Transition Metals

XTM - TSX.V

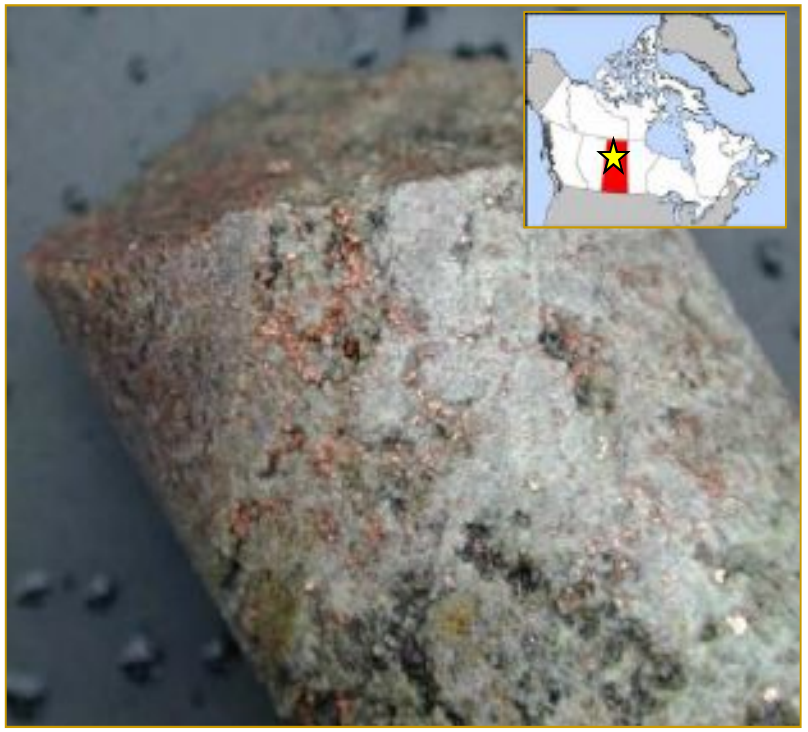
Janice Lake

World Class Sediment Hosted Copper Opportunity in Saskatchewan

Q1-2016

Janice Lake - Introduction

- Proterozoic Sediment-hosted copper advanced exploration stage project 100% owned by Transition Metals Located between Hwy 914 and 102, in north central Saskatchewan
- 55 km SW of Cameco's Key Lake Uranium process facility, 230 kV transmission line crosses the property
- Widespread copper mineralization *(mainly chalcocite)* exposed in bedrock over 10 x 25 km region
- >20 surface showings returning grabs 0.34 to 9.35% copper and 0.7 to 61.7 g/t silver
- Drill intercepts include 0.77% Cu over 33.0 m including 1.6% Cu over 6 m, within 35 m of surface
- Large mineralized target areas remain untested by drilling
- Multiple zones of >1% copper mineralization remain open along strike and down dip
- $2.0 M exploration drilling program planned

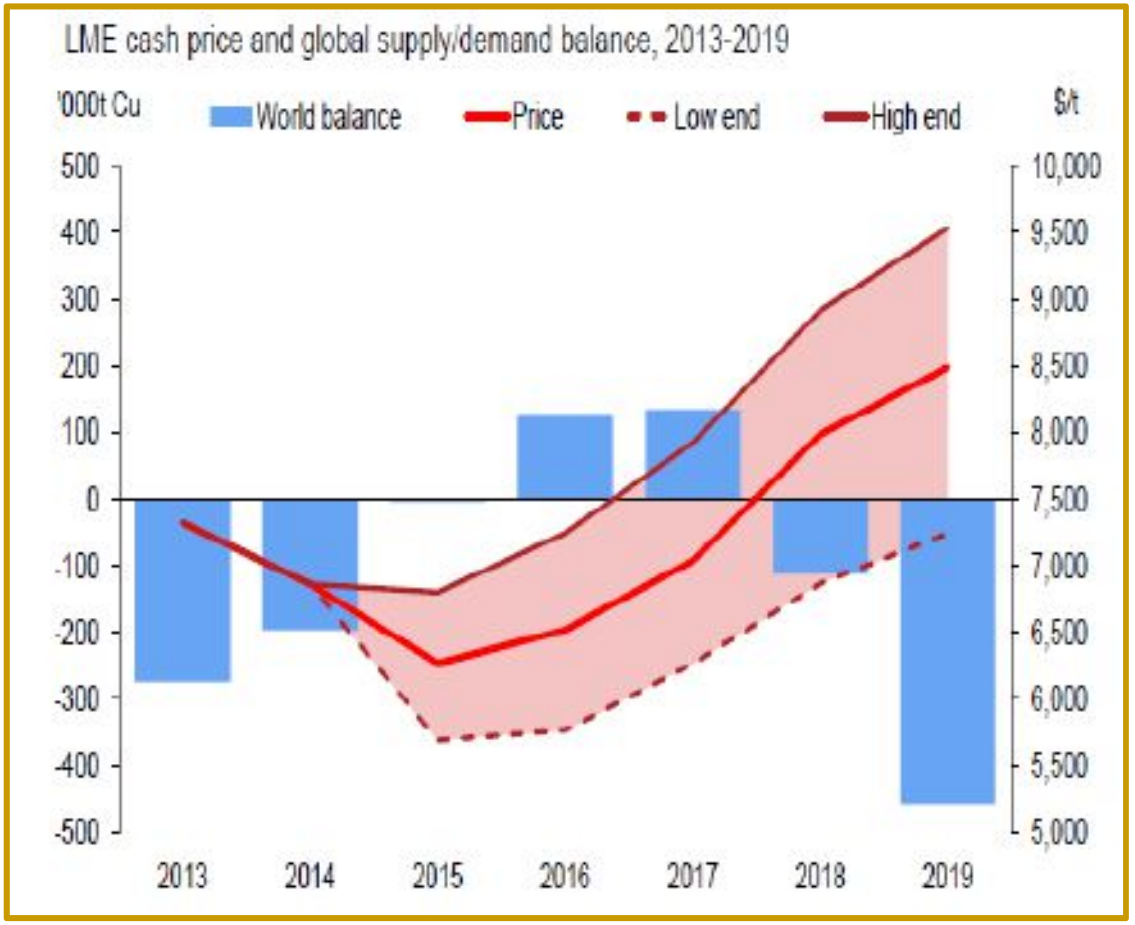


High-grade native copper mineralization within corroded pseudofanglomerate – JL03-38, 57.6m (assessment file - 75A15-SW-0036)

Potential for 1-5 Mt copper resource within 1st 100 metres from surface (Est. insitu value of $8 to $33 billion)

Why Copper?

- Major companies have not been investing at the exploration stage
- Shortfall in long term supply forecast as exploration and development pipeline
- Expected to drive copper up prices high into 2016 and beyond
- High and growing demand for new sources of copper in stable jurisdictions
- Slowed global demand growth and near term production glut coming on-stream depressing Copper prices in 2015
- 3% global growth required to clear the copper market
- Reduction in the mid-term supply forecast as development projects are delayed/cancelled



Source: CRU Group – Copper Market Outlook as presented at the Scotiabank Commodities Outlook Conference – January 13, 2015

Why Sediment Hosted Copper

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Characteristics of World Class Sediment-hosted Copper Districts

District	Age Ma	Basin Size (long axis) km	Examples	Subtype	Contained Copper Mt
Kodaro-Udokan – Russia*	**~1,900**	**>100**	**Udokan**	**RV**	**26**
Wollaston Domain – Saskatchewan*	**~1,900**	**>800**	**Janice, Sito, Fable**	**RV**	**?**
Belt Supergroup - Montana, Idaho	1,460	>600	Rock Creek, Spar Lake, Troy	RF	3
Kalahari Copper Belt	1,100	800	Klein Aub, Mangula, Ngami, Banana	RB,RF	2
Katangan - African Copperbelt - Zambia, DRC	550	900	Fungarume, Koncola, Nchanga	RF, RB, RV,Other	1,000
Chu-Sarysu - Kazakstan	320	>200	Dzhezkazgan	RB	8
Zechstein - Gemany, Poland	260	1000	Lubin	RF	55
Paradox Basin - Utah	100	200	Lisbon Valley	RB	<1

- Higher grade than porphyries with good Mineralogy *(chalcocite dominated – can be floated or leached)* and accessory Ag and Co
- Contribute >25% to worldwide copper production *(Kirkham, 1989)*
- >100 known deposits containing in excess of 1 Mt contained copper, Supergiants

RF - Reduced Facies
RB - Redbed Model
RV - Revett Model

Age of Supergiants
The Proterozoic

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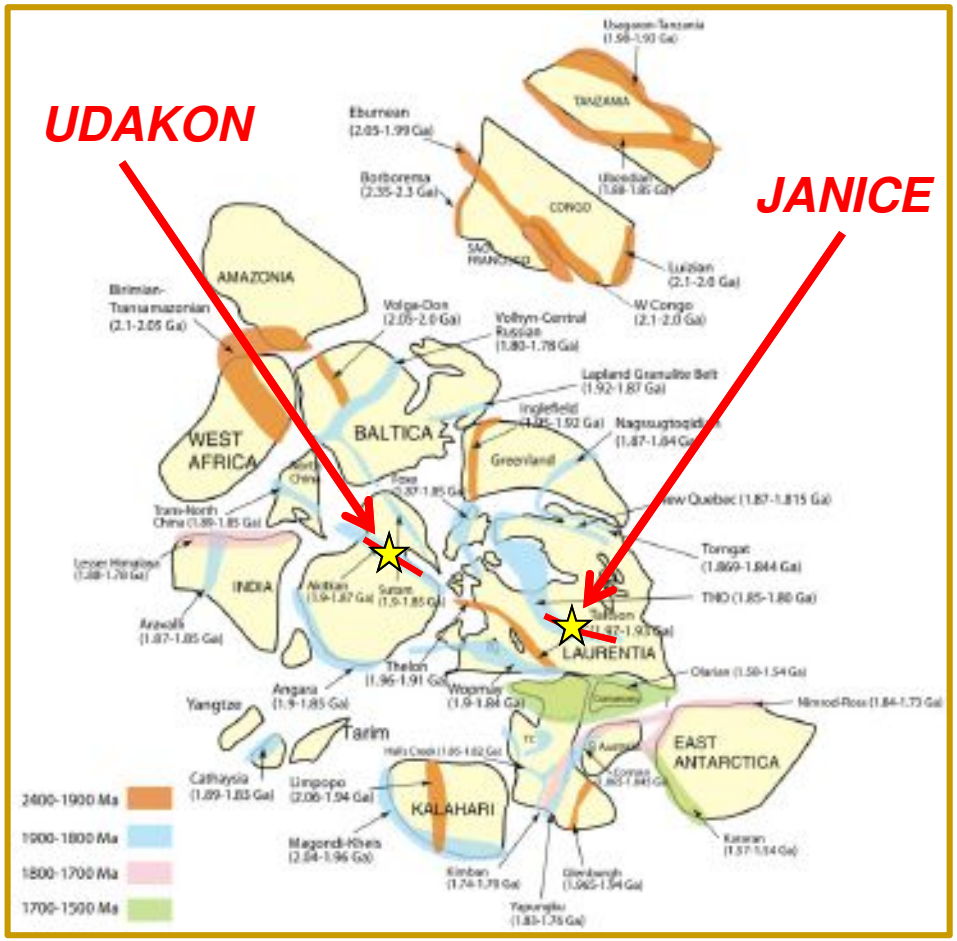
- Prolific period in earth's history for the creation of giant sediment hosted stratiform copper deposits
  - *Udokan – Russia*
  - *White Pine – USA*
  - *Spar Lake - USA*
  - *Dongchuan – China*
- Key period in Earth's history
  - *Formation of supercontinents*
  - *High level of accretionary and collisional tectonics*
  - *Formation and activation of large restricted basins*
  - *Preservation of supracrustal rocks*
- Common depositional characteristics at Udokan and Janice Lake
  - *Udokan deposited in restricted basin that developed as the Aldan and Anabar super-terrains of Siberia collided*
  - *Wollaston domain formed in restricted basin that formed as the Superior and Churchill terrains collided*
  - *Evidence of semi-arid evaporitic conditions during part of the depositional regime within 30° of the paleo equator*

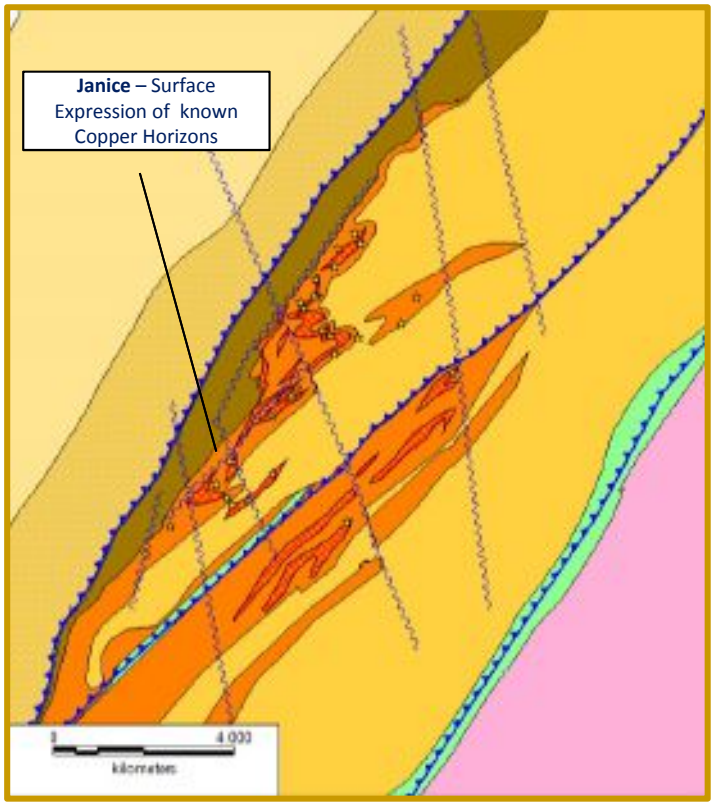
Paleo-continent Columbia showing major collisional orogens (2400–1500 Ma)

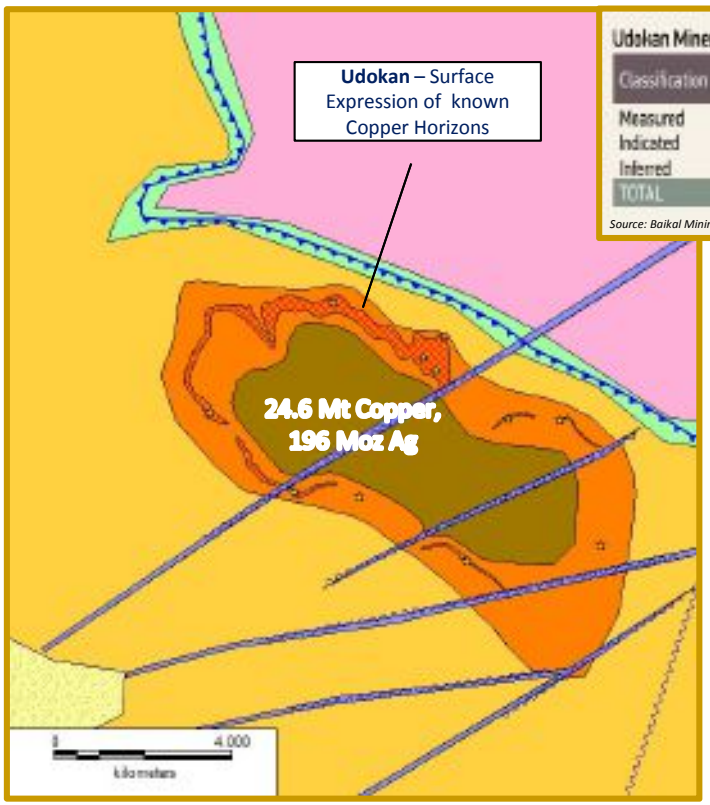


Source: Geosciences 2013, Article Preservation and Recycling of Crust during Accretionary and Collisional Phases of Proterozoic Orogens. Reconstruction after Zhao et al.

Similarities to Udokan

Early Proterozoic Sediment Hosted Copper Deposits in Russia





Udokan Mineral Resource (Inclusive of Reserves)

Classification	Ore tonnage, Mt	Copper grade, %	Silver, g/t
Measured	339	1.03	8.9
Indicated	1 483	1.01	11.1
Inferred	932	0.89	14.3
TOTAL	2 754	0.97	11.9

Source: Baikal Mining Company – Published 2013 Jorc Compliant Reserve and Resource Summary

Legend

- Late Mafic Dykes
- Shear Zone
- Psammopelitic Gneiss
- Calc-Silcate/Evap/Arkose
- Interbedded Wacke/Mudstone
- Copper Mineralization
- Interbedded Arkose/Wacke
- Sandstone/Conglomerate
- Archean Granite Basement
- Late Fault
- Thrust Fault
- Copper Showings

Janice Lake Deposit	Udokan Deposit	Attributes
2,100 to 1,800 Ma (follows Great Earth Oxidation Event)	2,200 to 1,900 Ma (follows Great Earth Oxidation Event)	Age
Sandstone Copper (Revett Style)	Sandstone Copper (Revett Style) - Hitzman	Deposit Model
Copper hosted in the basal arkose and arkosic conglomerate horizon proximal to a semi-pelite / wacke horizon	Copper hosted in the basal arkose and arkosic conglomerate horizon proximal to a semi-pelite / wacke horizon	Stratigraphy
Stratiform to stratbound disseminated chalcocite, with minor covelite, bornite, chalcopyrite and native copper	Stratiform to stratbound disseminated chalcocite-bornite, with minor chalcopyrite and pyrite	Mineralization
To be determined…	**>$ 150 billion** - Third largest undeveloped copper resource	Insitu Value

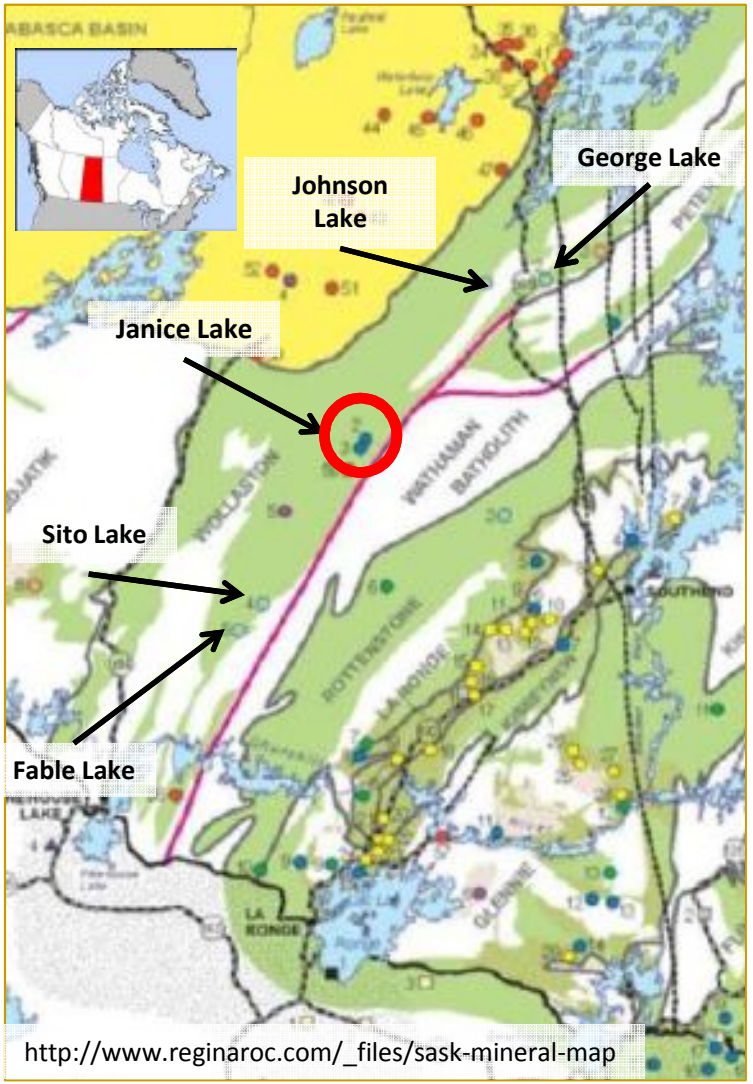
Why Janice Lake?

Best Mining Jurisdiction in Canada

- **Saskatchewan is top Ranked Pro-mining Jurisdiction**
  - Frazer Institute, First Nation issues well understood

Geology

- **Wollaston Supergroup**
  - Intracratonic Proterozoic basin developed between Hearne and Churchill provinces
  - More than 800 km long, making it as large as the African Copper Belt
  - Closed basin architecture, with extensive evidence of evaporites (scapolite), carbonates
  - Extensive redbed sediments, minor volcanics
  - Similar age and environment to supergiants – Udokan and Dong Chuan
- **Numerous Sediment-hosted Cu in Belt – Janice Lake, Sito, Fable Lakes, George (Zn)**
  - Stratabound to stratiform, disseminated Cu sulphide +\- (Ag, Pb, Zn, Co, U)
  - Dominantly chalcocite mineralogy, can make very high grade copper concentrates

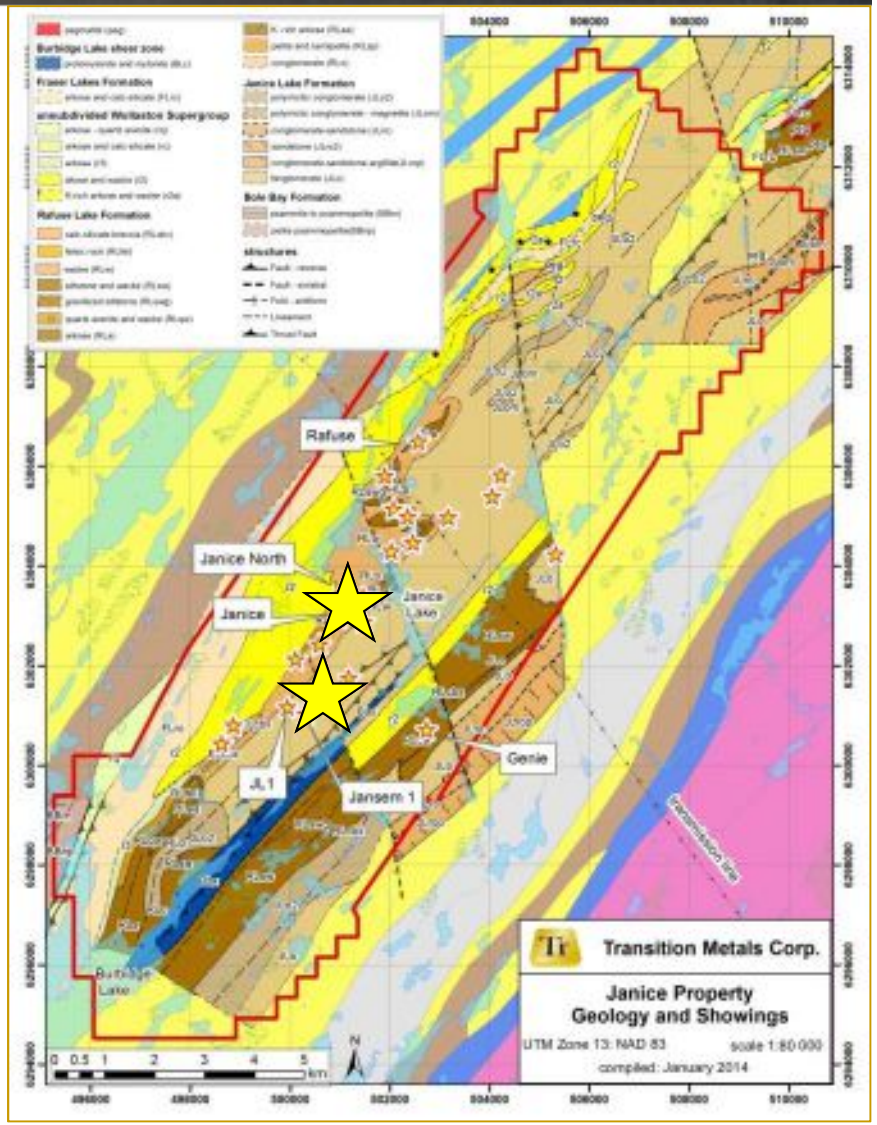


http://www.reginaroc.com/_files/sask-mineral-map

Work Completed

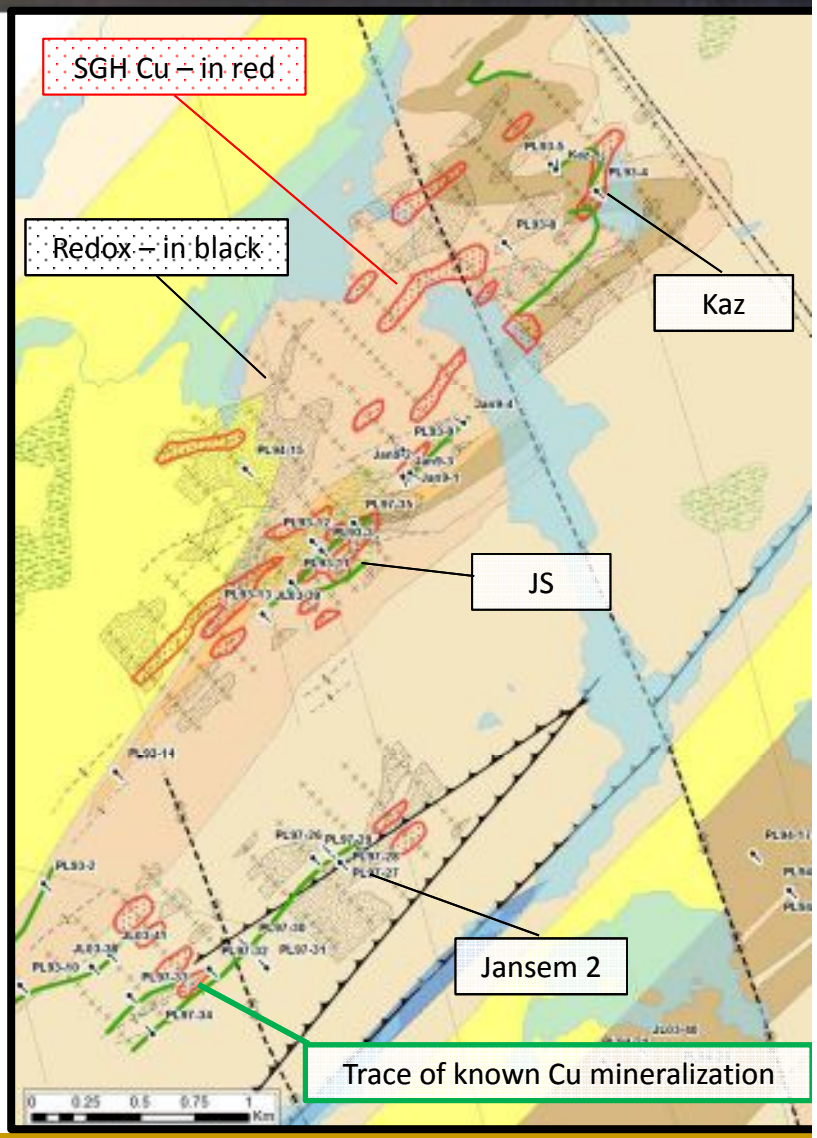
- Great Plains Resources (1960's) - Initial prospecting, 20 short holes for 1000m
- Noranda (1993-1997) - Grid mapping, Mag and IP, 35 holes for 5,500 metres
- 25 zones of subcropping mineralization Identified. Significant drill intercepts returned from drilling at JS1, Jansem 1 and Kaz
- Saskatchewan Geological Survey (SGS) discovered 2 new zones on Noranda Grid in 1997
- Phelps Dodge (2003) – IP surveys on select lines, field mapping, 6 holes for 831m (new zone – Phelps – discovered)
- Phelps recommended follow-up program but were bought out by Freeport McMoran

- **Transition Metals (2012-2014)** –700 km of airborne VTEM, field mapping, rock and soil sampling Mag/EM, data compilation



2014 SGH Survey

- ActLabs SGH report (Sutherland 2014)
  - 4.5 out of 6.0 for the presence of Cu mineralization associated with Redox Zone at the JS Zone
  - 3.5 out of 6.0 for the presence of Cu mineralization associated with Redox Zone at the Jansem 2 Zone
  - 2.5 out of 6.0 for the presence of Cu mineralization associated with Redox Zone at the Kaz Zone
- Re-plotting of the Cu Class
  - (sum of 001-LA, 002-LA, 004-LA - alkyl-alkane compounds)
- and Redox Class
  - (sum of the MAR compounds – one of the alkyl-aromatics)
- Delineate elongate Cu anomalies peripheral to the Redox anomalies mirroring the trend of the geology and known mineralization
- Also highlights possible strike extensions and subparallel zones
- Orientation MMI sampling mirrors SGH results but was limited by lack of suitable material for sampling



Two Focus Areas Highlighted

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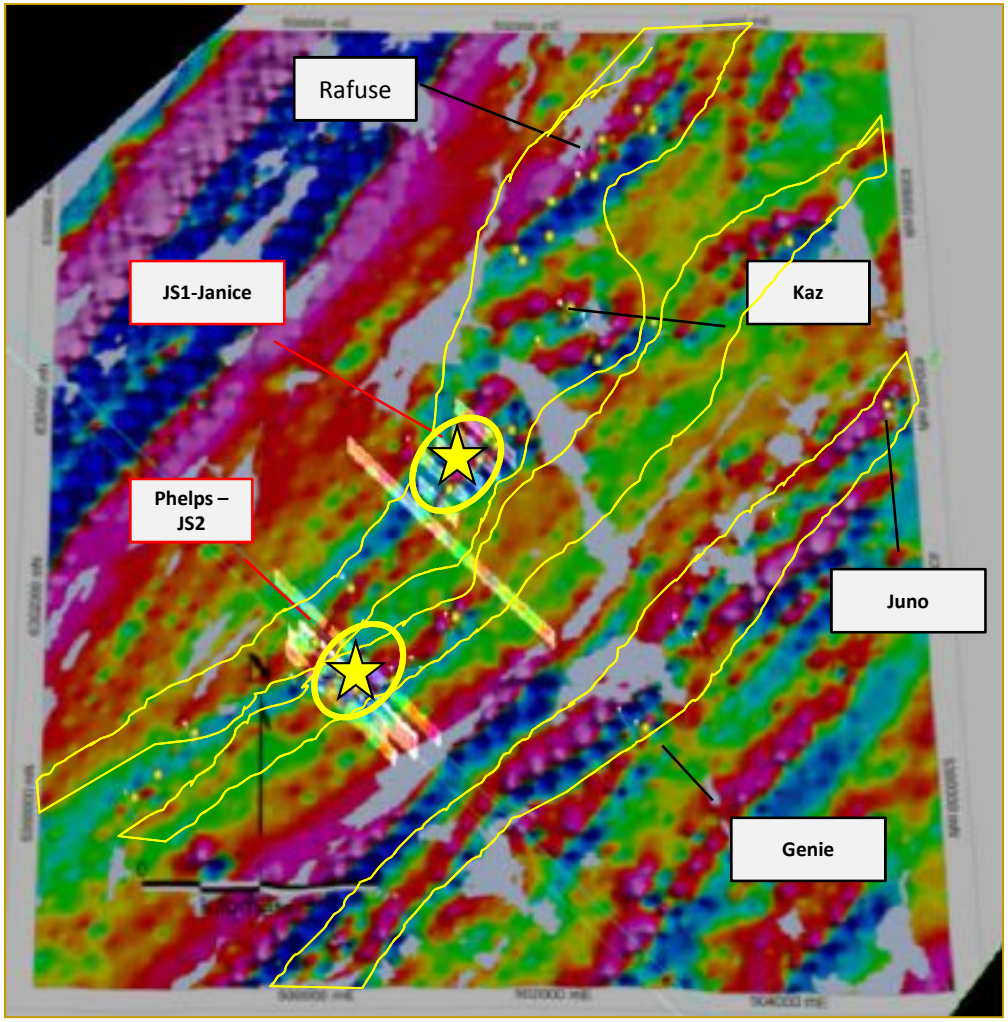
- **Geophysical Target Signature**
  - Magnetic aureoles define margins of alteration
  - Copper – chargeable or conductive *(>5% copper samples are conductive)*
  - Best copper zones typically located on edges of mag highs
- **Exploration Objectives**
  - Initial plan to focus at both **JS1-Janice** and **Phelps-JS2** zones
  - Test multi-parameter drill targets along strike and down dip from significant copper intercepts
  - **Outline an initial 10-30 Mt resource grading 1.0% Copper**
  - Refine targeting methodology to investigate new zones and continue to build resources
- **> 25 km Favourable Stratigraphy**

  (outlined in yellow)
  - Semi-conformable zones in deformed amphibolite sequence
  - Mineralization preferentially hosted within arkose/conglomerate beds bounded by pelites
  - Mineralization concentrated in Rafuse Lake formation
  - Possible fold repetition of favorable horizons



Historical IP sections are plotted with the airborne magnetic data - tilt product

Detectable Geophysical Signatures
2014 Ground Follow-up

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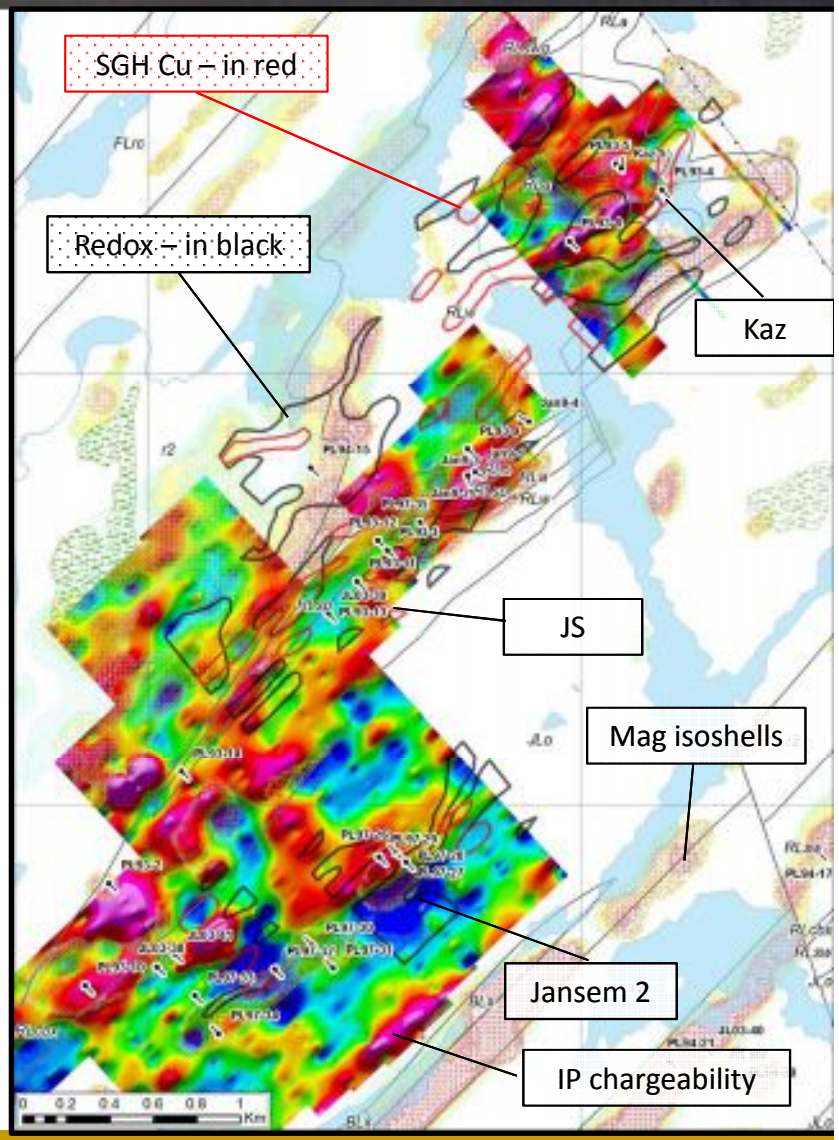
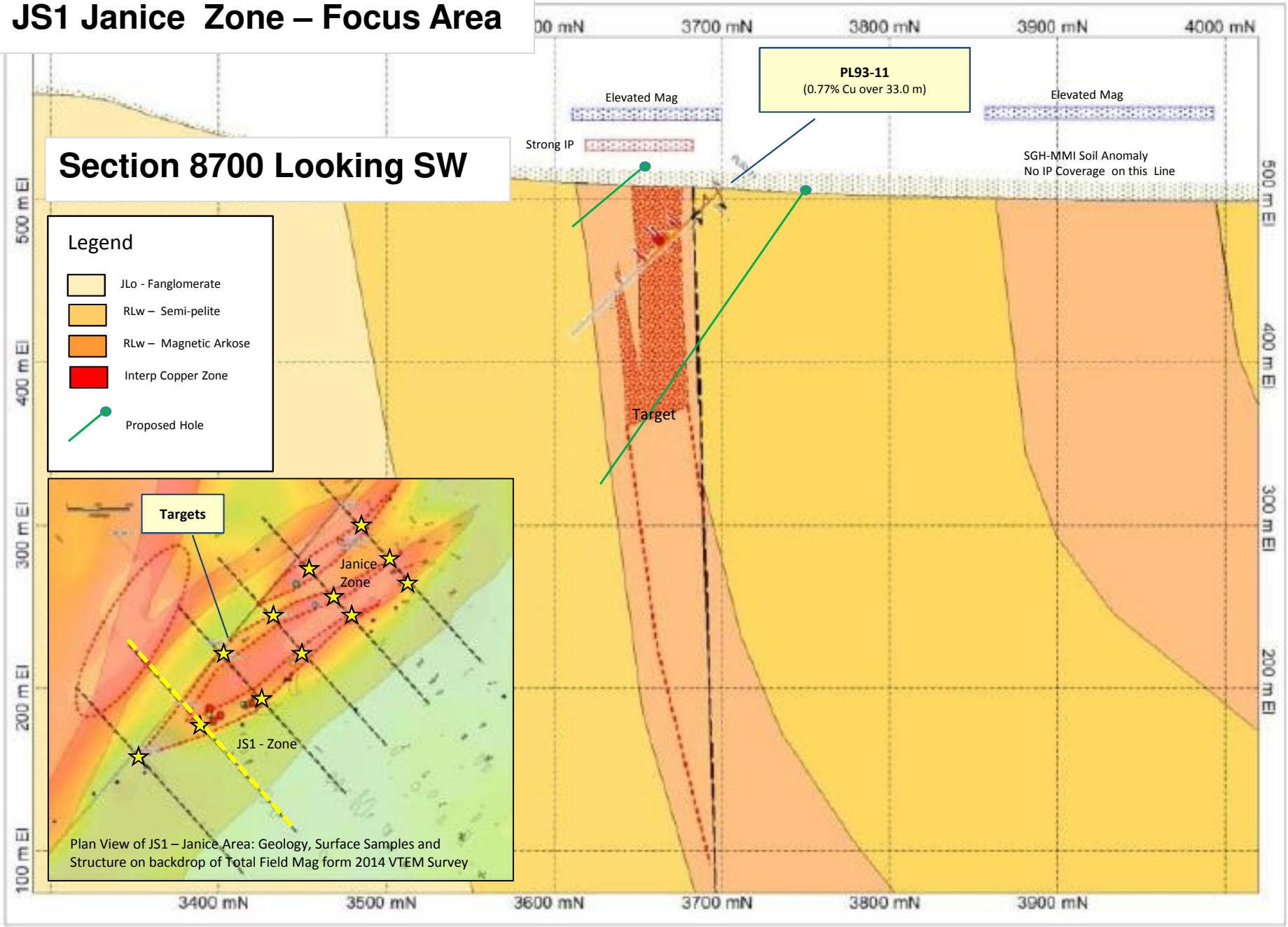
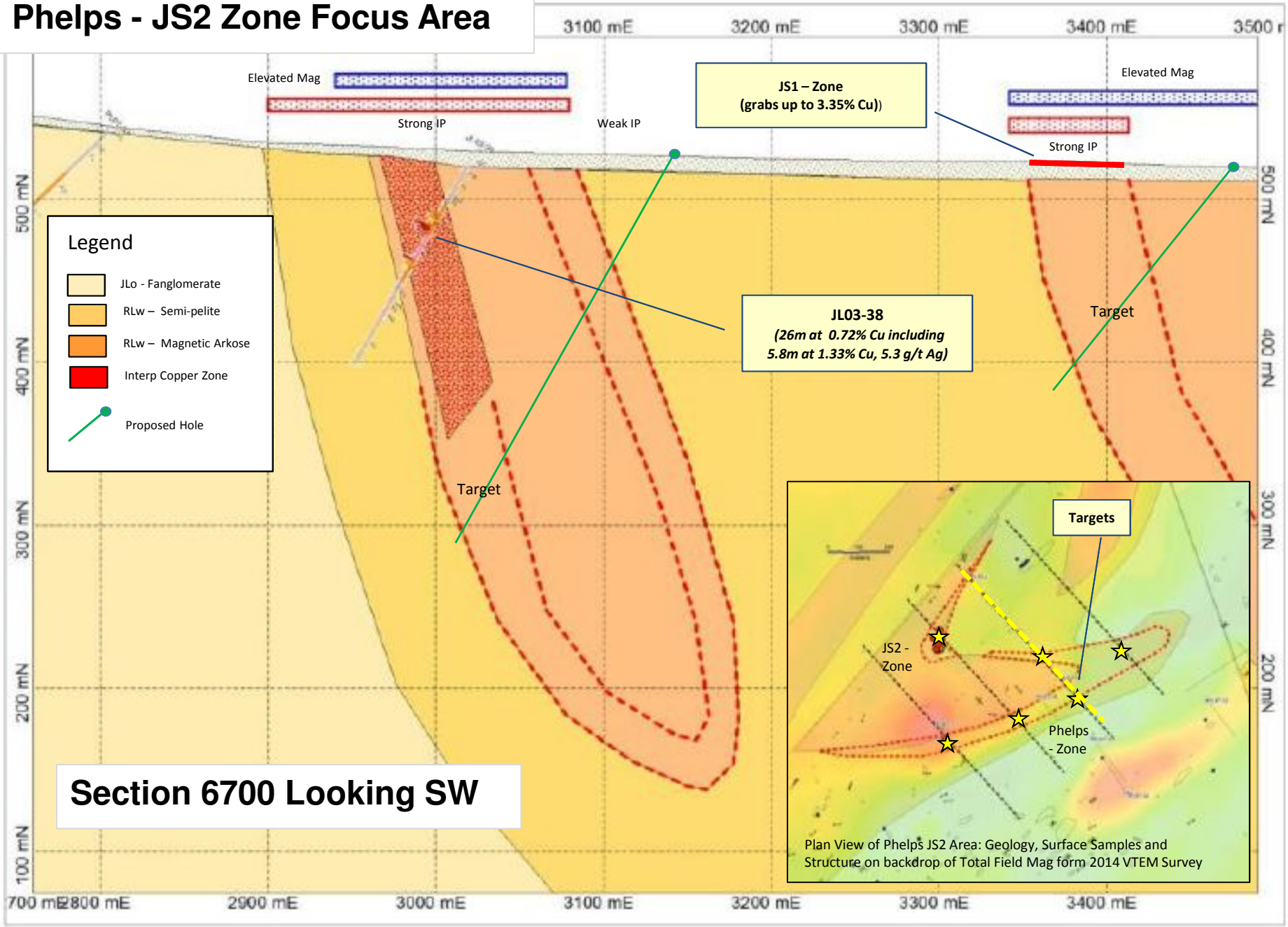
- Current plan to drill test
  - 1) extend mineralization between historical drill intersections to test continuity
  - 2) strike extensions of known mineralization
- Geophysical and geochemical data suggests that mineralization is more continuous than shown by past wide spaced drilling
- There are untested chargeability anomalies from the historical Noranda IP survey
  - bordering magnetic anomalies from 2014 airborne survey shown as red-shallow to green deeper isoshells
- SGH redox border some magnetic anomalies
- SGH Cu anomalies peripheral to some chargeability and magnetic anomalies



JS1 Janice Zone – Focus Area



Phelps - JS2 Zone Focus Area



Section 6700 Looking SW

Next Steps

Phase 1 - Follow up exploration drilling at JS1-Janice and Phelps-JS2 zones		
Work Activity	**Quantity**	**Cost Estimate**
Offsite Transport	2 return flights - 4 persons	$ 10,000
Float Plane	20 support/supply flights	$ 65,000
Helicopter Drill Support	30 days - daily $6500 minumum	$ 195,000
Drilling	14 holes (one extension) - 2000m	$ 200,000
Assays	500 samples	$ 25,000
Geos/Support tecks	30 days - 2 geos/geo/tech	$ 30,000
Camp - Burbidge Lake Lodge	8 persons - 30 days	$ 25,000
Contingency	15%	$ 100,000
	Total	$ 650,000
Phase 2 - Establish 10-30Mt Intitial Resource		
Work Activity	**Quantity**	**Cost Estimate**
Offsite Transport	4 return flights - 4 persons	$ 20,000
Float Plane	30 support/supply flights	$ 100,000
Helicopter Drill Support	60 days - daily $6500 minumum	$ 390,000
Drilling	35 holes - 5000m	$ 500,000
Assays	500 samples	$ 65,000
Geos/Support tecks	60 days - 2 geos/geo/tech	$ 60,000
Camp - Burbidge Lake Lodge	8 persons - 60 days	$ 50,000
Contingency	15%	$ 165,000
	Total	$ 1,350,000
Total Phase 1 and Phase 2 Programs:	**$ 2,000,000**	

- Phase 1 – Exploration Drill program start-up in early 2015
- Phase 2 – Follow-up and infill drilling to establish initial resource at JS1-Janice and/or Phelps/JS2 zones
- Phase 3? Continue to expand resources and investigate other near surface zones of copper mineralization towards minimum economic threshold is reached

Photo of Kaz Showing (3-6% Cu) taken at Kaz in Aug. 2012 associated with chalcocite, +/- bornite and native copper

Tr
Transition Metals
XTM - TSX.V
transitionmetalscorp.com
#5 - 410 Falconbridge Road
Sudbury ON P3A 4S4
Telephone: 705-669-0590
President/CEO:
smclean@transitionmetalscorp.com