

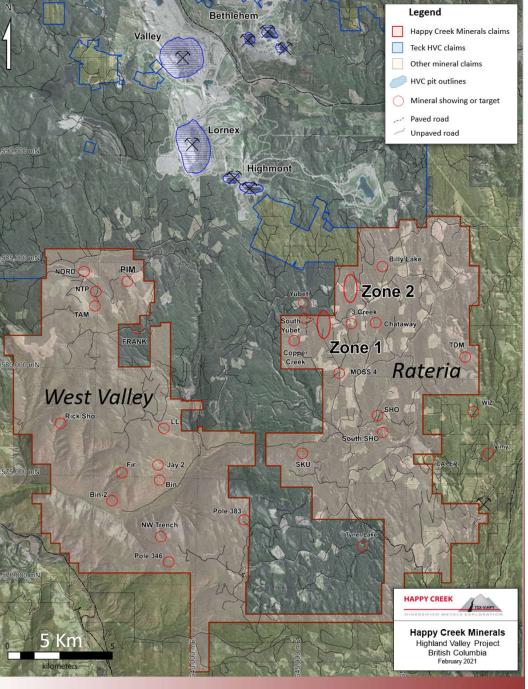


# **The Highland Valley Project**

**Rateria and West Valley Property** 

Copper exploration in the Highland Valley district B.C., Canada







# **CAUTIONARY STATEMENT**

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This presentation may contain statements and projections such as plans, forecasts, prices, resources, profits, value, scale, and others that are forward looking and subject to risks and uncertainties more fully described in the Company's Prospectus, Financial Statements and Public Filings located on SEDAR. \$ are U.S. currency unless otherwise noted. "Diversified Metals Exploration" and the Company's logo and images are trademarks and copyright of Happy Creek Minerals Ltd. All Rights Reserved. David E. Blann, P.Eng., Director, is a Qualified Person under NI-43-101 has approved the technical content of this presentation.

Under NI43-101 (2001), the reader is cautioned that results or information from an adjacent property does not infer or indicate similar results or information will or does occur on the subject property. Historical information from the subject or adjacent property cannot not be relied upon as the Company's QP, a term which was created and defined under NI-43-101 has not prepared nor verified the historical information.



#### **MANAGEMENT**

# David Blann, P.Eng, President, CEO, Director

Mr. Blann has engaged in precious and base metal exploration, development and production stage projects for 30 years with a background in mining engineering technology and geological engineering. He has experience as Director and VP Exploration for several Jr. public companies and is the founder of the Company in 2005.

# Walter Segsworth, Director, Executive Chair

Walter Segsworth has over 40 years of experience in mining in Canada and overseas and has served as a senior officer of several mining companies including Westmin Resources, where he was President and CEO, and Homestake Mining Company, where he was President and COO. Mr. Segsworth is currently lead independent director of Pan American Silver and a director of Sabina Gold & Silver Corporation. Mr. Segsworth is past Chairman of both the Mining Associations of British Columbia (BC) and Canada and was named B.C.'s Mining Person of the year in 1996.

#### Richard Lee, CMA, Chief Financial Officer

Mr. Lee has spent the past 30 years in public corporate accounting practice with and for publicly listed TSX companies, and has a wealth of financial, accounting and business experience. Mr. Lee has been involved with numerous startup companies in Canada and those registered with the SEC in the United States.

# **Rodger Gray, Director**

Mr. Gray has over 20 years of experience as a stockbroker and officer of an IDA member firm. Mr. Gray was most recently engaged with Wellington-Altus Securities in Toronto, and prior to, the President and Chief Executive Officer of Toll Cross Securities Inc., a Toronto-based, full-service broker dealer specializing in the junior resource sector. Mr. Gray has previously acted as a Director and Vice-President investment banking, institutional equities, with First Associates Investments Inc. and prior thereto as President of St. James Securities Inc. Mr. Gray is a graduate of Laurentian University.

#### Michael Cathro, P. Geo., Director

Mr. Cathro's career includes exploration with major and junior resource companies and 17 years with the B.C. Ministry of Energy and Mines in technical and management roles. Mr. Cathro has served as VP Exploration or Director of several Jr. resource companies.

# Sassan Liaghat, PhD, Project Manager/ Senior Geologist

With a background in technical research with MDRU at UBC, Mr. Liaghat has experience as an exploration geologist with several companies including NovaGold Resources and the HDI Group. Mr. Liaghat performs project field management roles and manages the Company's geological database and GIS systems.

# **Company Policies**

The Company strives to take due care with all its activities, respecting the environment, people and communities within our project areas. Policies that reflect our actions to be a responsible operator may be found under Corporate/ Policies on our website.



# **LOCATION**

Bethlehem

Legend

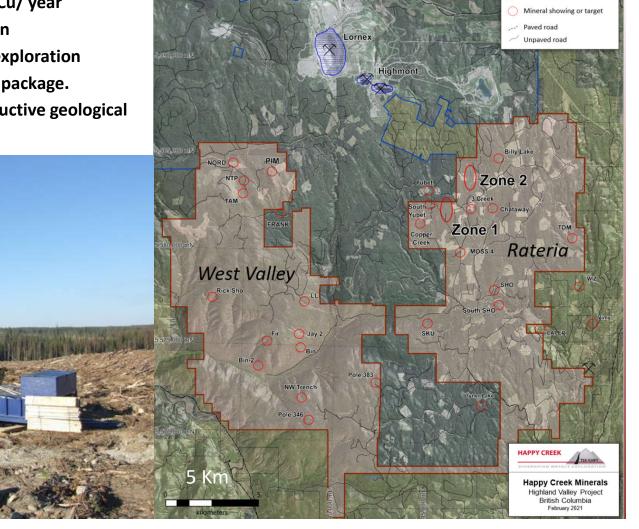
Happy Creek Minerals claims
Teck HVC claims

Other mineral claims

HVC pit outlines

# 100% Owned Rateria & West Valley Property

- Adjoins the Highland Valley Copper mine property
  - Canada's largest copper mine- 1% of global copper
  - Approximately 110,000 tonnes Cu/ year
  - **50** years of continuous operation
- Excellent infrastructure, year-round exploration
- First to assemble this 244 sq km land package.
- Low-cost exploration in a highly productive geological setting.





# **HISTORY**

# 1970 Highland Valley Mineral Claims

Discovery time of the current mines

<u>Historical exploration was affected by:</u>

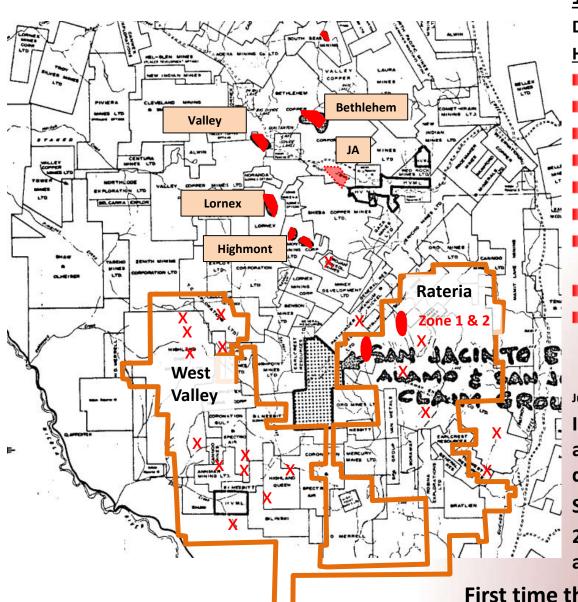
- Multiple claim owners
- Fragmented claim shapes
- Generally small claim size
- Extensive glacial till cover (few outcrops)
- Densely tree-covered (no GPS location)
- More limited/difficult road access
- Percussion holes very shallow- many did not get through glacial till.
- Soil geochemistry poor in thick glacial till
- Older induced polarization geophysics
  - low-power, less sensitive instruments
  - Poor penetration in thick glacial till
  - Low pyrite system produces weak anomalies

Just 1.0% sulphide (0.5% chalcopyrite+ 0.5% bornite) = 0.49% Cu

In 2001, the copper price dropped to around \$0.60/lb and many claims were dropped

Several claims re-staked by prospectors 2004-2005, Happy Creek (private) begins acquiring property- now 244 sq km

First time this package assembled by one owner



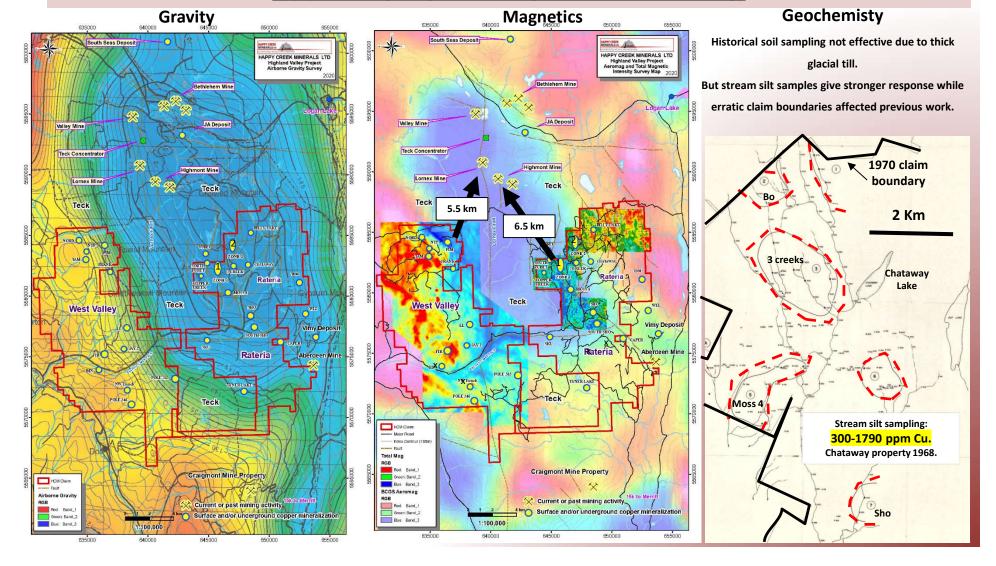


### FEATURES OF THE HIGHLAND VALLEY DISTRICT

# World class discoveries do happen in previously explored areas. They can be larger and higher grade than expected.

This area is covered by sometimes >30 metres of glacial till that limited historical exploration effectiveness.

Apply modern geological knowledge and advanced technology



HAPPY CREEK MINERALS LTD.



#### Bethlehem Mine Logan Lake JA Deposit Valley Mine Teck Concentrator Bethsaida Highmont Mine Lornex Mine Teck Skeena Teck 5.5 km 6.5 km BILLY LAKE NORD 🔵 NCu SOUTH YUBET Bethsaida Rateria MID COPPER CREEK Teck West Valley SHO O LL O **Vimy Deposit** SOUTH SHO CAPER FIR & BIN Rateria Aberdeen Mine POLE 383 TYNER LAKE ABBOTT POLE 346 Teck Bethsaida Ph, Qz-Mz, GD keena Var. GD- Qz-Mz Bethlehem Ph, GD Rethlehem-HV GC Guichon Var. GD Guichon-Chataway Var, GD Border-HV Ph, Dio-GD **Craigmont Mine Property** Border Ph. Dio. Nicola G. Volcanic Rock Spences Bridge G, Lava Flow Current or past mining activity - Major Road Surface and/or underground copper mineralization Index Contour (100m) 1:100.000 635000 645000 650000 655000 640000

### HIGHLAND VALLEY GEOLOGY

The Guichon Batholith has generated several billion tonnes of reserves and resources within 5 porphyry copper deposits.

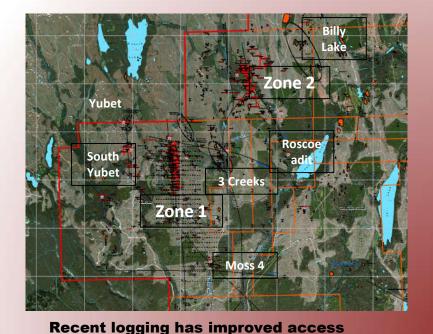
Hosts rocks for the major deposits are mainly <u>Bethsaida, Skeena and</u> <u>Bethlehem phases</u> which also occur on Happy Creek's property.

Batholith-hosted calc-alkaline porphyry systems are relatively deeply formed and can produce among the largest deposits having variable styles related in part to depth of formation.

Happy Creek has 25 known copper prospects. Two significant new copper zone discoveries.

Zone 1 -Skeena phase, Zone 2- Chataway-Bethlehem phase.

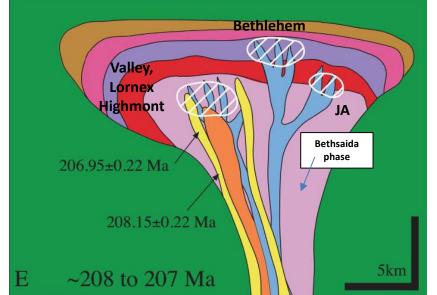
Multiple phases of large-scale structures through the batholith are important controls to mineralization.







**Highland Valley – Key lithology features** 



# HIGHLAND VALLEY EXPLORATION TODAY

Highland Valley recent research (2017-2020)

Advanced technology and science

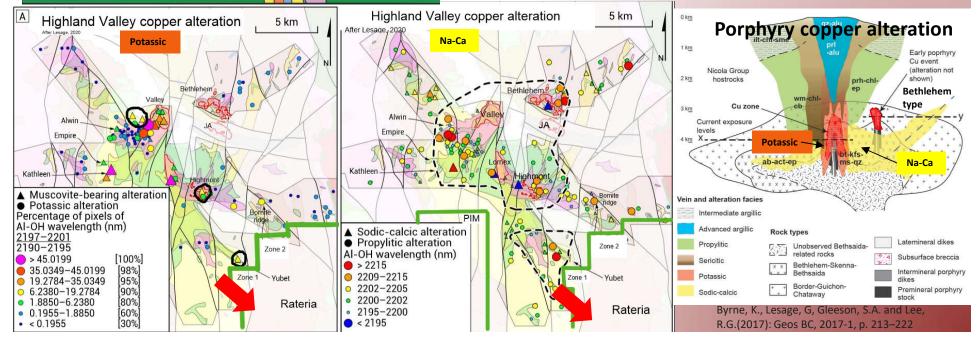
Developing vectors toward copper centers.

# → Advantage over previous exploration

White mica is connected to the potassic (copper centre) and nearby Na-Ca alteration:

We are in part, using these concepts to guide exploration towards the biggest- best part of the copper centre.

Could other big copper system occur in the district?



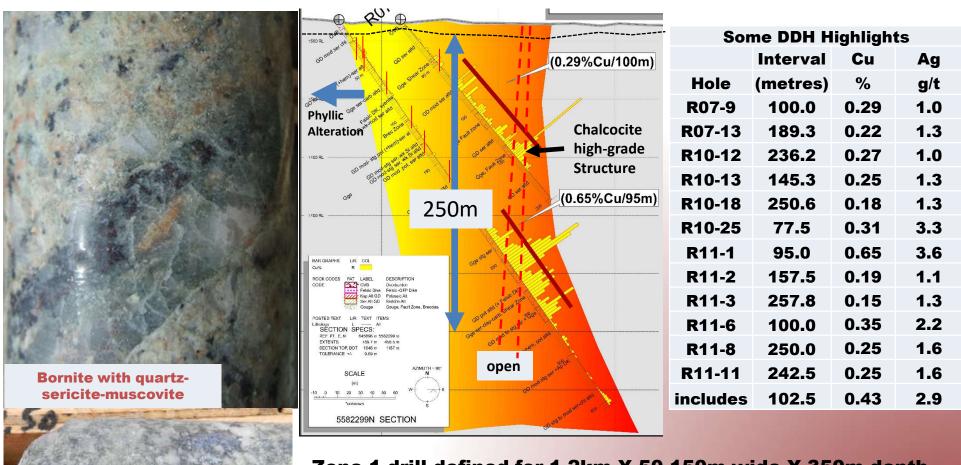
#### **ZONE 1 COPPER DISCOVERY HAPPY CREEK** MINERALS LTD. **AND SOUTH YUBET** DIVERSIFIED METALS EXPLORATION Yubet prospect 🛖 (Teck)<sub>644800</sub> 645000 645200 645400 645600 645800 646400 646000 5582800 South Yubet boundary Happy Creek Minerals Ltd. 1.35% Cu, 12 g/t Ag /7.5m Highland Valley Project 1.69% Cu, 30 g/t Ag/7.5m Rateria Property, Zone 1 & Yubet Projection of Copper Mineralization in Surface South Yubet Zone Zone 1 5582400 R11-09 R11-12 R20-01 Zone 1 hosted in Skeena phase cut by several Fp dikes. Argillic-phyllic 0.82%Cu, 4.7 g/t Ag /5.0m DDH chalcocite dominant near surface and more quartz-muscovite K Granodiorite outcrop feldspar with bornite-chalcocite+ Access Road chalcopyrite and moly at depth. A large alteration footprint **ALTERATION ZONES** Ser Gouge Wide spread copper R11-10 Ser-Epi-Chl Ser-Qtz-K-spar Mainly Ser PLAN SPECS: Qtz-Mus-Epi-Ser REF. PT. E. N 645900 m 5582000 m **EXTENTS** 2879 m 2474 m Ser-Chl-Hem Chl-Epi-K-feld-Ser Full Plan - Traces 25 50 Meters Ser-Kaol Weak Ser 1:5,000 R10-21 645800 646000 644800 645000 645200 645400 645600 646200 646400 644600

Chalcocite Qtz-phen-ser-kaol





# Low pyrite, high-grade chalcocite-bornite minerals. Metallurgical testing: High recovery and a high-grade clean concentrate- superior qualities



Zone 1 drill-defined for 1.2km X 50-150m wide X 350m depth. Potential for the potassic (centre) copper zone nearby.

1 km X 1 km alteration zone- potential for large scale.

Mineralized zone at Valley deposit extends for over 1km vertical depth.

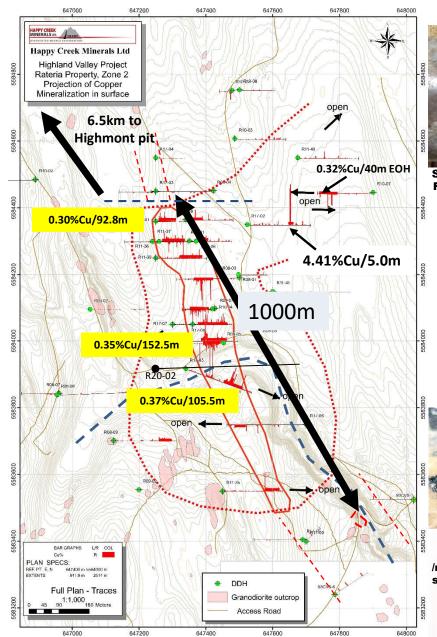
# HAPPY CREEK MINERALS LTD.

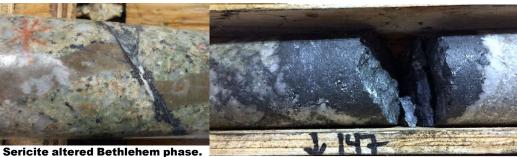


### **ZONE 2 DISCOVERY**

# Copper-gold-moly-rhenium

Selected intervals shown to illustrate mineralization styles.





Sericite altered Bethlehem phase. Felspar phyric dike cut and offset by quartz-bornite veinlet.

R17-02 Massive chalcocite: Portion of 5.0m 4.41% Cu, 20.0 g/t Ag, 0.21 g/t Au, 0.031% Mo, 6.86 g/t Re



R17-05 chalcocite-bornite qtz-ser-clay
Portion of 2.5m 0.89% Cu, 0.38 g/t Au, 0.003% Mo, 0.54 g/t Re



Bornite in quartz green mica, sericite-/muscovite veinlet and selective replacement of chlorite altered mafic minerals.



R11-36 K-spar-qtz-sericite bornite veins. Portion of 2.5m sample with 1.11% Cu, 0.46 g/t Au, 0.031% Mo, 0.80 g/t Re





ZONE 2 DDH Highlights						
Zone 2	Interval	Cu	Ag	Мо	Au	Re
Hole	(m)	%	g/t	%	g/t	g/t
R08-01	113.0	0.33	1.48	0.002	0.05	N/A
R08-05	<mark>126.0</mark>	<mark>0.46</mark>	1.71	0.008	0.10	N/A
R09-06	92.4	0.12	1.23	0.011		0.76
includes	20.2	0.18	0.80	0.048	0.04	3.45
R09-07	48.0	0.30	1.60	0.002	0.07	0.26
R12-01	92.81	0.30	1.50	0.005	0.15	0.02
includes	12.5	0.63	3.2	0.001	0.66	0.01
R12-02	<mark>152.5</mark>	<mark>0.35</mark>	1.70	0.004	0.06	0.57
includes	32.5	0.91	4.0	0.011	0.12	1.83
R17-02	<mark>5.0</mark>	<mark>4.41</mark>	20.0	0.031	0.21	6.86
R17-05	105.5	0.37	1.90	0.005	0.14	0.63
R17-08	82.5	0.29	1.25	0.003	0.06	0.17
and	66.0	0.35	1.64	0.002	0.02	0.23

Up to 16.8 g/t Rhenium (Re) with 0.138% Mo/2.5m

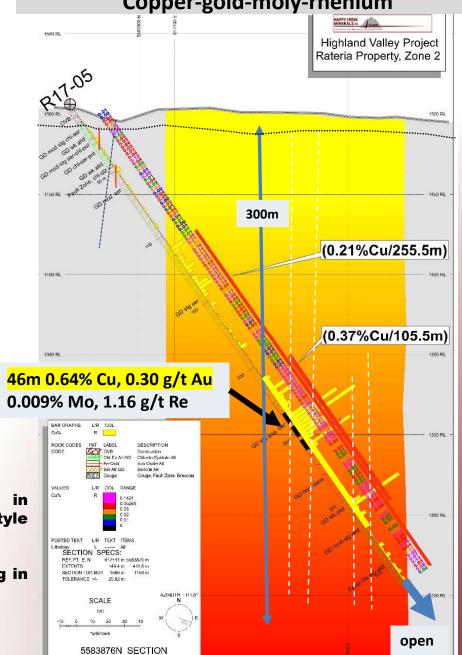
Presence of gold and high rhenium enrichment in molybdenite is similar to B.C. copper-gold porphyry style copper deposits.

Zone 2 has encouraging grade with drill holes ending in mineralization.

Potential for a large mineral system.

# **ZONE 2 DISCOVERY**

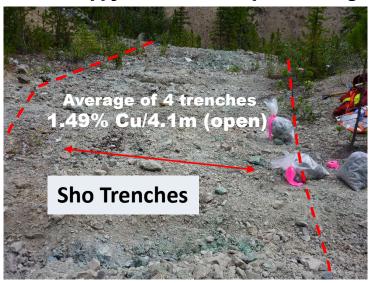
Copper-gold-moly-rhenium

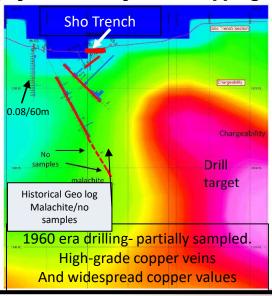




# RATERIA PROPERTY-OTHER PROSPECTS

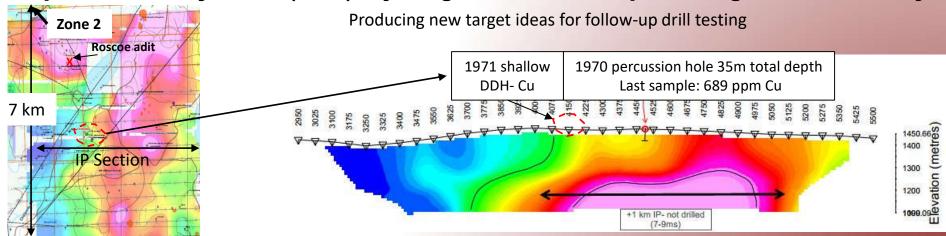
Sho prospect: Historical work developed a sizeable area of mineralization, but work stopped in 1972. Happy Creek follow-up includes geophysical surveys and mapping – now a 1.5 km long target.







# Acquired Chataway claims (2017) adjoining Rateria. 2019 re-processing of 1993 IP survey



We continue to generate new copper targets

**HAPPY CREEK** MINERALS LTD.



# **WEST VALLEY COPPER TARGET GENERATION**



- Historical exploration intermittent and cursory.
- → Patchwork irregular shaped claims.
- → Large gaps without any exploration.
- **Under-appreciated?**
- Area is largely covered by glacial till.
- Strong copper in stream sediments.
- Copper showings \*\*



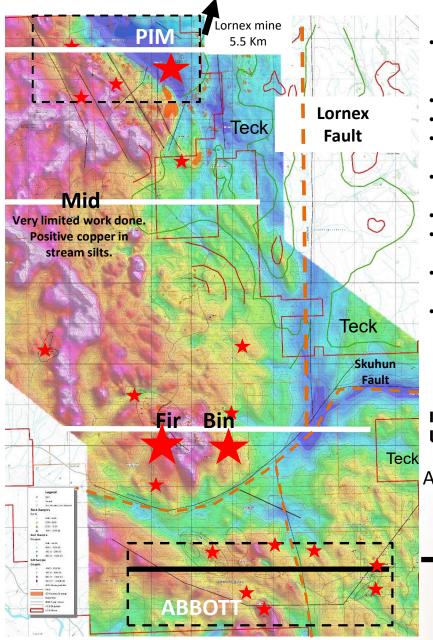
At surface, lower magnetic response (green-blue color) reflect younger intrusive phases and / or hydrothermal destruction of magnetite.

2019 Geology & IP Geophysics at Abbott and PIM

And 2019 Inversion model of airborne magnetic survey

Magnetic inversion sections example

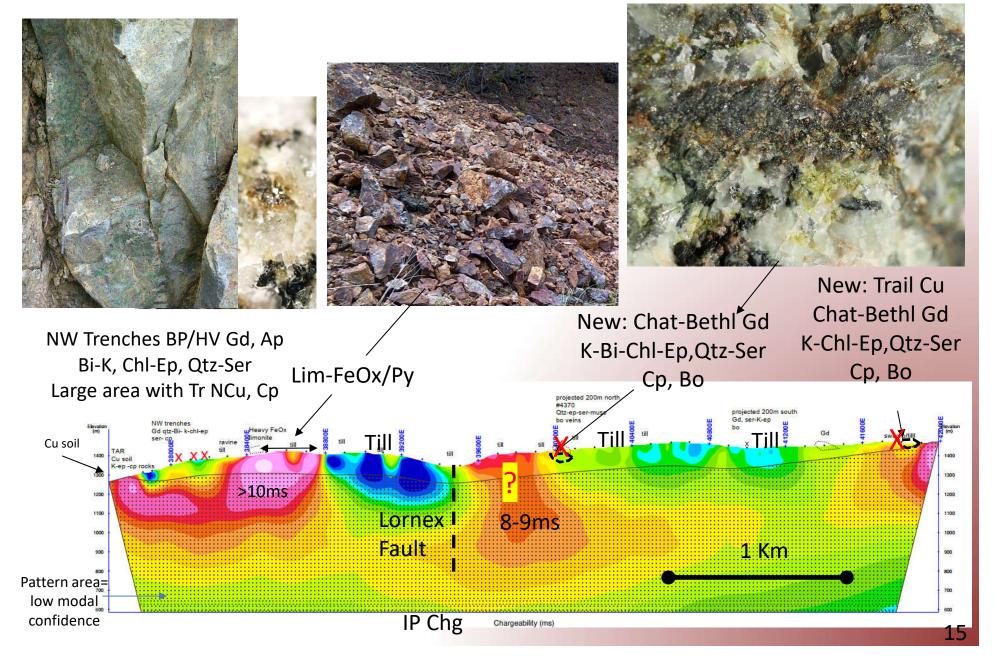
IP chargeability sections example







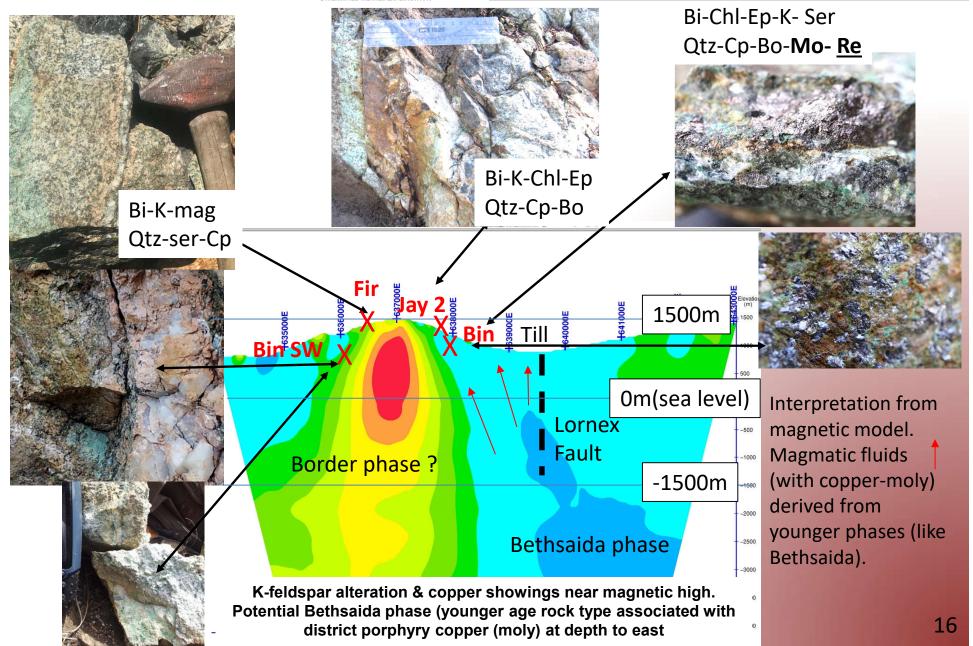
# WEST VALLEY- ABBOTT AREA Line 72200N (north end)







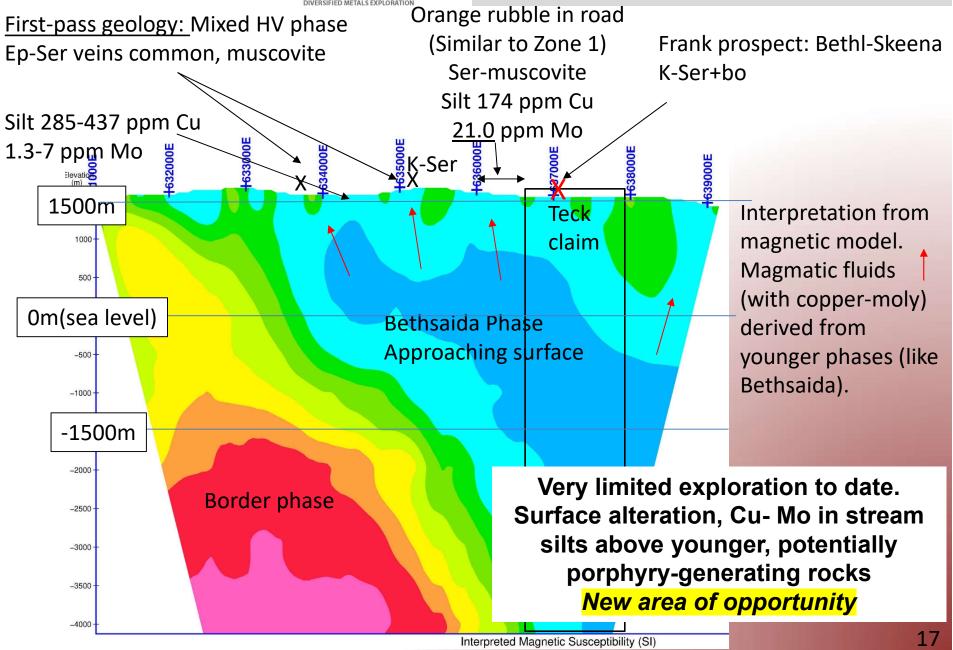
# WEST VALLEY- FIR & BIN PROSPECT Line 75300N Magnetics model section



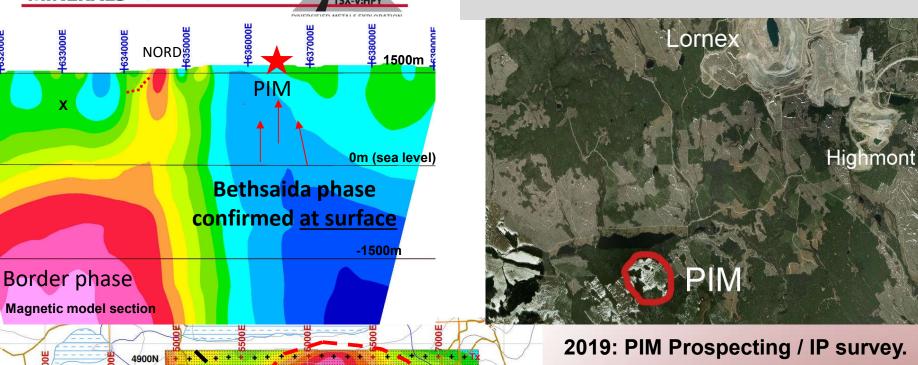




# WEST VALLEY- "MID" SECTION Line 81000N Magnetic model section



# **WEST VALLEY- PIM PROSPECT**



- → New copper showings (X)
- → Key geology (Bethsaida-Skeena)
  - → Positive IP anomaly
  - → Positive magnetics
    - → Positive soils
  - → Positive white mica readings
  - **P20-02 –Drill holes 2020**

Pim is a large-scale target

335ppmCu

**HAPPY CREEK** 

4700N

4500N

4300N



# **SUMMARY**

- Rateria and West Valley: First time assembly of this 244 Sq Km contiguous property.
- Canada's best porphyry copper-moly district where 4 deposits achieved commercial production
  - Deposit targets range from >150mt to over 1 billion tonnes
- Zone 1 and 2 are significant <u>new</u> copper prospects with room to grow
  - Zone 2 has positive gold & high rhenium enrichment- something different!
- Modern exploration tools assist geological understanding and confidence in targeting
- West Valley area historically under-appreciated for copper potential: this may change.
- Potential for new discoveries: continued exploration generating quality new copper targets







Ideal conditions are in place to find new copper deposits

A 100% owned, quality copper exploration asset



**Shares outstanding: 122,661,955** 

Warrants: 641,820 @ avg. \$0.17,

16,972,743 @ 0.12

Options: 4,750,000 @ avg. \$0.20

Insiders: 22,342,556 ( 18%)

**Management/Directors:** 

10,842,656 (8.9%)

Year High/Low: \$0.14 / \$0.06

# **Happy Creek Minerals Ltd.**

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