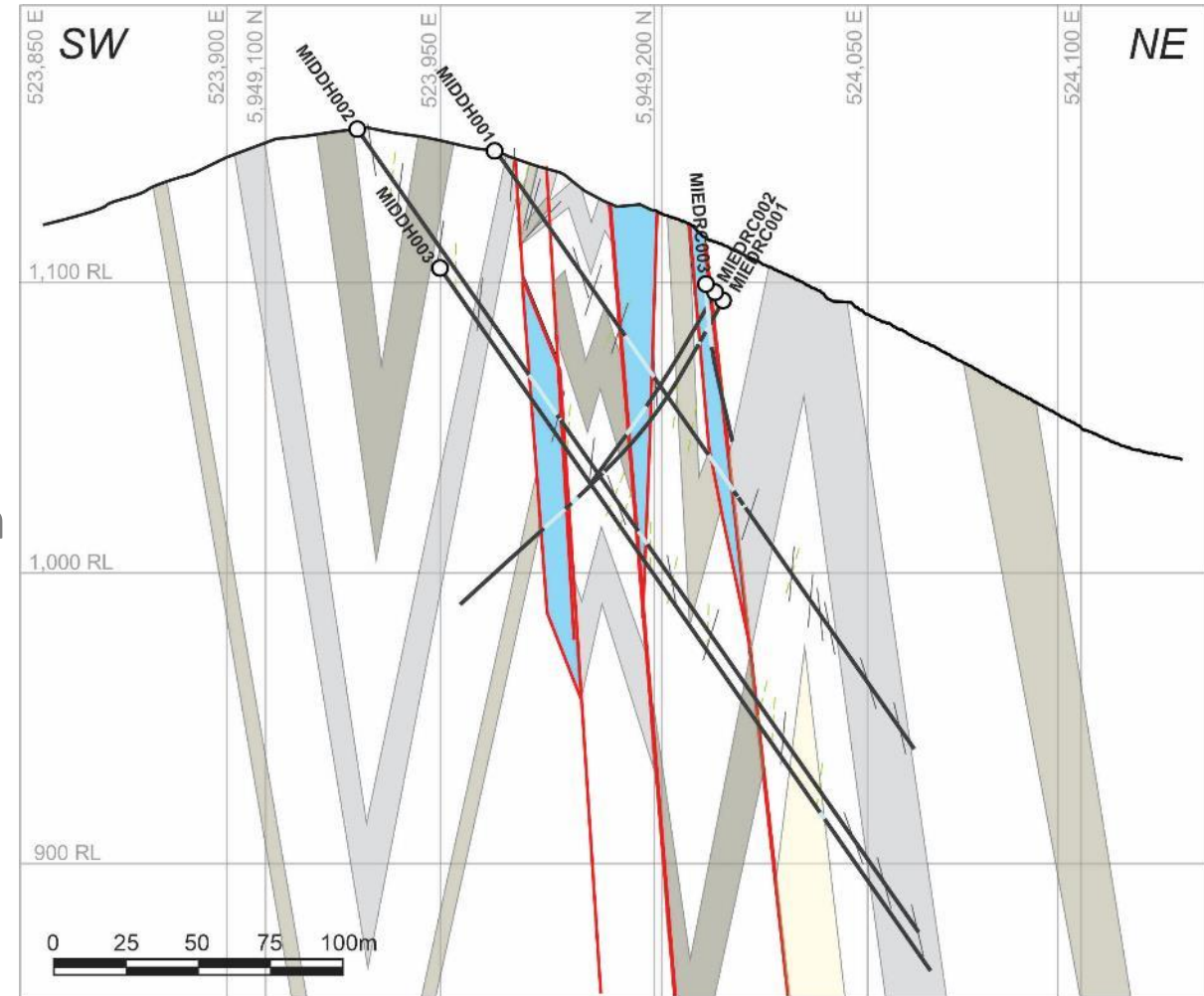
# DRILL TARGETS

- Five dykes targeted for preliminary diamond drilling
  - Eagle
  - Fergusson's
  - Blair's
  - Boone's
  - Rhodda Creek
- All returned Li in surface sampling
- 3000m HQ drilling completed
  - Holes from 125 to 400m below surface
  - Tight access

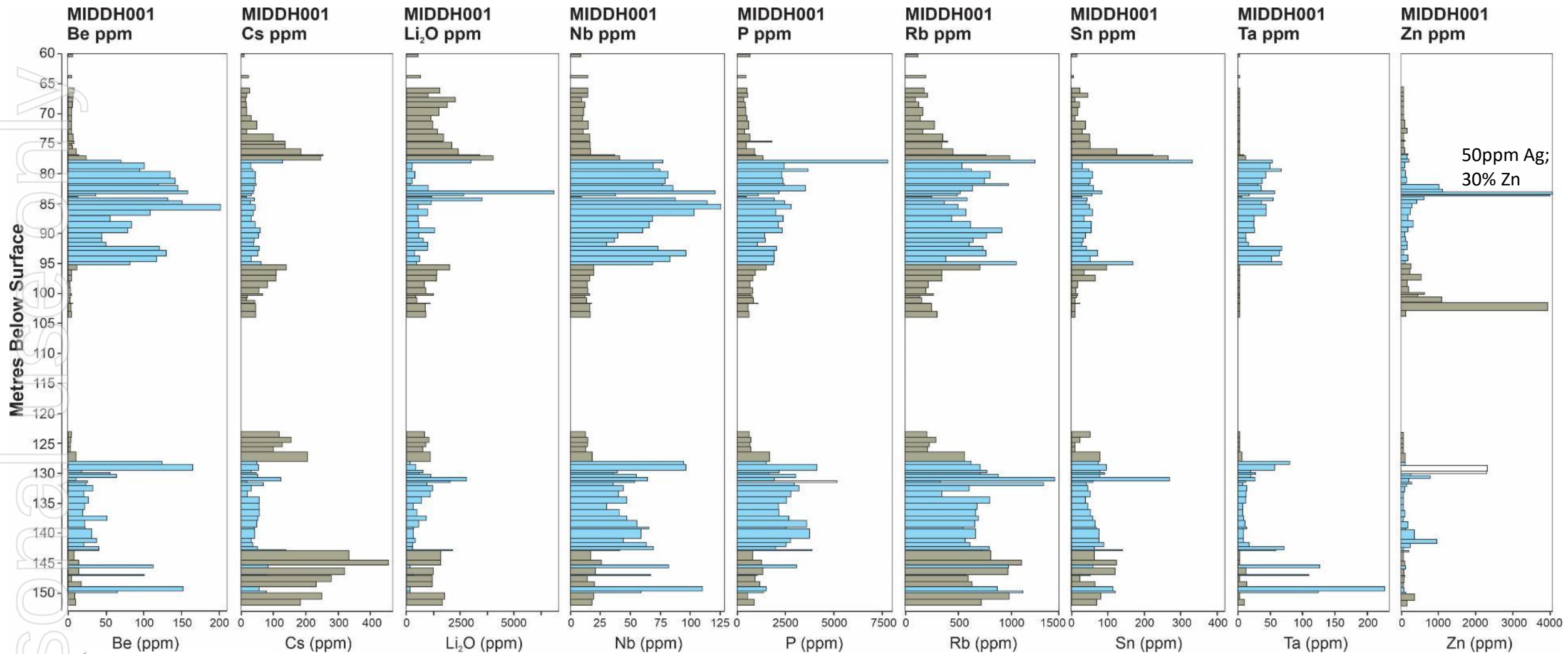


# DRILL HOLE DATA - EAGLE

- Multiple dykes encountered
- Dip steeply to northeast
- Form pods that plunge at 35-45° to northwest
- Zones of recrystallisation evident
- Reactivation of contacts apparent
- Brittle host to late-stage sulphide mineralisation



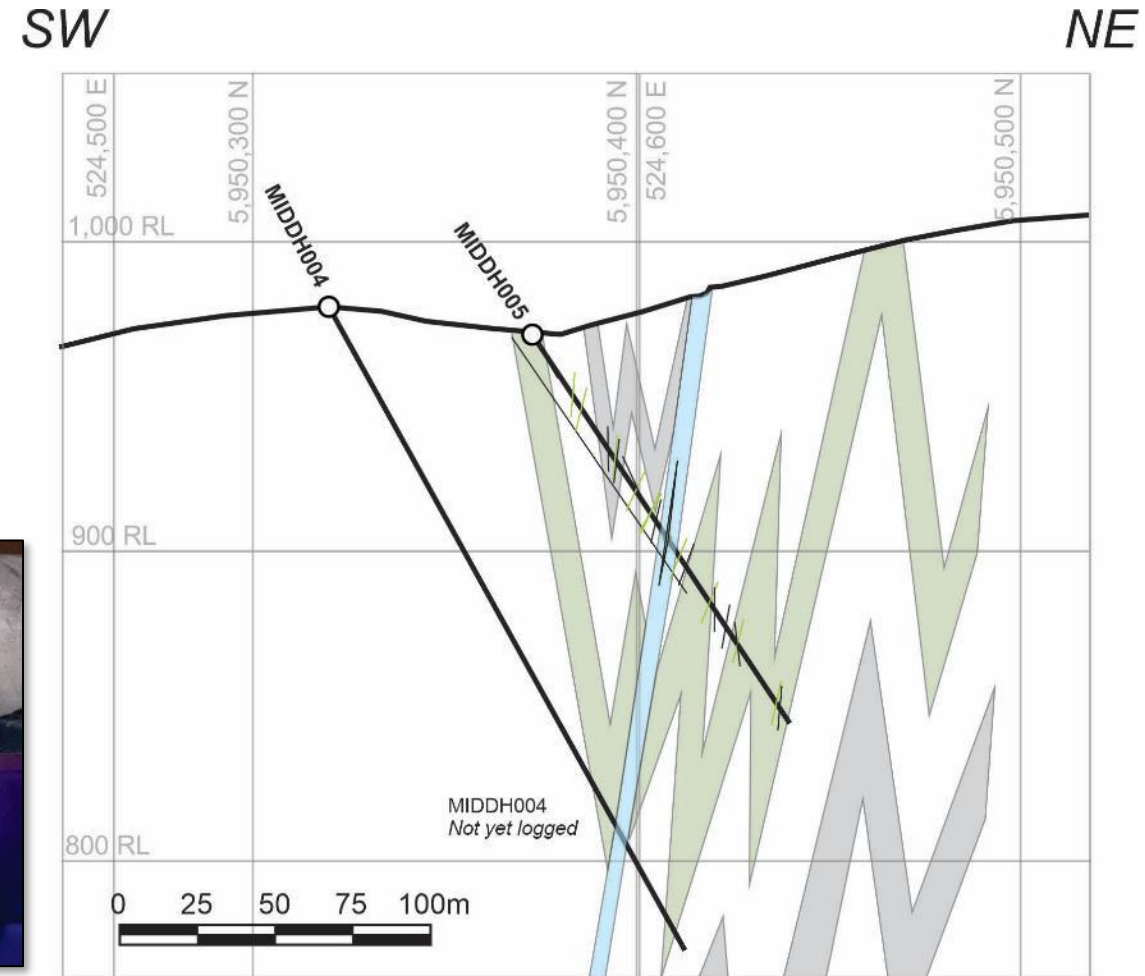
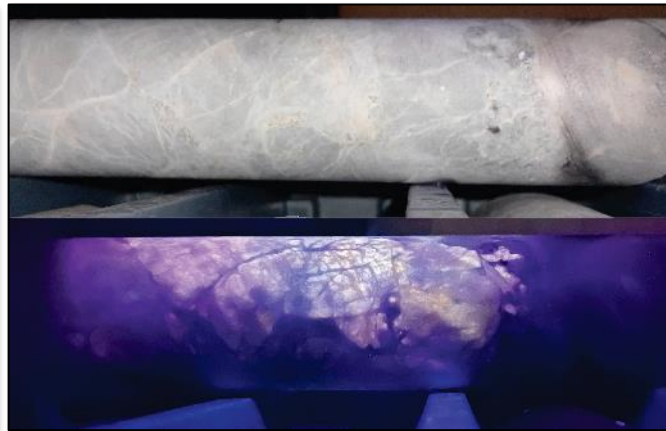
# DRILL HOLE DATA – EAGLE DYKE GEOCHEMISTRY



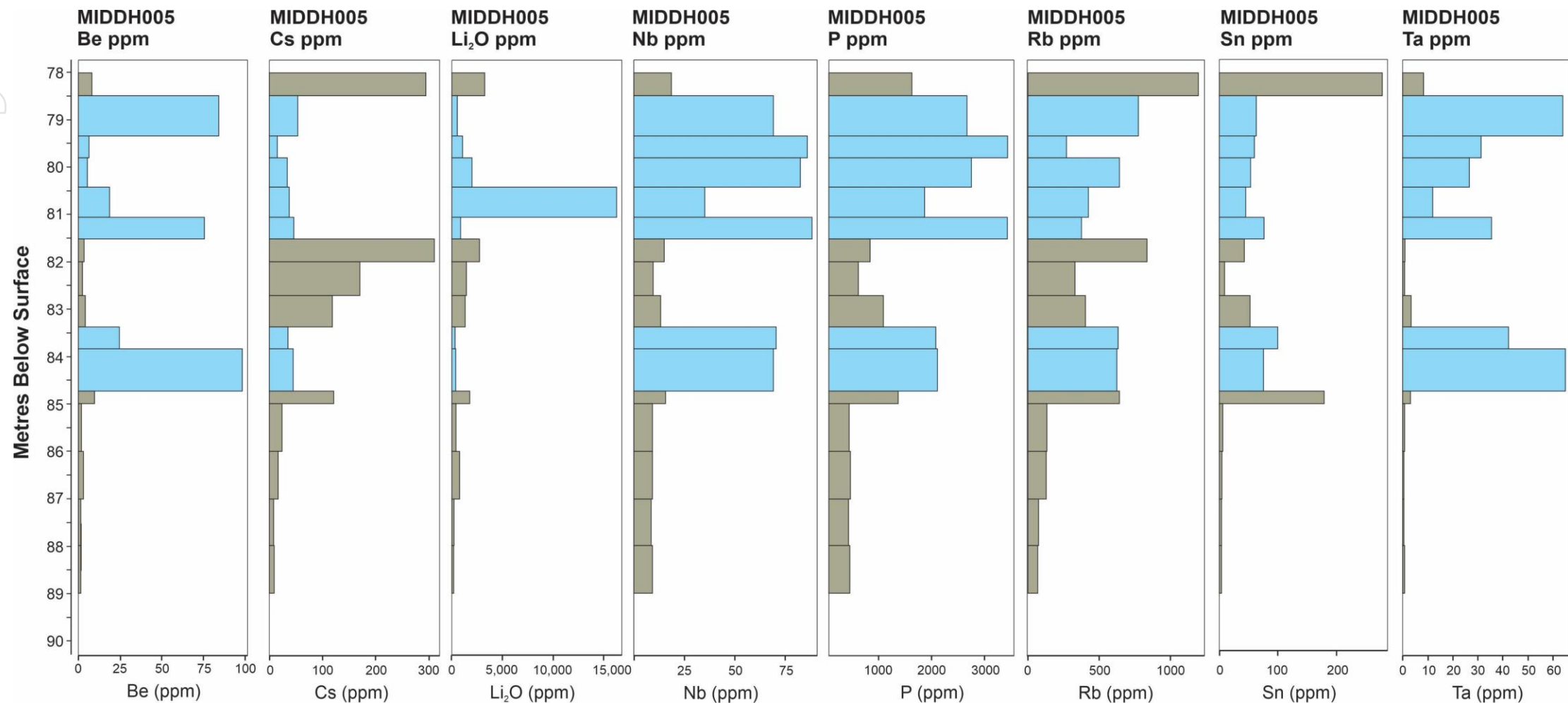
- 17.77m @ 0.16% Li<sub>2</sub>O (exomorphic halo)
- 12.66m @ 0.10% Li<sub>2</sub>O (pegmatite dyke)
- 5.2m @ 0.11% Li<sub>2</sub>O (exomorphic halo)
- 4.92m @ 0.10% Li<sub>2</sub>O (exomorphic halo)
- 8.76m @ 0.08% Li<sub>2</sub>O (pegmatite dyke)
- 7.9m @ 0.11% Li<sub>2</sub>O (exomorphic halo)

# DRILL HOLE DATA – FERGUSSON'S

- Single dyke steeply dipping southwest
- Reactivation of contacts
- Coarse spodumene present
- Solution banding highlighted by secondary phosphates



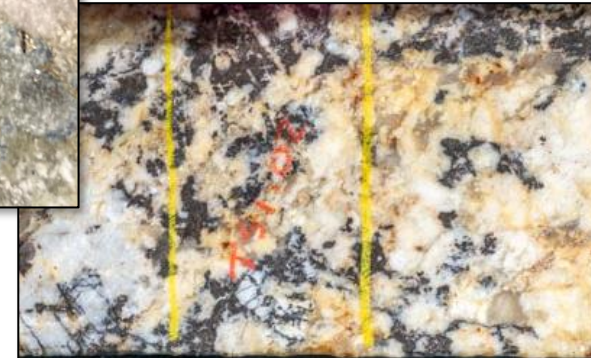
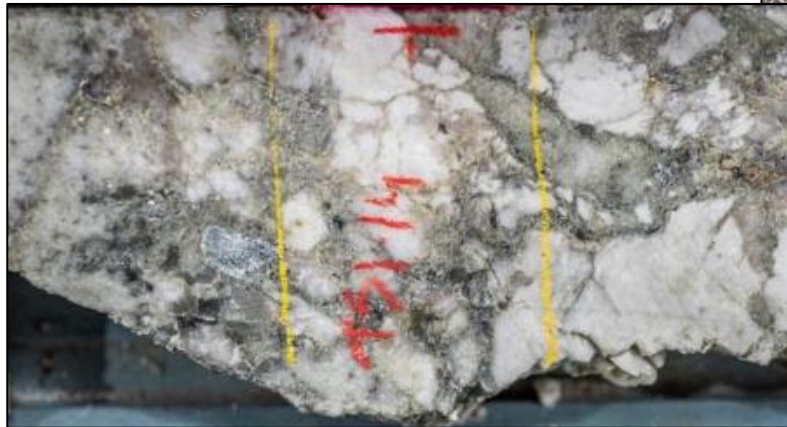
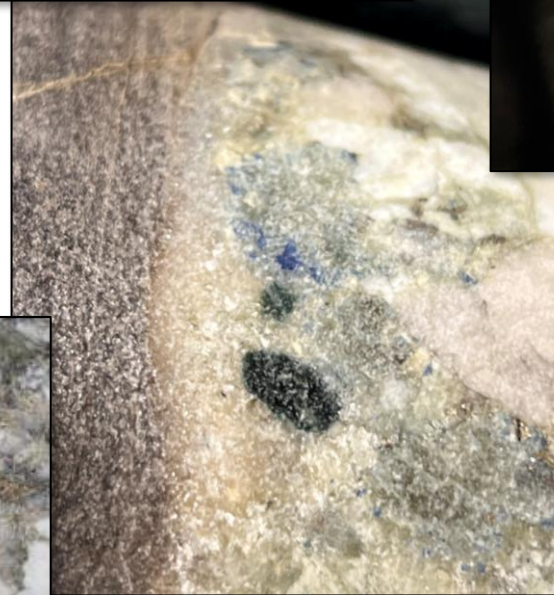
# DRILL HOLE DATA – FERGUSON'S DYKE GEOCHEMISTRY



- 0.49m @ 0.17% Li<sub>2</sub>O (exomorphic halo)
- 3.01m @ 0.26% Li<sub>2</sub>O (pegmatite dyke), *inc.* **0.62m @ 1.63% LiO<sub>2</sub>**
- 1.88m @ 0.11% Li<sub>2</sub>O (exomorphic halo)

# ALTERATION

- Reasonably common eucryptite alteration rims and replacement
- Strong sericite alteration
  - Particularly on contacts
- Despite enriched Li, Cs & Rb, no strong wallrock alteration apparent
- Secondary phosphates present in some core

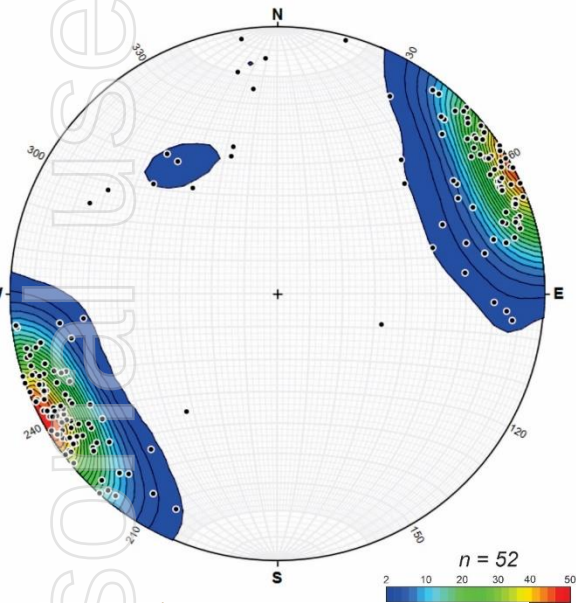


# STRUCTURAL DATA – DRILLING

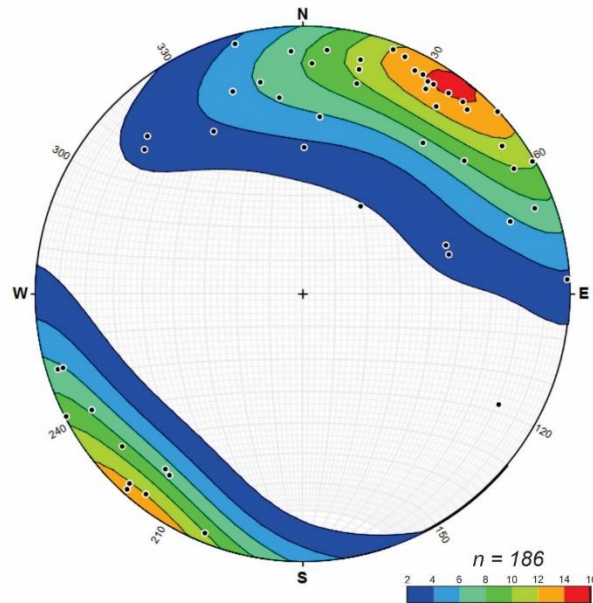
- Data across all holes logged to date
- Consistent with surface mapping



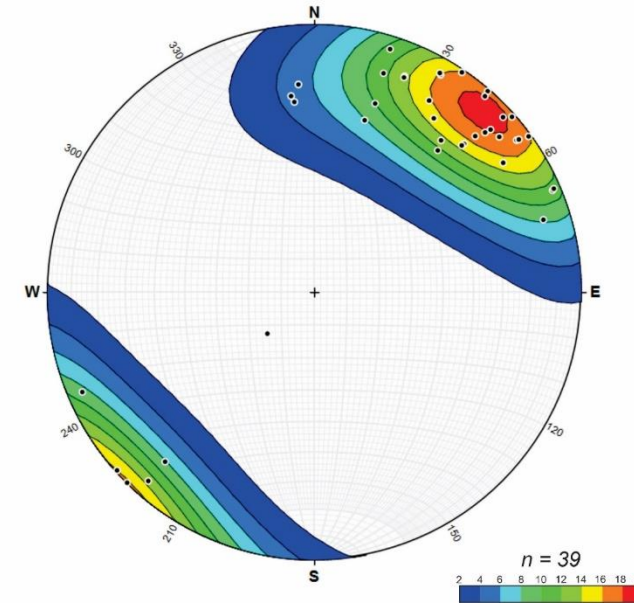
A) Bedding



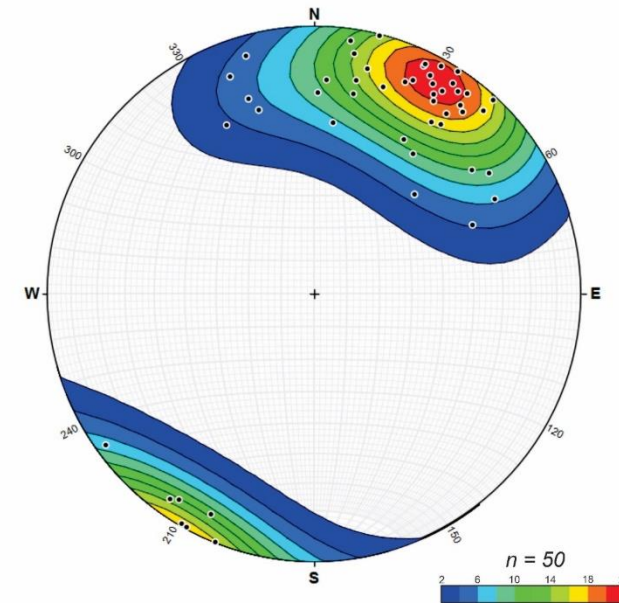
B) Pegmatite contacts



C) Foliation



D) Cleavage



# SUMMARY & PRELIMINARY INSIGHTS

- Exomorphic dispersion seems to be a significant characteristic of Li mineralisation
- Lithium grade in pegmatite variable
  - 'nugget' effect
  - alteration
- Metamorphic and Hydrothermal alteration variable & requires further consideration
- Good understanding of structural controls
  - Steeply dipping, NW-plunging pods
  - Intruded into shear zone; reactivated structures
  - Multiple deformation events identified



# ACKNOWLEDGEMENTS

- *Mitta Valley communities*
- *Local suppliers*
- *Sociedad Química y Minera (SQM)*
- *North East Geological Contractors*
- *DEECA & Goulburn-Murray Water*
- *DDH1 Drilling*
- *ALS Laboratories*
- *Geocloud Analytics*
- *Munro Geological Services*



ersonal use only

QUESTIONS?



# MINERAL IDENTIFICATION

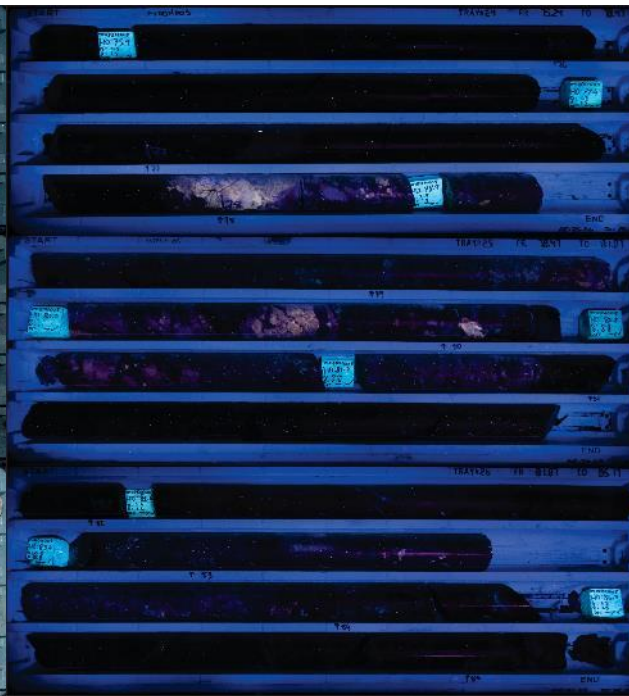
- Back to basics – mineral properties
- UV light instructive in core logging of LCT pegmatites



Natural Light



Mixed UV



Shortwave UV (254 nm)



Longwave UV (365 nm)

