

Hannanmetals



PERU SEDIMENT-HOSTED COPPER-SILVER PROJECT
Corporate Presentation
November 19, 2019



@hannanmetals

TSX : HAN; OTC PINK : HANMF

www.hannanmetals.com

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Qualified Person: The qualified person for Hannan’s projects, Michael Hudson, CEO for Hannan, and a Fellow of the Australasian Institute of Mining and Metallurgy, has reviewed and verified the contents of this presentation.

November 2019

Key Points:

- A new frontier basin-scale copper (chalcocite) district
- Permit applications for 38,400 ha covering 76 kilometres of strike
 - First mining concession granted at October 15, 2019, further following;
- Hannan is a first mover
- Initial prospecting 2018-2019 identified high grade mineralization in outcrop and float and alteration in an area covering 100km x 50km. Similar style of outcrop/ boulders have been discovered over 100km of strike
- Best results from outcrop – 20km apart:
 - **3m @ 2.5% Cu and 22g/t Ag (LD190517-19)**
 - **2m @ 5.9% Cu and 66g/t Ag (TC190536-38)**
- Mineralization forms at multiple stratigraphic levels and is spatially linked to salt structures

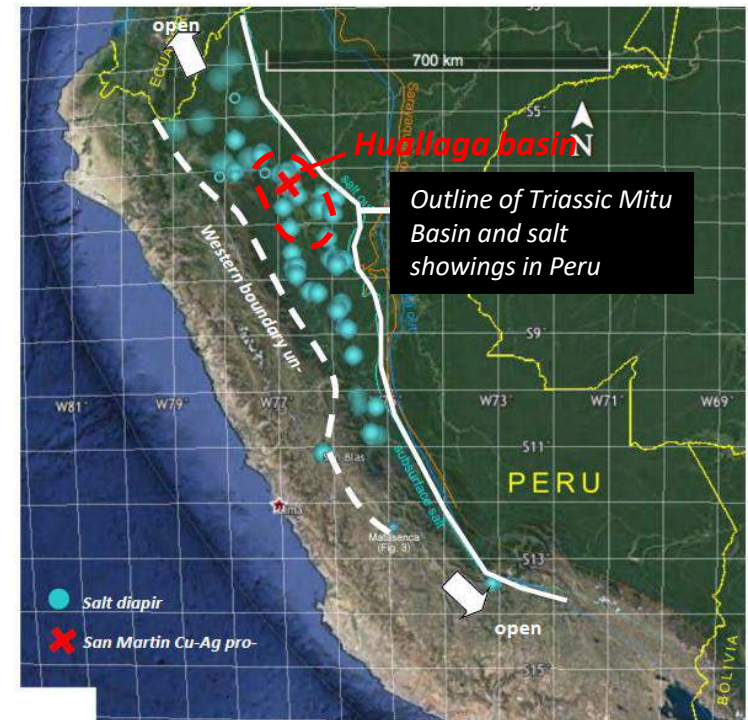
History and geological overview

Located in North central Peru, in the sub-Andean zone of the Andes.

Historically overlooked by the mineral industry, but it has been the focus of the hydrocarbon industry for decades.

Described as one of the best surveyed thrust and fold belts in the world (for oil and gas). At the San Martin project alone there is 2,000 kilometres of 2D seismic.

However, the style of deformation in the Sub-Andean zone is mainly related to salt tectonics rather than a compressional thrust and fold belt.



➤ **This insight has opened a new search space for sediment-hosted copper deposits in Peru.**

38,400 ha covering 76 kilometres of strike in 3 permit applications

1 – Gera Claim Application: 10,000 ha

Prospective strike: 25km.

2 – Tabalosos Claim Application: 19,500ha ha

Prospective strike: 100km over multiple structural corridors

3 – Sacanche Claim Application: 19,500ha ha

Prospective strike: 27km

The Huallaga basin (400km x130km)

- > Similar scale to Central African Copper Belt
- > Failed Triassic rift basin in the Sub-Andean zone
- > Very thick evaporitic sequence
- > Cap rocks and multiple traps in the stratigraphy
- > Strong halokinetic deformation

nexa
resources

Bongara
11Mt @ 13% ZnPb

NEWMONT

GOLDCORP
Yanacocha
52Moz Au

BARRICK
Lagunas Norte
4.0Moz Au

BHP
Antamina
>18t

Tarapoto
Population 150,000

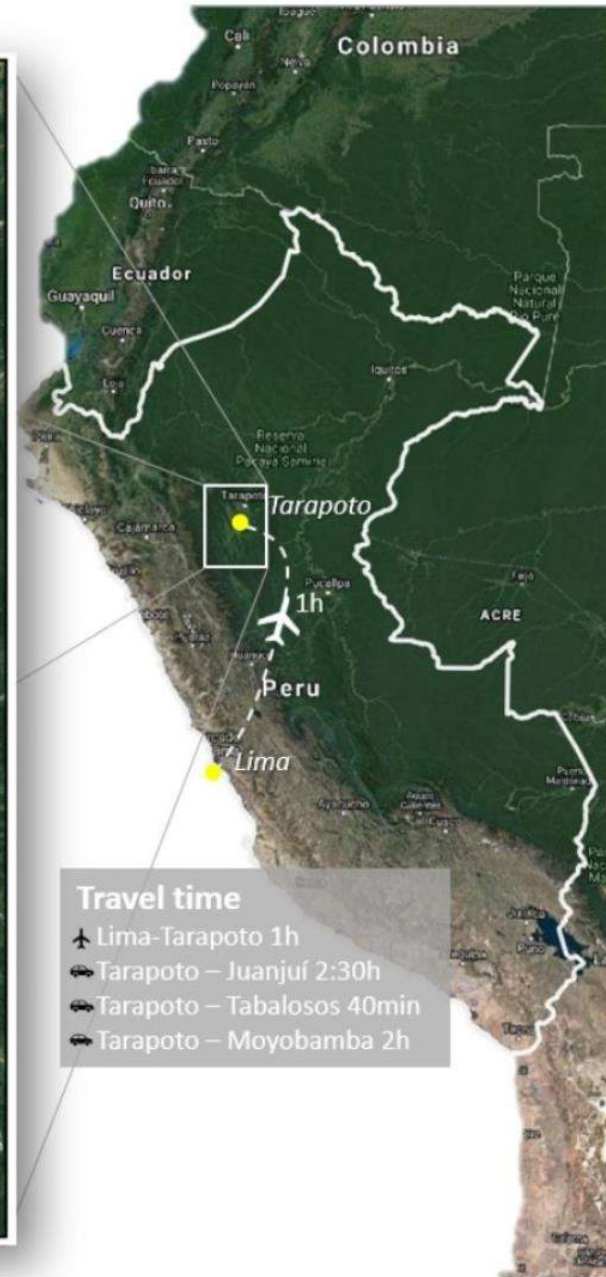
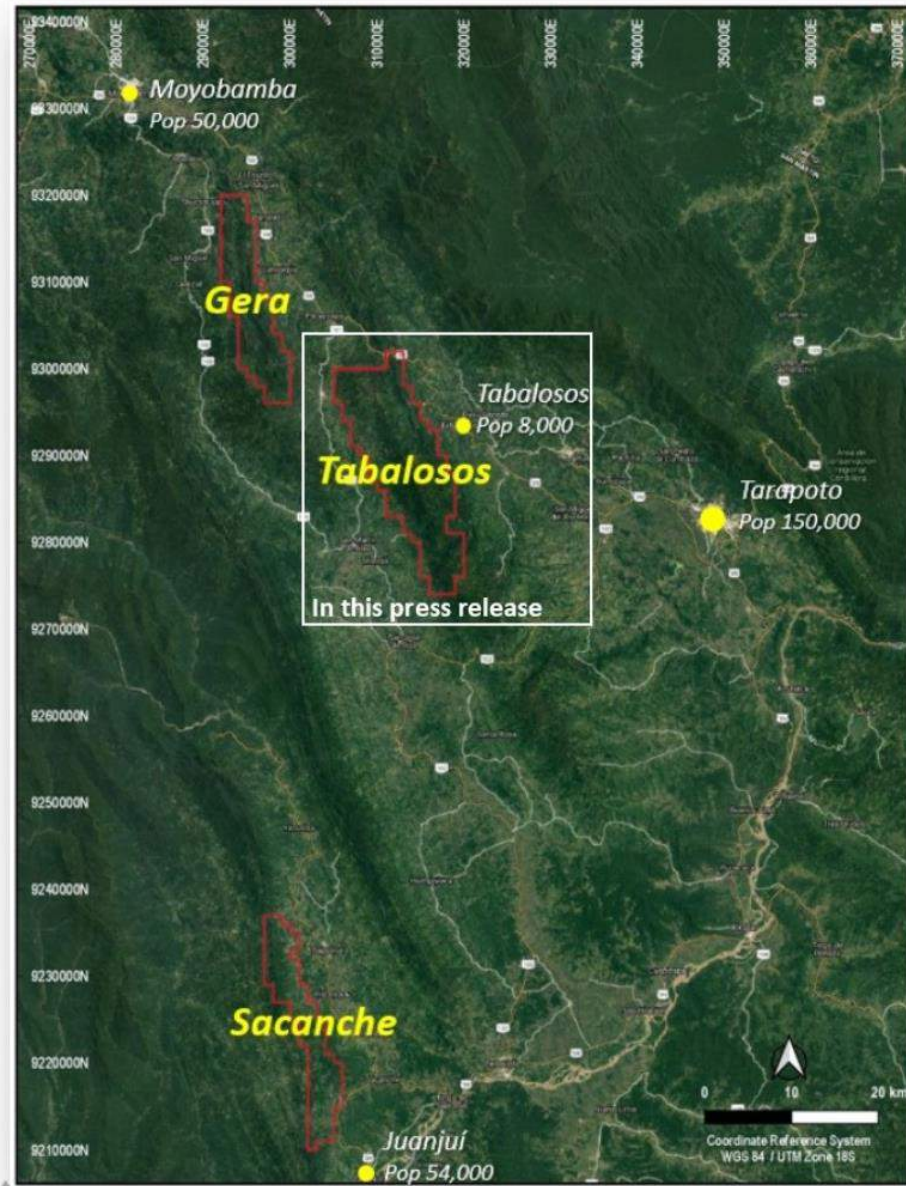
Hannanmetals

Mining licenses Peru

0 300 km



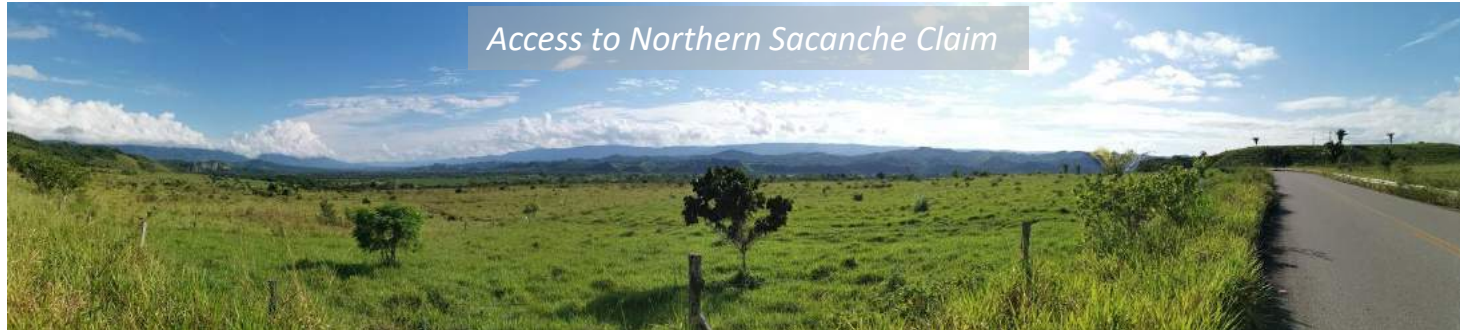
Location and Access



Peru Copper-Silver Project



Peru Copper-Silver Project

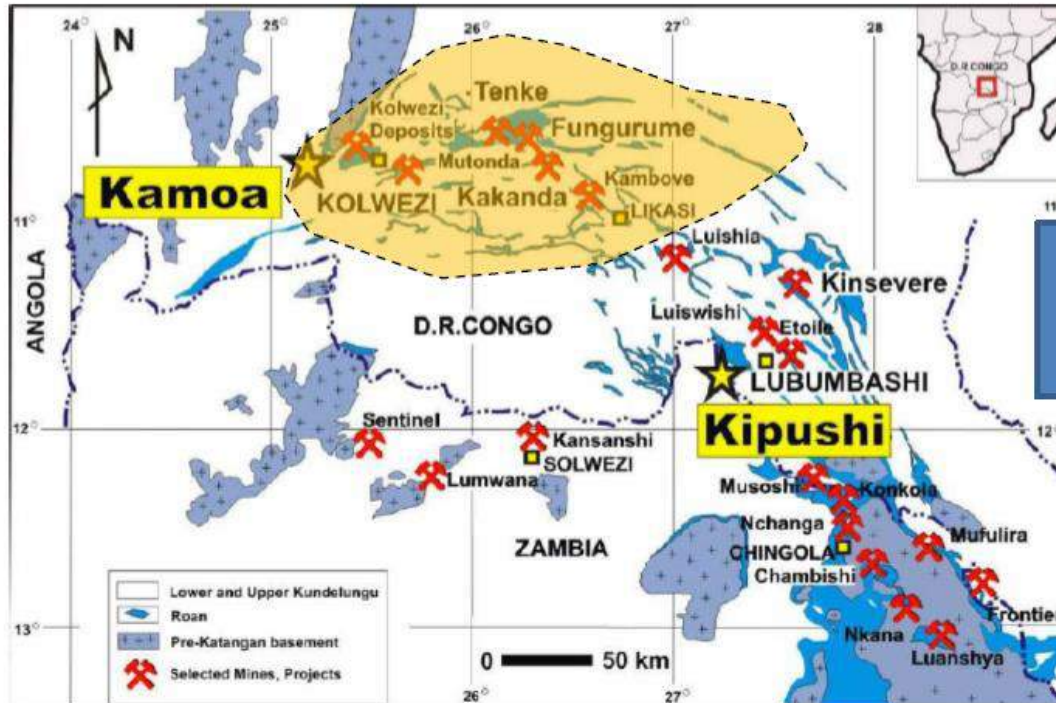


Peru Copper-Silver Project

The search space is big for big systems:



Huallaga Basin as the same scale as Central African Copper Belt



Huallaga basin
350x120km
(prospective for copper)

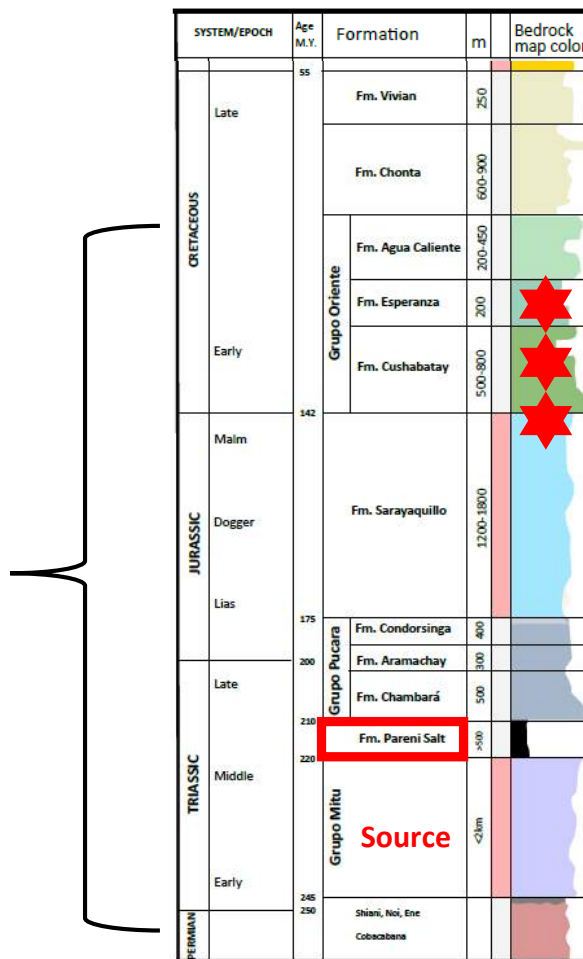
Stratigraphic column from the Peru Cu-Ag Project

Copper- Silver Mineralization Forms At Multiple Levels for Multiple Opportunities

200 Ma time span

Late Jurassic to Early Cretaceous period. Strong extension and salt related deformation (=fluid pathways and traps).

All the right ingredients: Sources rocks, traps and >500m thick evaporites



**1. Cushabatay-hosted target
+50 metre thick gossans**

Bituminous sandstone host
Analogue: Udokan, Russia: 2.8Gt @ 0.97% Cu 11.9g/t Ag

**2. Sarayaquillo-hosted target
2-5 metres @ 2-5% Cu, 30-100g/t Ag**

Reduced facies type
Analogues: Central African Copper Belt/ European Kupferschiefer

Sacanche reduced facies type copper target:

Sacanche North – exposure at side of road.

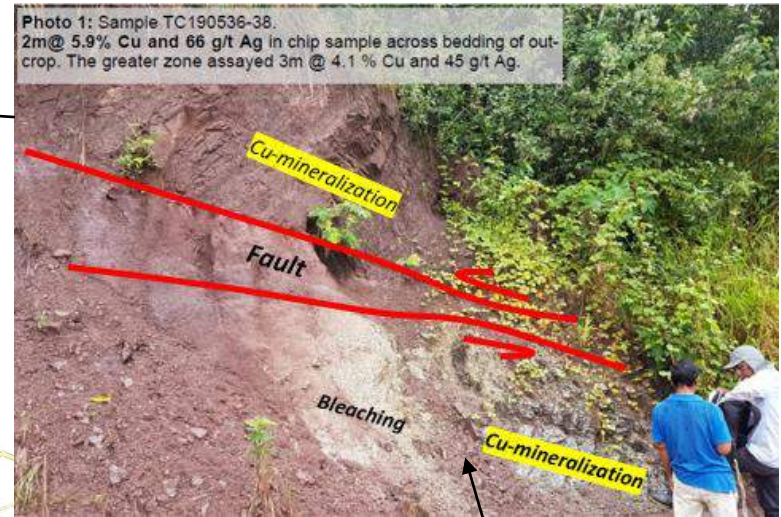


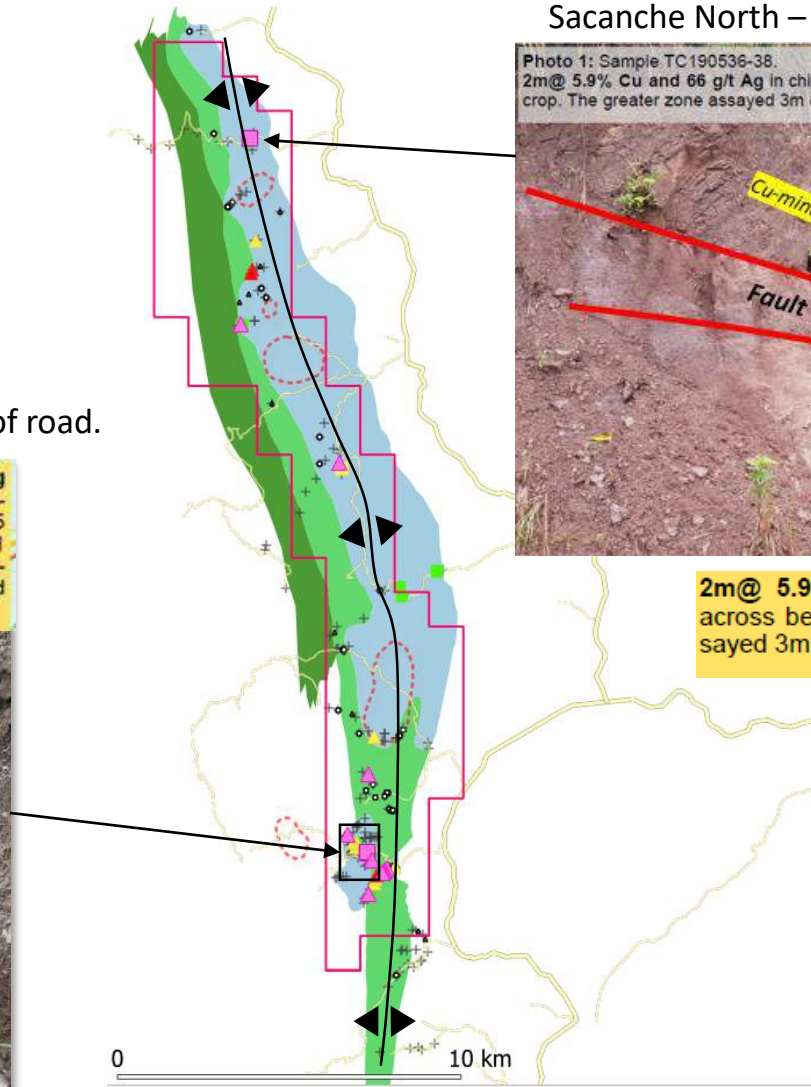
Photo 1: Sample TC190536-38.
2m @ 5.9% Cu and 66 g/t Ag in chip sample across bedding of outcrop. The greater zone assayed 3m @ 4.1 % Cu and 45 g/t Ag.

2m @ 5.9% Cu and 66 g/t Ag in chip sample across bedding of outcrop. The greater zone assayed 3m @ 4.1 % Cu and 45 g/t Ag.

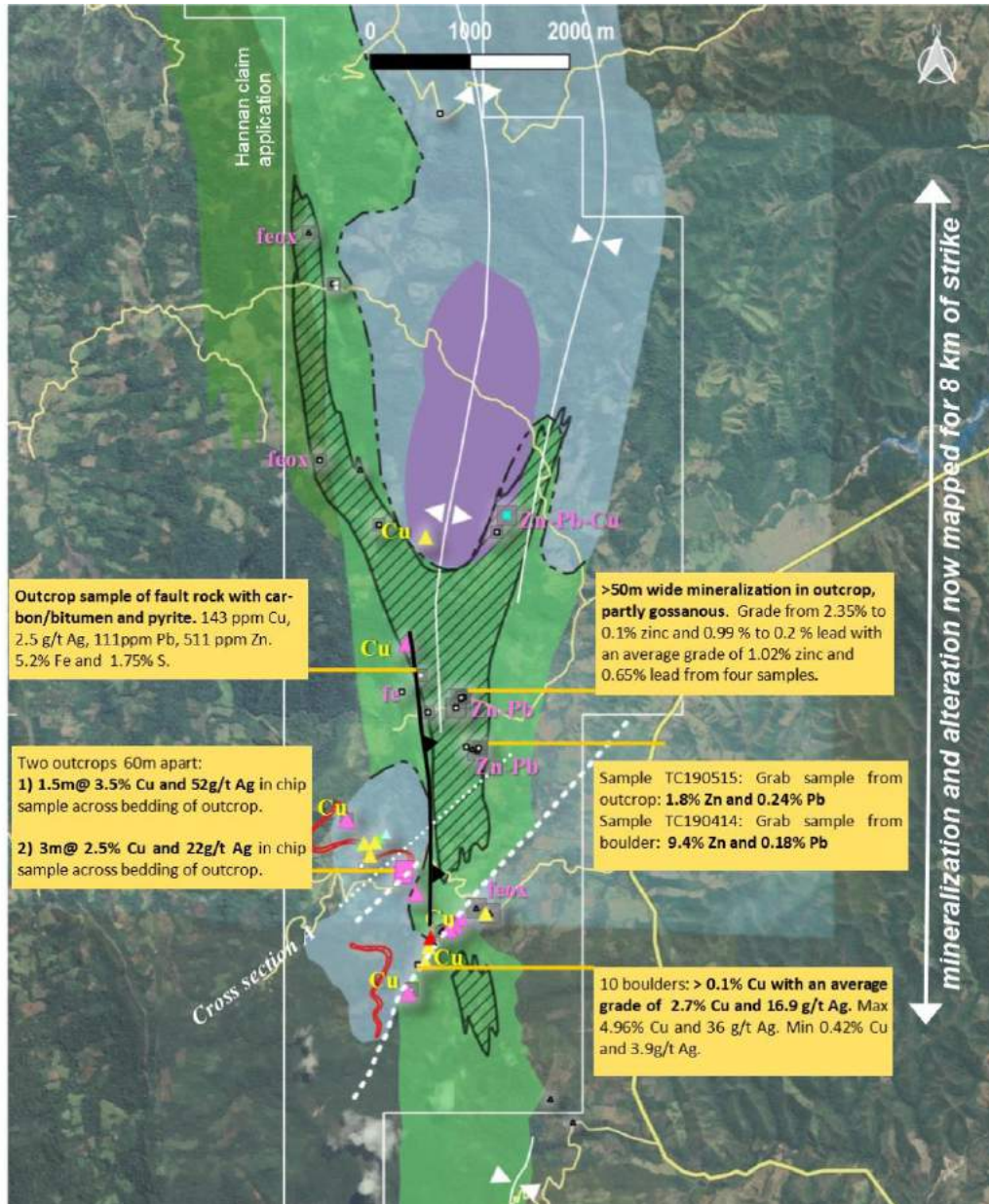
Sacanche South – exposure at side of road.



3m @ 2.5% Cu and 22g/t Ag in chip sample across bedding of outcrop, including 0.5 metres @ 4.4 % Cu and 61 g/t Ag. The greater zone assayed 5m @ 1.7% Cu and 14g/t Ag



South Sacanche- Key Results



Mineralization discovered in two different parts of the stratigraphy

1. Cushabatay-hosted target

Analogue: Udokan, Russia: 2.8Gt @ 0.97% Cu 11.9g/t Ag

50-300m wide gossanous zone hosted by grey sandstone with elevated Zn-Pb (Cu). It has been mapped over 500m and inferred for 11 km strike. Structurally controlled by an anticlinal ridge caused by salt tectonics. Float up to 2.8% Cu and 50 g/t Ag.

2. Sarayaquillo-hosted target

Analogues: Central African Copper Belt/ European Kupferschiefer

Mineralization discovered in outcrop. Similar style of outcrop/ boulders have been discovered over 100km of strike

- 3m @ 2.5% Cu and 22g/t Ag (LD190517-19)
- 1.5m@ 3.5% Cu and 52g/t Ag in chip sample across bedding of outcrop.



South Sacanche – Cross Section Looking Northwest

LEGEND

Grupo Oriente		Undifferentiated Grupo Oriente		Inferred grey sandstone hosted copper target.
Grupo Oriente		Grey quartzitic sandstone with +/- bituminous carbon		Inferred red-bed hosted copper target
Sarayaquillo		Red sandstone / siltstone / mudstone +/- organic carbon		Erosional unconformity
Pareni Salt		Inferred salt intrusion		

Two outcrops 60m apart, projected on to section 280m from the South.

- 1) **1.5m@ 3.5% Cu and 52g/t Ag** in chip sample across bedding of outcrop.
- 2) **3m@ 2.5% Cu and 22g/t Ag** in chip sample across bedding of outcrop.

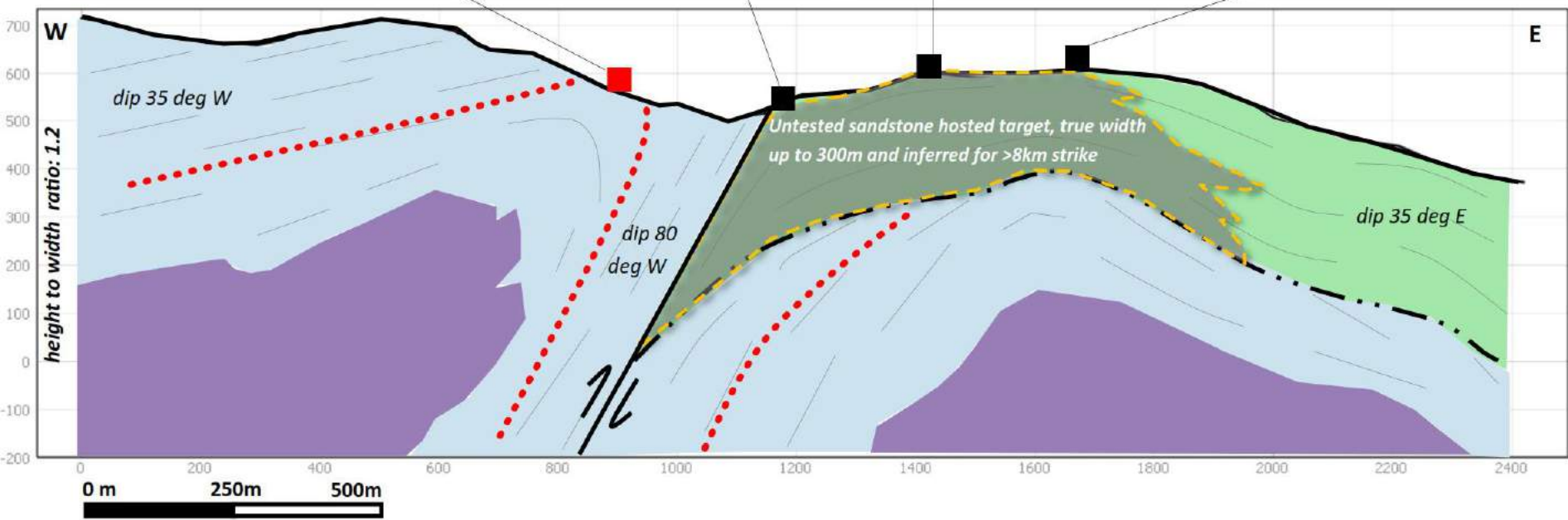
Sample LD190575: projected on to section 1300m from the North.

Outcrop sample of fault rock with carbon/bitumen and pyrite. 143 ppm Cu, 2.5 g/t Ag, 111ppm Pb, 511 ppm Zn. 5.2% Fe and 1.75% S.

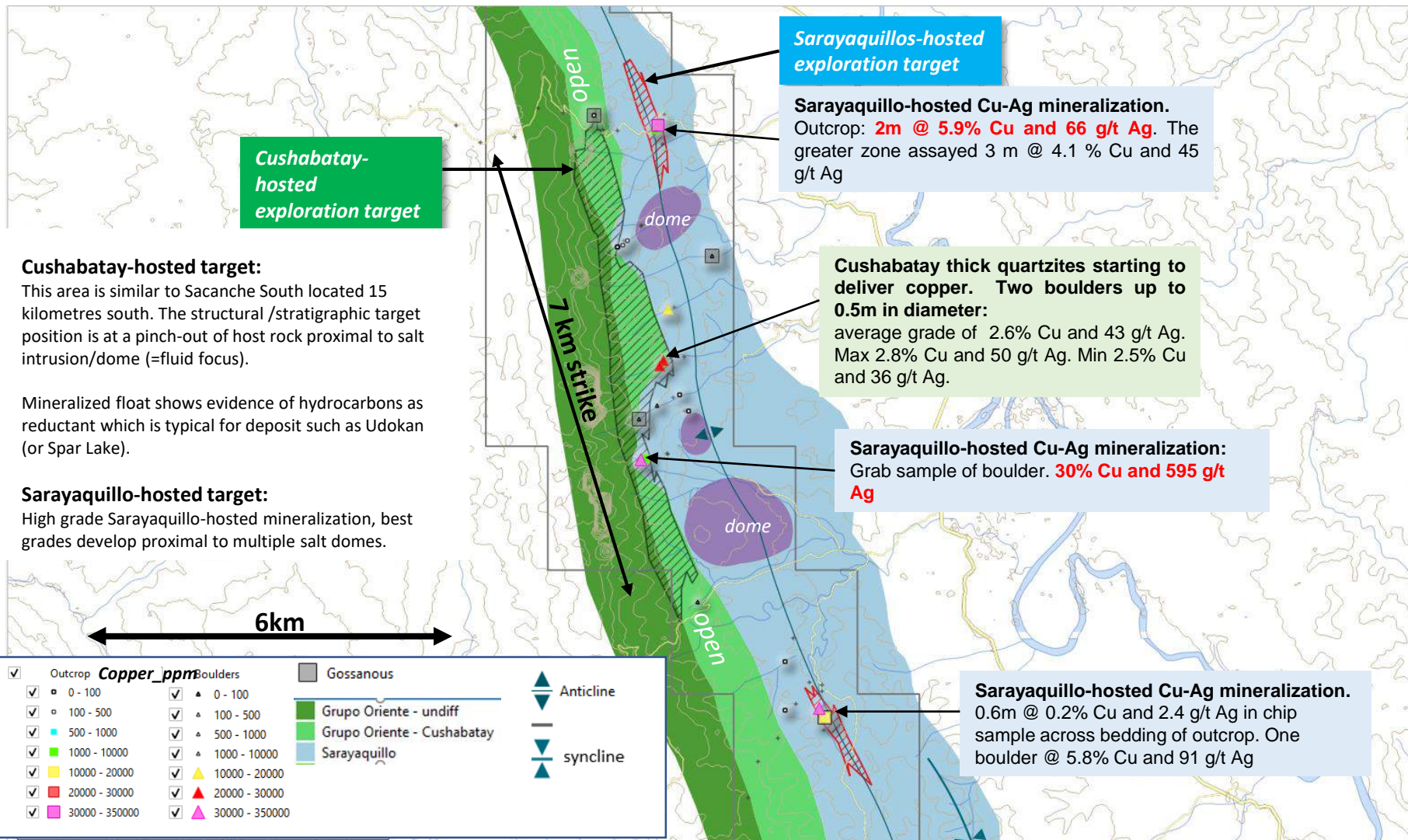
Projected on to section 830m from the North. **>50m wide mineralization in outcrop, partly gossanous.** Grade from 2.35% to 0.1% zinc and 0.99 % to 0.2 % lead with an average grade of 1.02% zinc and 0.65% lead from four samples.

Sample TC190514: projected on to section 250m from the North.

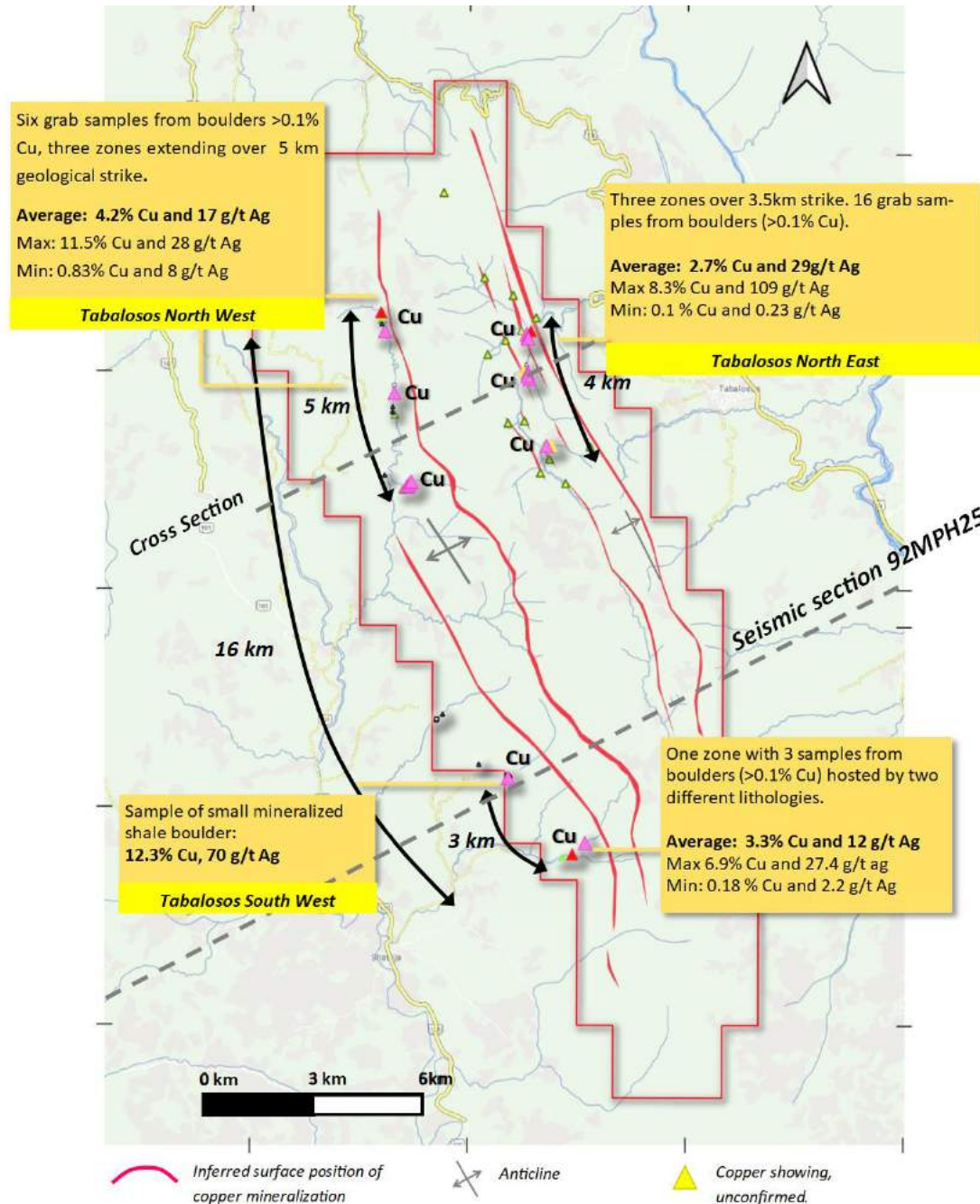
Grab sample from outcrop: **1.8% Zn and 0.24% Pb**
 Grab sample from boulder: **9.4% Zn and 0.18% Pb**



North Sacanche- Key Results



Tabalosos – Key Results (80km north of Sacanche)



Tabalosos – Cross Section Looking Northwest

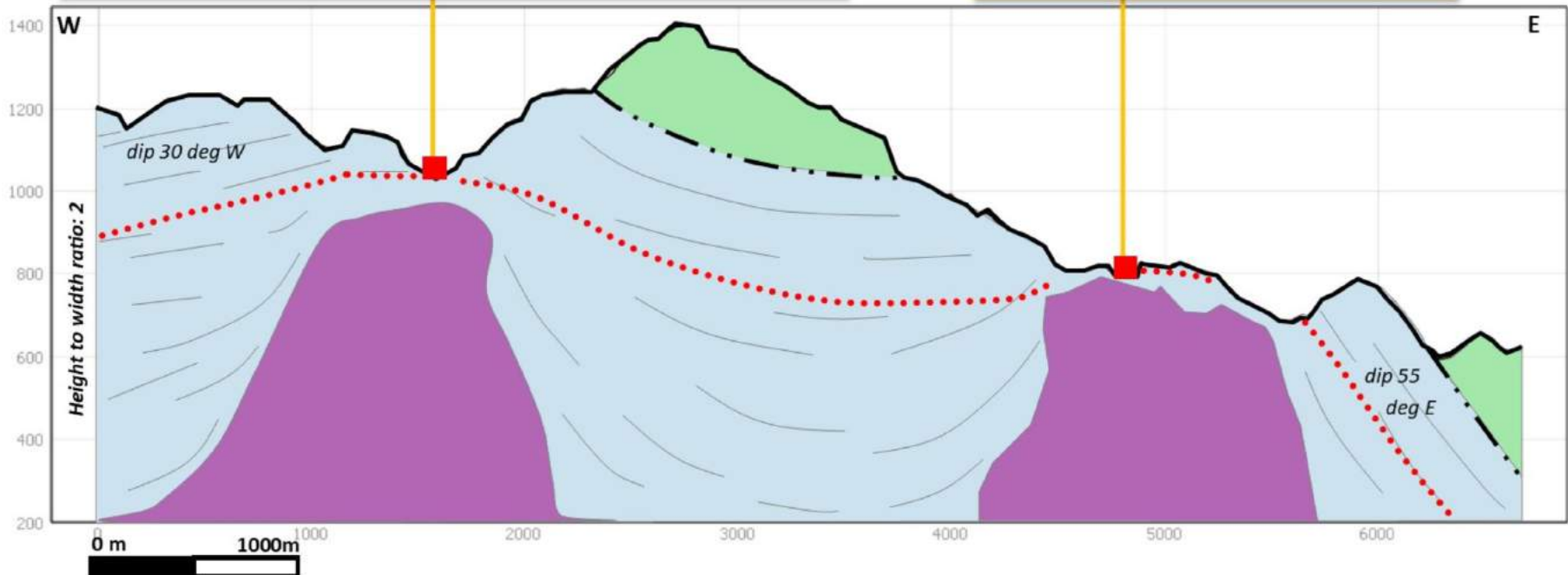
LEGEND

- Grupo Oriente Grey quartzitic sandstone with +/- bituminous carbon
- Sarayaquilla Red sandstone / siltstone / mudstone +/- organic carbon
- Pareni Salt Inferred salt intrusion

- Inferred red-bed hosted copper target
- Erosional unconformity

The samples are projected onto section from 2 km north and 3 km south.
 Six grab samples from boulders >0.1% Cu extending over 5 km geological strike.
Average: 4.2% Cu and 17 g/t Ag
 Max: 11.5% Cu and 28 g/t Ag
 Min: 0.8% Cu and 8 g/t Ag

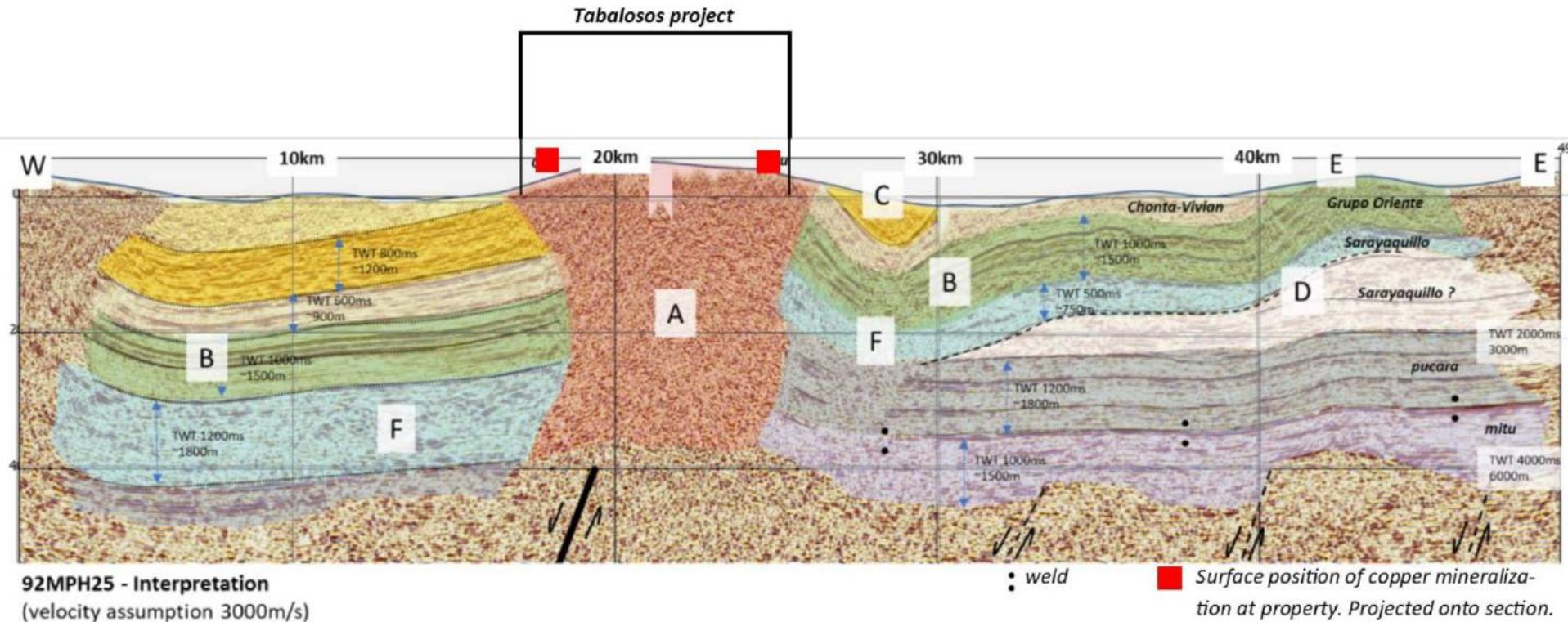
Three zones over 3.5km strike. 16 grab samples from boulders (>0.1% Cu).
Average: 2.7% Cu and 29g/t Ag
 Max 8.3% Cu and 109 g/t A
 Min: 0.1 % Cu and 0.23 g/t Ag



Tabalosos – Seismic Cross Section Looking North

Hannan holds US\$10's millions worth data – 2-year program by Mobil

One of world's most studied foreland basins (for oil and gas)



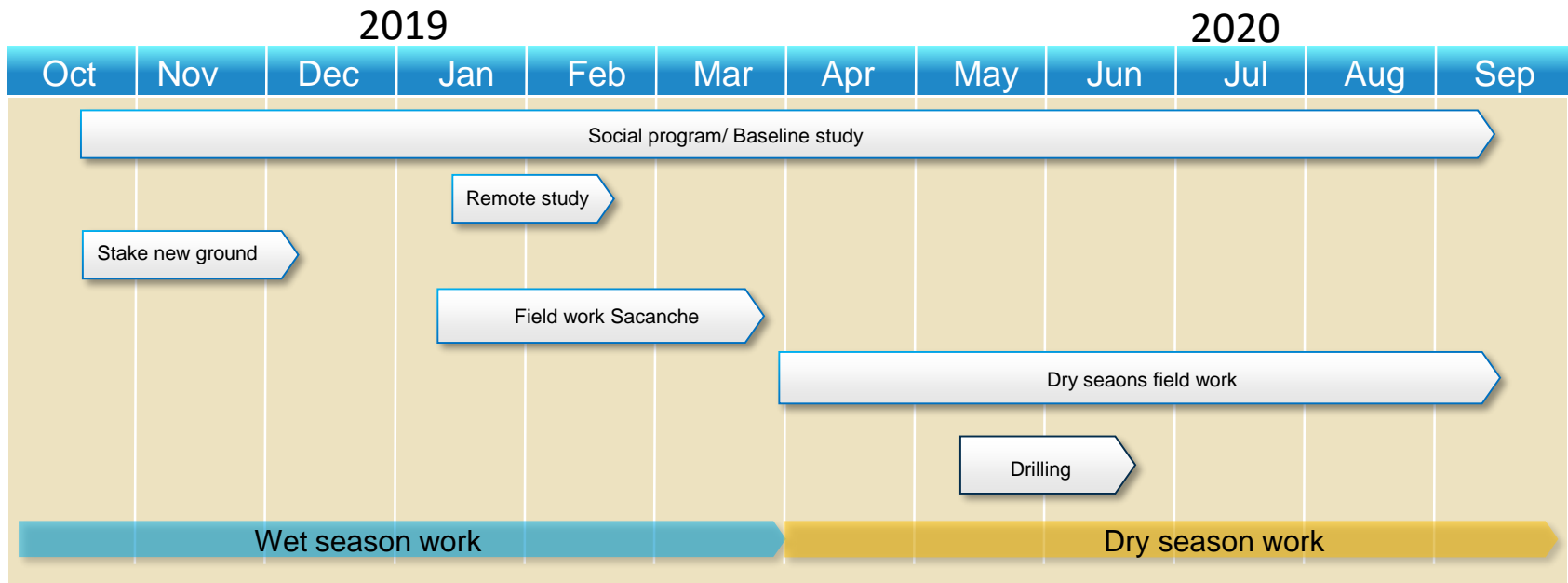
Proposed Annual Budget San Martin Project

November 2019 – October 2020

Exploration	CAD\$
<i>Geochemistry</i>	24,000
<i>Tenure</i>	160,000
<i>Remote Sensing Study</i>	50,000
<i>Drilling (800m) initial program</i>	160,000
<i>Peru Field Operations</i>	184,000
<i>Peru Social Program</i>	60,000
<i>Canada</i>	200,000
<i>Technical Staff</i>	200,000
Total	C\$1.0M

Timeline

- Continue to build basin scale project with further field work
- Social program
- Initial drill testing (800 drill metres)
- Soil surveys
- Remote sensing study



Corporate Structure



HAN
HANNF
INSIDERS: 33%
SHARES ON ISSUE: 52.7 M
FULLY DILUTED: 65.5 M
RECENT PRICE: C\$0.085 (18 Nov)
52 WK HIGH/LOW: \$0.045/0.16
MARKET CAP: C\$4.5 M
CASH: C\$0.2 M
ENTERPRISE VALUE: C\$4.3 M

Options

Expiring February 13, 2020	\$0.40	75,000	
Expiring May 12, 2020	\$0.45	65,000	
Expiring July 4, 2020	\$0.40	75,000	
Expiring July 21, 2020	\$0.30	100,000	
Expiring August 28, 2020	\$0.26	250,000	
Expiring November 9, 2020	\$0.28	50,000	
Expiring November 14, 2021	\$0.10	921,000	
Expiring November 15, 2021	\$0.10	120,000	
Expiring February 1, 2022	\$0.26	50,000	
Expiring September 4, 2023	\$0.13	500,000	2,206,000

Warrants

Expiring March 5, 2020	\$0.10	737,500	
Expiring April 24, 2021	\$0.15	2,102,500	
Expiring April 30, 2019	\$0.15	397,500	
Expiring July 6, 2021	\$0.25	7,390,900	10,628,400



Directors & Officers



Michael Hudson (Chairman & CEO): *B.Sc. (Hons), GDipAppFin, FAusIMM, MAIG*



Lars Dahlenborg (President): *MSc.*



David Henstridge (Director): *B.Sc. (Hons), FAusIMM, MAIG, MGSAust*



Georgina Carnegie (Director): *B.Com, AM Harvard*



Ciara Talbot (Director): *B.Sc. (Honours)*



Nick DeMare (Director): *CPA, CA*



Mariana Bermudez (Corporate Secretary)

Hannan is managed by a group with careers built in the exploration industry.

In recent years, the group has raised more than US\$100M for European and Peruvian exploration and development.

With a track record of success, and significant experience in gaining social licence to operate, Hannan is well placed for continued growth.

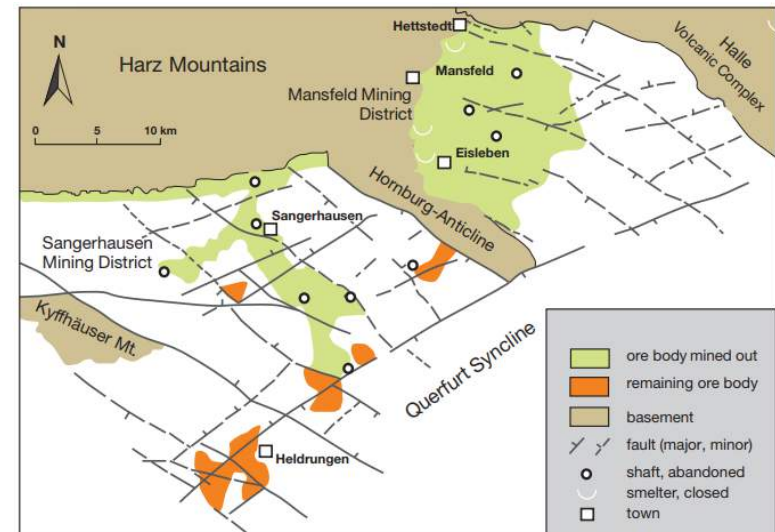
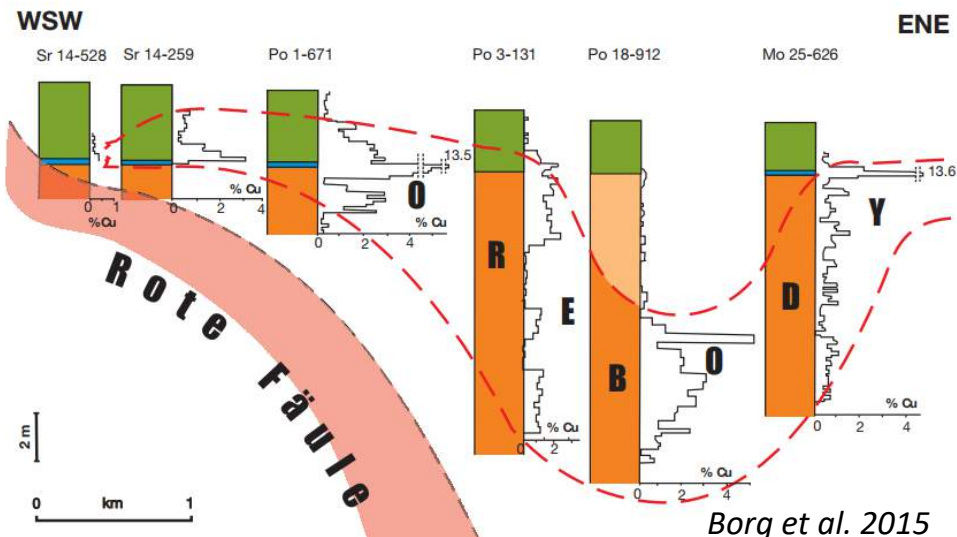
- Opening up new search spaces for base metals via grassroots discovery (Peru copper) and technology (Irish zinc seismics)
- Previously unexplored sediment-hosted high-grade copper-silver district identified in north-central Peru
- New zinc discovery - US\$30M sunk capital;
- Collecting data, making discoveries, creating value

Appendices

The Kupferschiefer of northern central Europe grades from:

- an Fe³⁺ zone (hematite),
- through a locally developed precious metal (Au, Pt, Pd) zone,
- an always redox-proximal Cu zone (chalcocite, bornite, chalcopyrite),
- a locally overlapping Pb and Zn zone,
- into a distal Fe²⁺ zone of preore, commonly framboidal or early diagenetic pyrite.

Orebodies can range in thickness from 0.3 metres up to more than 50 metres and occur at various stratigraphic levels



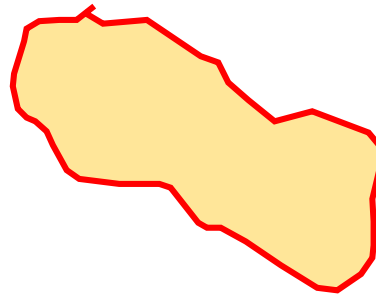
Cushabatay-hosted target style: Sandstone-type Copper Deposits

Troy mine: 2,500 by 540 m in area and 15 to 30 m in thickness. However, over about 90 percent of the area of the orebody, the thickness was consistent at 21 to 23 m

Udokan: occupies a zone 10 km by 2.5 km that contains multiple ore lenses as large as 3 km long, 700 m wide, and several tens of meters thick



Spar Lake deposit



Udokan JORC compliant resources:

Measured resource - 344 Mt @ 1.03% Cu, 8.9 g/t Ag;
 Indicated resource - 1507 Mt @ 1.01% Cu, 11.1 g/t Ag;
 Inferred resource - 947 Mt @ 0.89% Cu, 14.3 g/t Ag;
 TOTAL resource - 2.798 Gt @ 0.97% Cu, 11.9 g/t Ag;

Spar Lake, Rock creek and Rock Lake, US
 Pre-erosion these deposits are estimated to represent >500Mt Cu-Ag deposit.

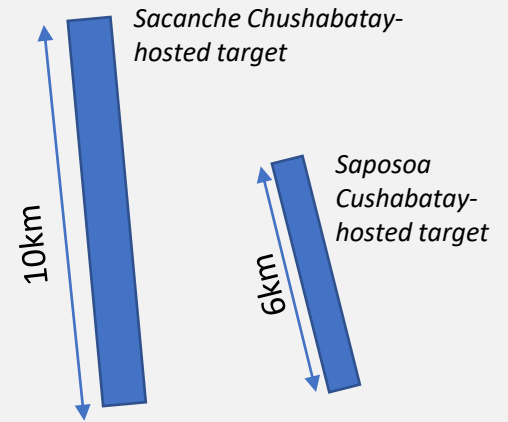
Spar Lake: pre-mining geological reserve:
 58Mt@ 54g/t Ag
Rock creek:
 123.4Mt/ 57.2 gtAg

10km



all three deposits/targets are shown at the same scale

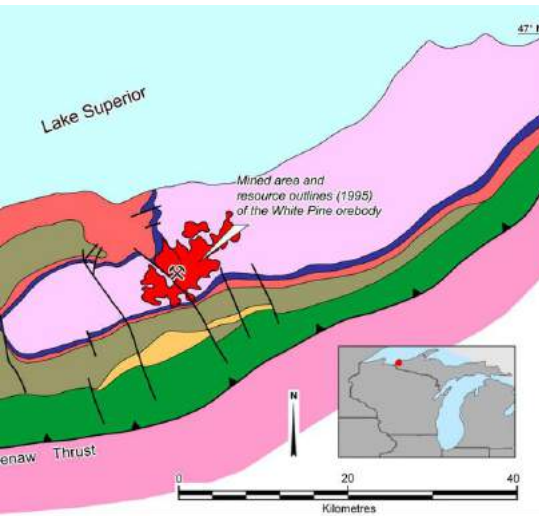
Hannan's Sacanche claim:



A strong start from initial field work

Sarayaquillo-hosted target style: Reduced-facies type copper

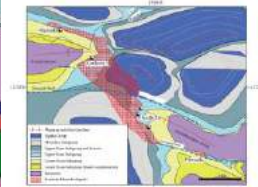
White pine deposit



Contained
1.8M metric tons @ ~1.1% Cu

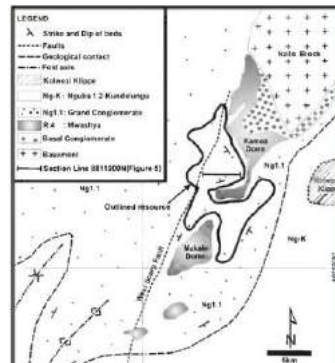
Central African Copper Belt

Konkola deposit



Contained
26.8Mt @ 3% Cu

Kamoa deposit



Contained
21.8Mt @ 2.69% Cu

Tabalosos North Target



High grade boulders have been found in an area of 6x5km. 20 boulder assays pending. Average grade 2.8% Cu and 27.2 g/t Ag.

Mineralized boulders and outcrops show system extends to the south (as far as 80 kilometres to Sacanche).



all three deposits/targets are shown at the same scale

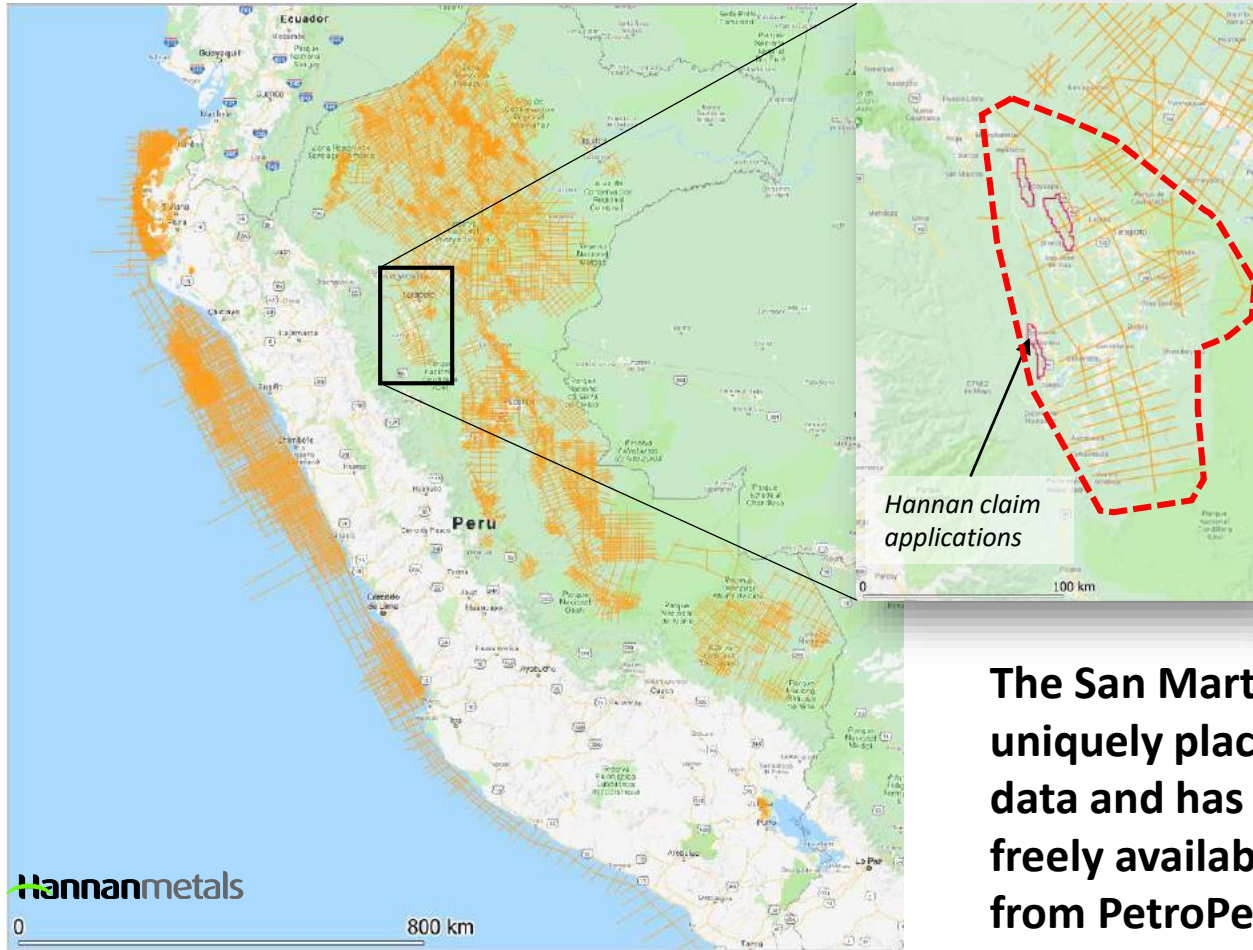
The San Martin Project/Huallaga Basin has all the hallmarks of a major copper producing basin

To form significant deposits (after Hitzman):

San Martin, Peru

Stratigraphic Sequence	<p><i>highly oxidized metal source beds (red beds)</i></p> <p><i>incl: mafic or bimodal volcanic source rocks?</i></p> <p>highly reduced facies to serve as metal traps</p> <p><i>large amounts of contained reductant; in situ organic matter or hydrocarbons that have migrated within the basin</i></p> <p>Evaporites with significant thickness</p> <p><i>saline brines capable of leaching and carrying metals</i></p> <p><i>regional aquiclude, or seal, within the basin stratigraphy and allowing for the possibility of establishing a longlasting intrabasinal fluid reservoir</i></p>	<p><i>yes Mitu rift sequence</i></p> <p><i>yes, several, from Triassic to Cretaceous age.</i></p> <p>yes Pareni salt</p>
Basin Architecture	<p>Rift basin/intracratonic basins</p> <p><i>basin architecture was relatively hydrologically closed</i></p> <p>Basins of giants were relatively tectonically quiescent for long periods (100my)</p>	<p>yes,</p> <p>yes</p> <p>yes</p>
Host rock age	<p>Post archean</p>	<p>yes</p>
Mineralization ages	<p>early diagenesis to times of basin inversion and metamorphism</p> <p>Larger deposits early to late diagenesis?</p>	<p>not known</p> <p>not known</p>
Smoke	<p>postpeak-metamorphic Cu-Mo-U mineralization</p> <p>Uraninite, a phase intimately associated with, but commonly postdating, stratiform copper mineralization</p>	<p>not known</p> <p>not known</p>
Unique Attributes of the Permian and Neoproterozoic	<p>the lengthy time span of mineralization 100myr</p> <p>Evaporites are a key feature of the basins hosting supergiant deposits</p> <p>major glacial events occurred affecting Seawater chemistry</p> <p>quiescent for long periods</p>	<p>not known</p> <p>yes, Pareni Salt Formation</p> <p>yes, the basin probably similar age as Zechstein in Poland.</p> <p>yes probably</p>

Seismic data has been a key driver to develop an updated geological framework at San Martin project



San Martin project area

Hannan claim applications

The San Martin Project is uniquely placed with this data and has been made freely available to Hannan from PetroPeru.

Seismic coverage:

- 2,235 km of 2D seismic at Huallaga basin
- Shot between 1990-92
- One well (Ponasillo, depth 2700m, dry)

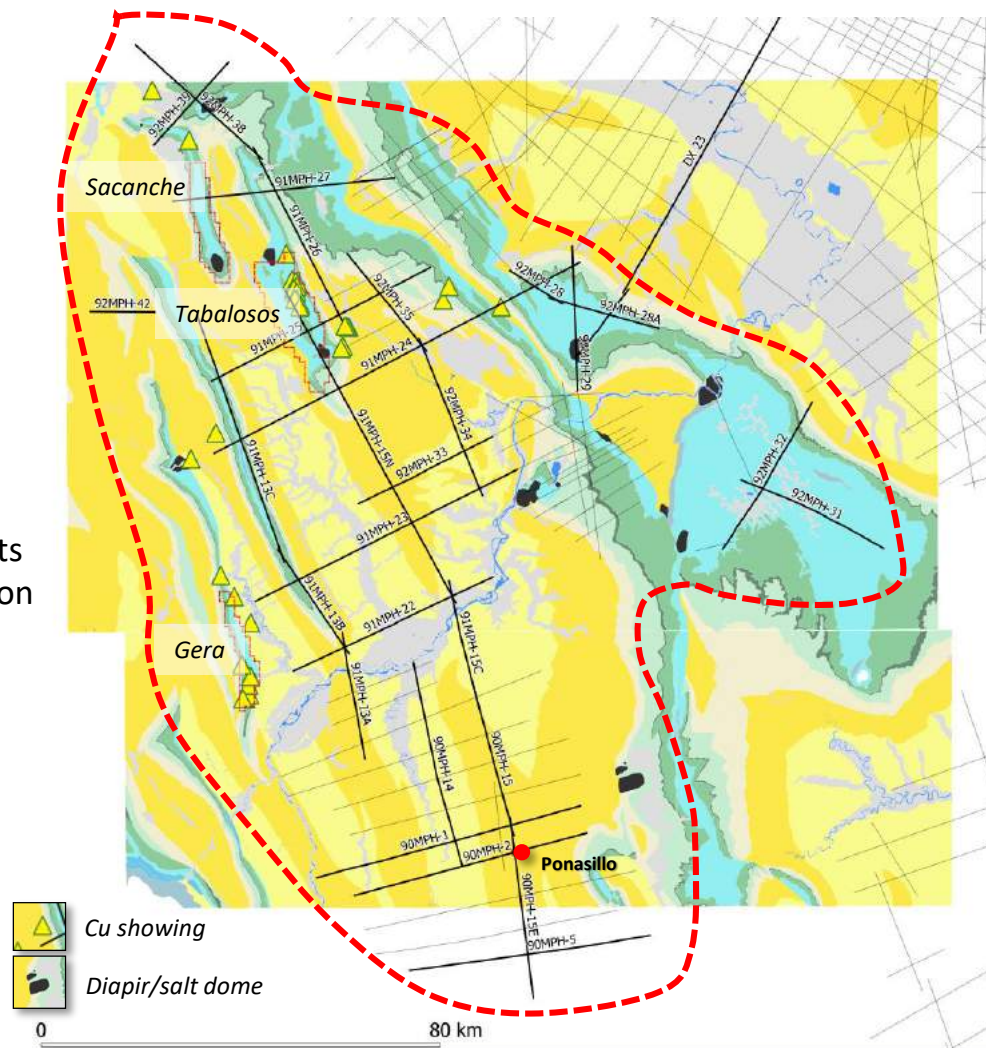
- Dark lines reviewed

Data quality

- Overall data quality is variable, longer lines >40km crosscutting the geological trends usually image events well and to significant depth 9000m (need confirmation if data is in time or depth domain)

Processing

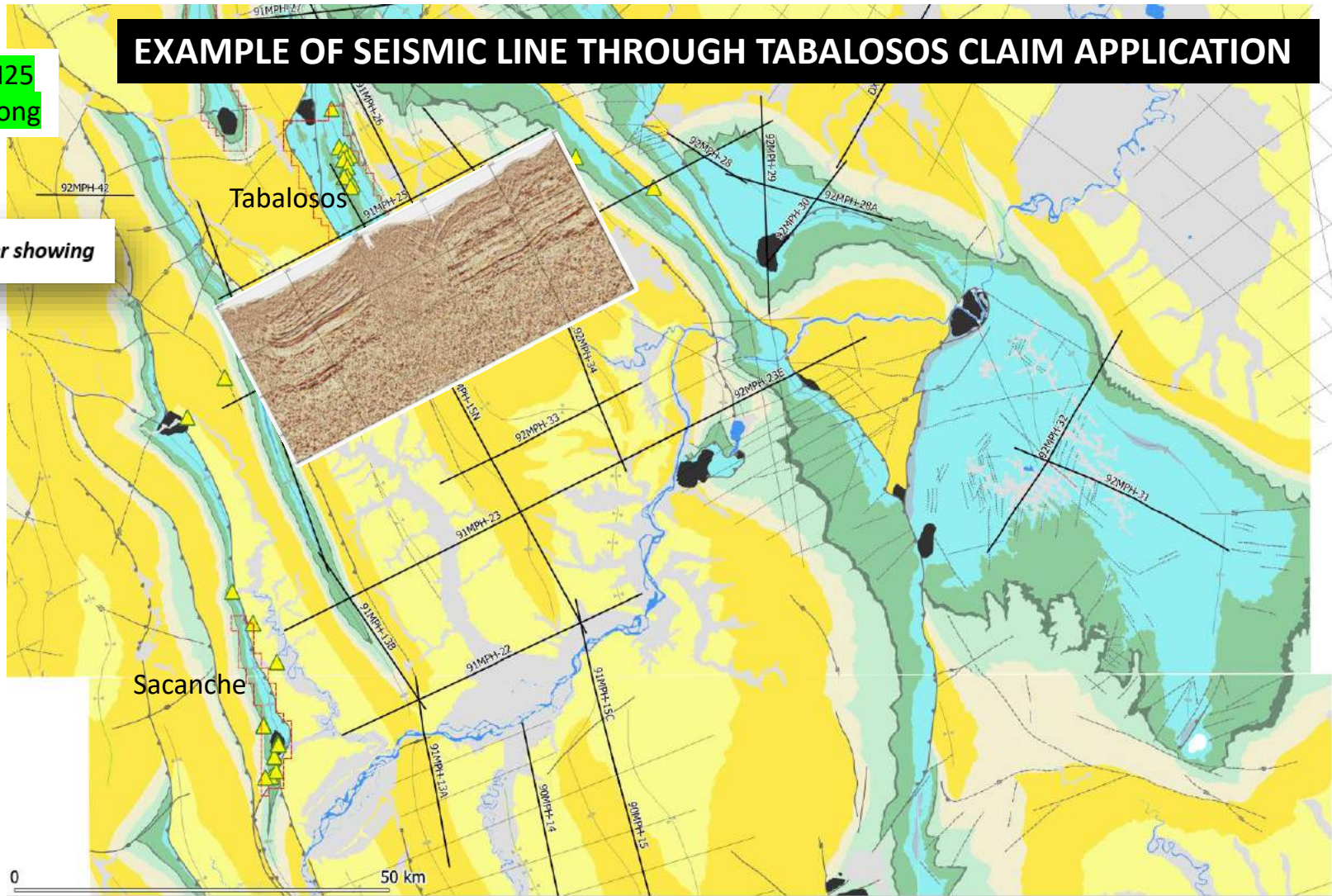
- Unknown at this stage

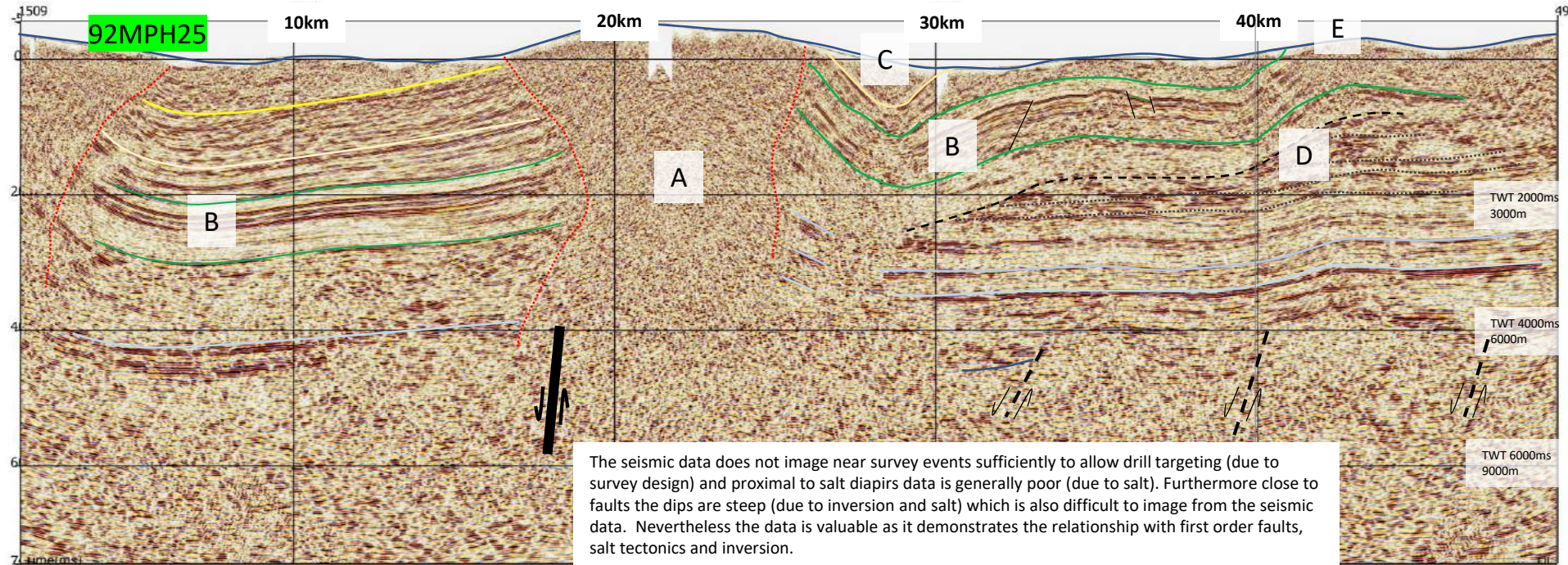


EXAMPLE OF SEISMIC LINE THROUGH TABALOSOS CLAIM APPLICATION

92MPH25
50km long

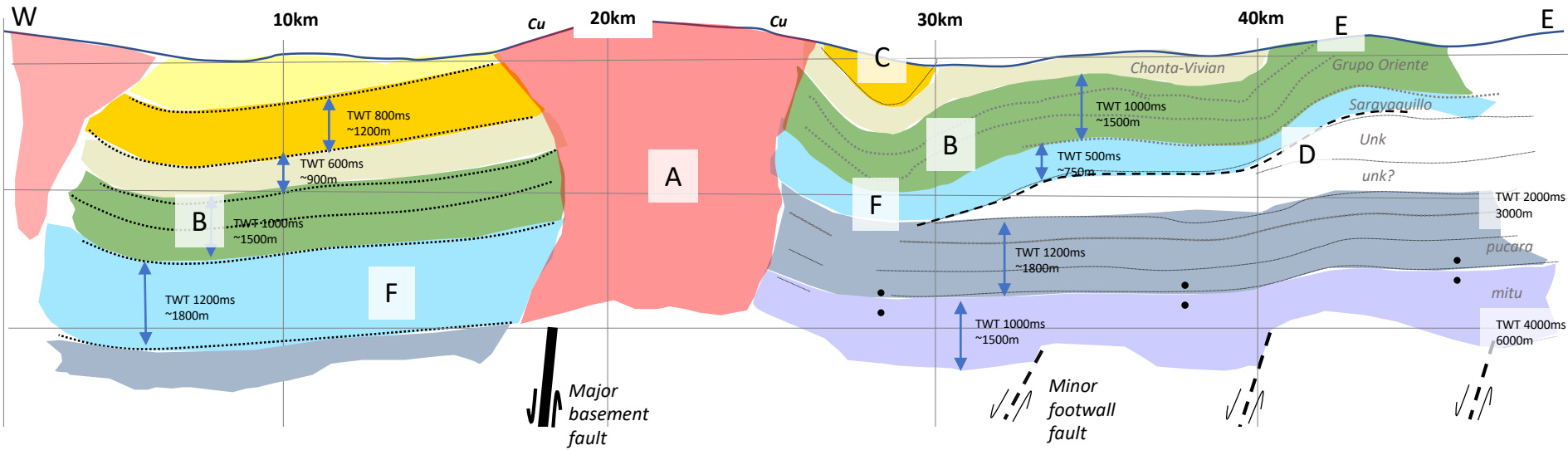
▲ Copper showing





Velocity assumption 3000m/s

- A. A salt diapir in central part of line, correlates with the Alto Mayo cordillera and mapped salt domes by Ingemmet.
- B. Stratigraphy is inferred from the surface geology and the Grupo Oriente which is a good marker unit.
- C. Compression and folding related to salt inflation
- D. Unconformity marked by package of stronger reflectors at the base of Sarayaquillo Formation.
- E. Inversion related bulge (Andean inversion)
- F. Inferred thickness of Sarayaquillo; compare HW and FW of basin fault. FW is much narrower. This is analogous to the Waulsortian thickness variations in Ireland.



92MPH25 - Interpretation

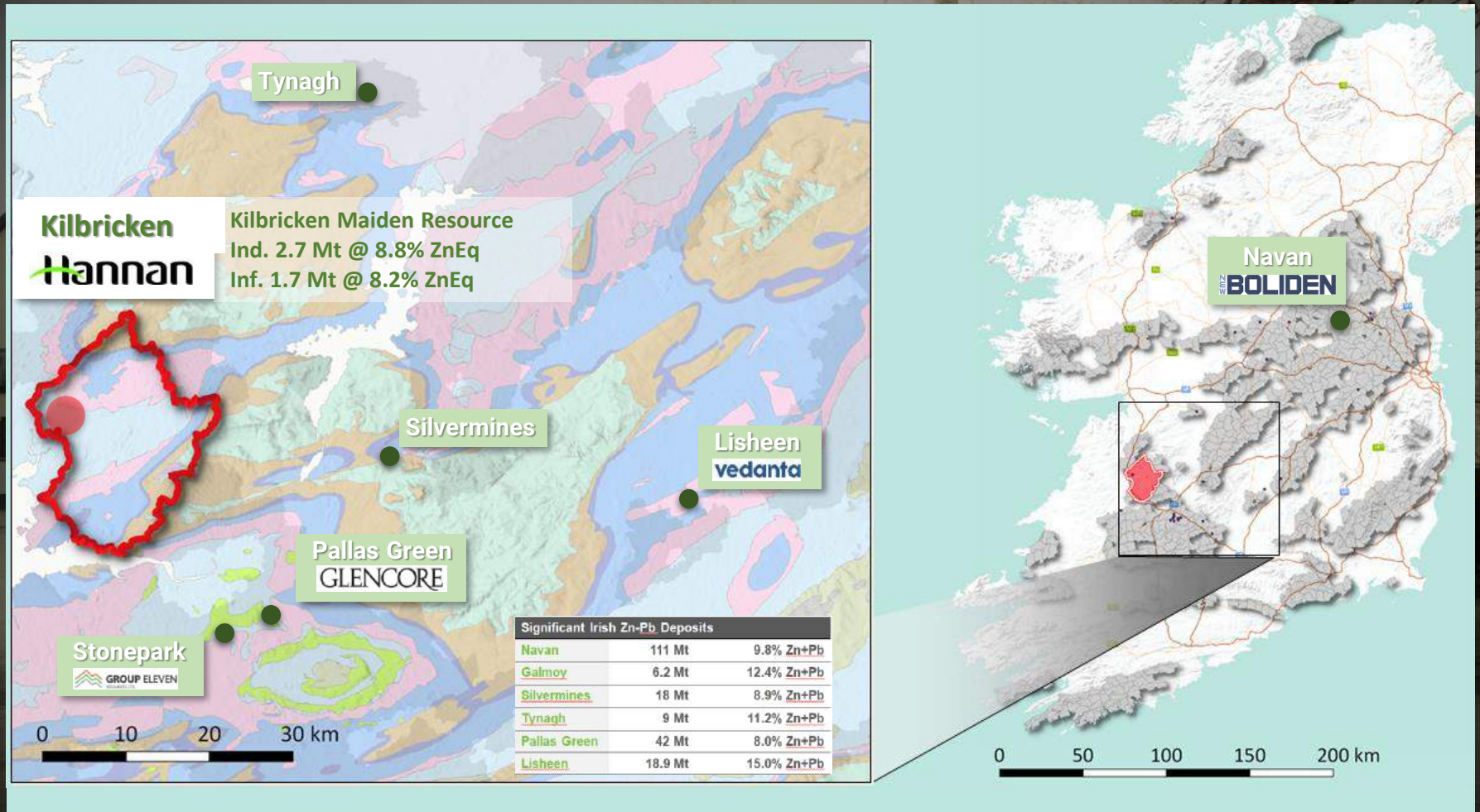
(velocity assumption 3000m/s)

Basement fault controls emplacement of salt diapir. Thickness variation of Sarayaquillo between HW and FW of basin fault. No constrains on timing of salt inflation. Minor evidence of young compressional inversion marked by “E” at 43km.

Velocity assumption 3000m/s

- A. Clear salt diapir in central part of line, correlates with the Alto Mayo cordillera and mapped salt domes.
- B. Stratigraphy is inferred from the surface geology and the Grupo Oriente which is a good marker unit.
- C. Compression and folding related to salt inflation
- D. Unconformity marked by package of stronger reflectors at the base of Sarayaquillo Formation.
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- F. Inferred thickness of Sarayaquillo; compare HW and FW of basin fault. FW is much narrower.

Clare Project– Carbonate Hosted Zn-Pb-Ag

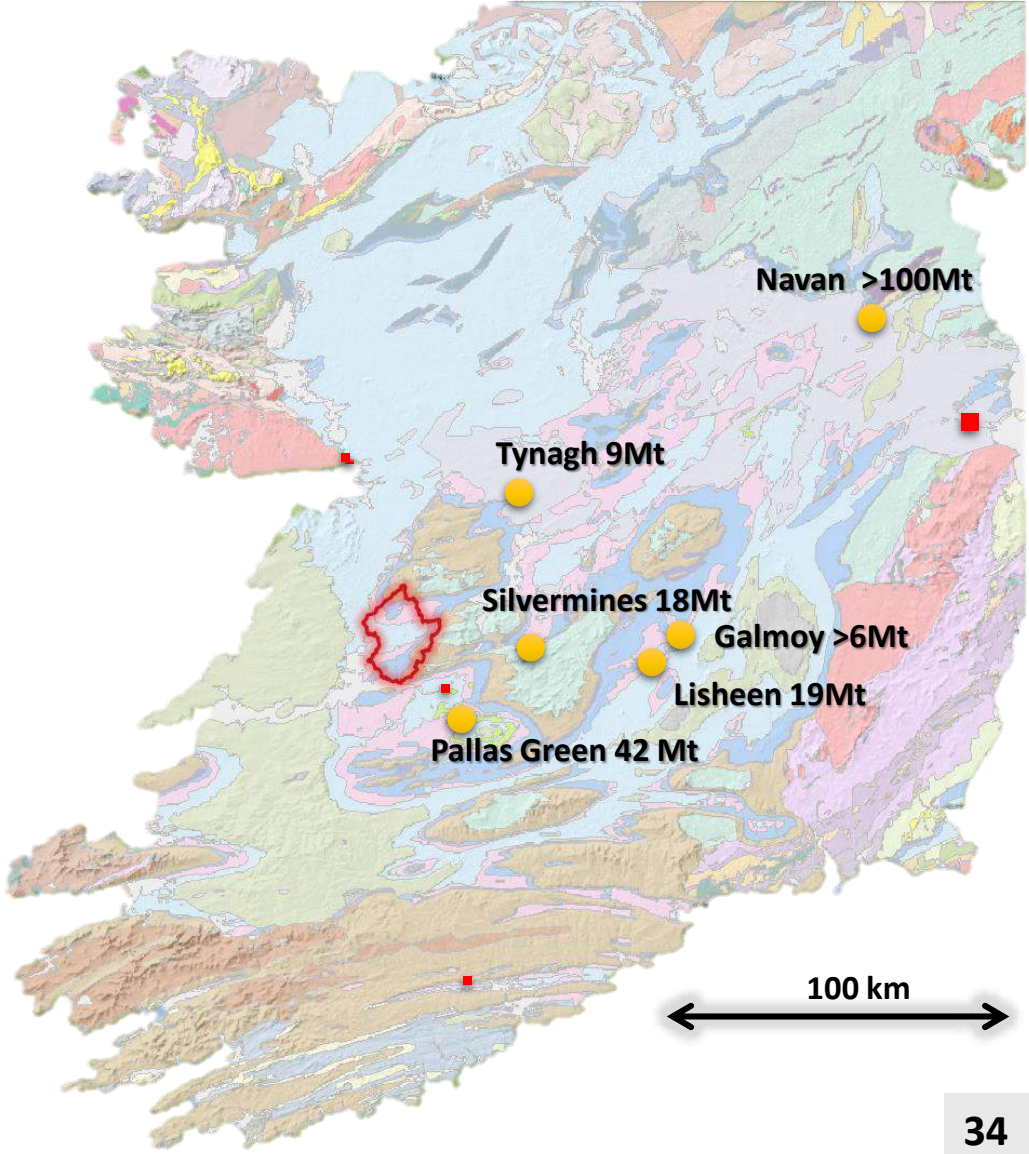


Within 80km diameter SW Ireland contains >100Mt >10% Zn+Pb

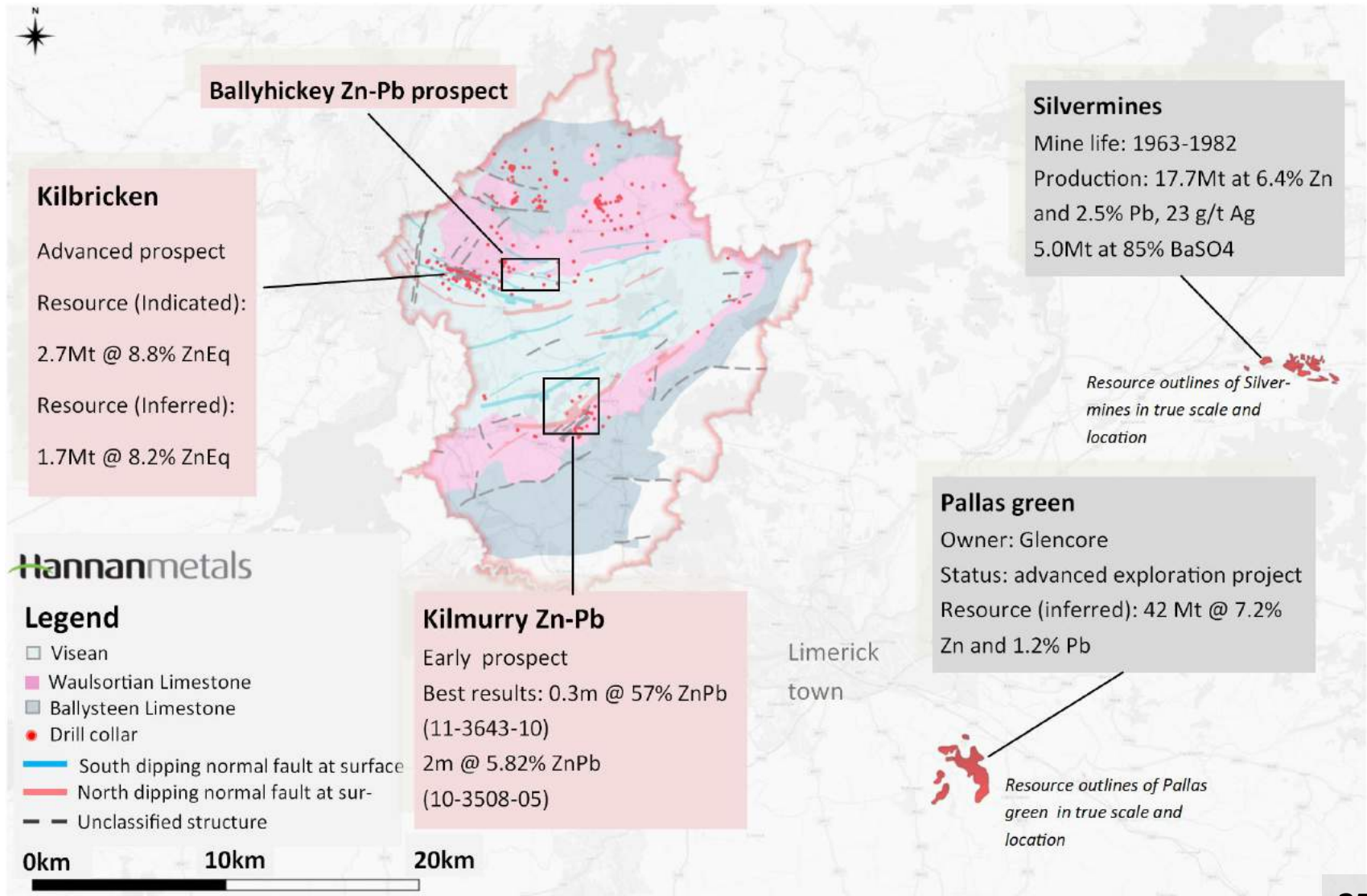
Clare Project– carbonate hosted Zn-Pb-Ag-Cu

TSXV : HAN

- Ireland – the home of zinc mining
- 350 km² exploration block
- One of the most mineralized blocks of ground in Ireland and has been assembled since the late 1980's
- Seen close to US\$30M of investment from Hannan and earlier exploration companies.
- Targeting Waulsortian hosted Zn-Pb-Ag carbonate replacement deposits
- Flagship prospect 100% owned Kilbricken Zn-Pb-Ag maiden resource.
 - 2.7 million tonnes at 8.8% ZnEq indicated
 - 1.7 million tonnes at 8.2% ZnEq inferred
- > 85 km² Waulsortian subcropping in license block and >100km² blind target.

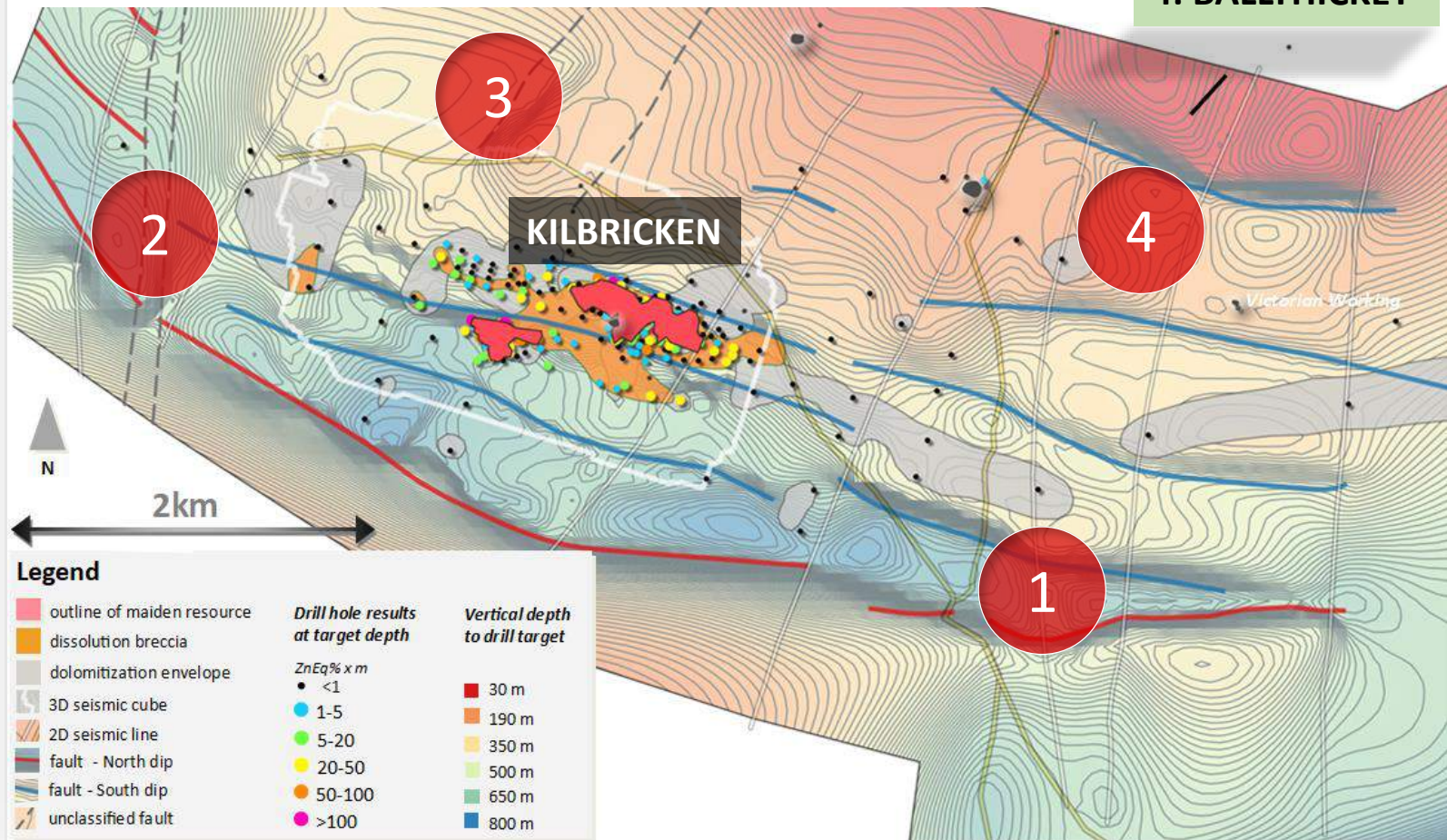


Clare Project– carbonate hosted Zn-Pb-Ag

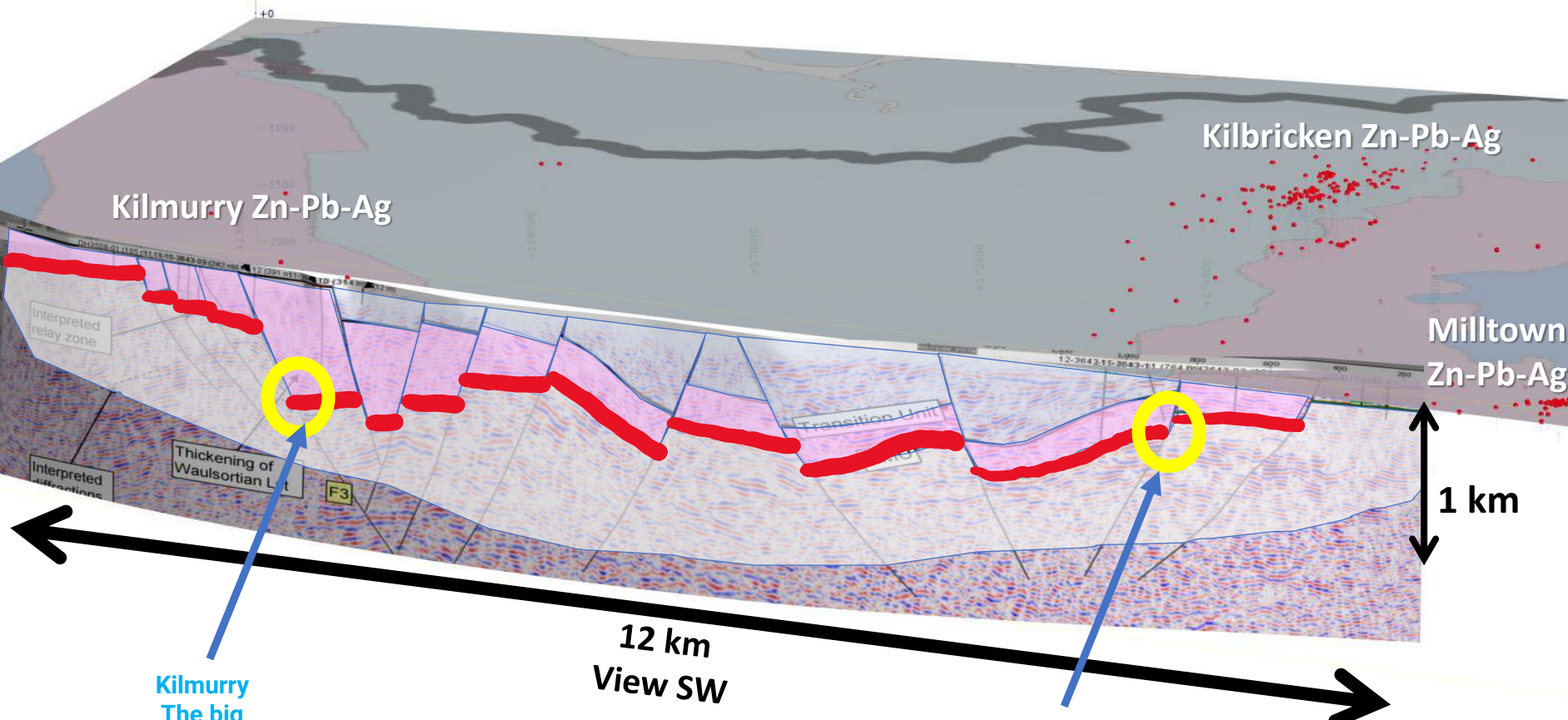


Kilbricken Resource Expansion Targets

- 1:QUIN
- 2:DOORA
- 3:FINNANAGH
- 4: BALLYHICKEY



Clare Project- carbonate hosted Zn-Pb-Ag-Cu



Kilmurry
The big one?

Kilbricken
2.7 million tonnes at 8.8% ZnEq indicated
1.7 million tonnes at 8.2% ZnEq inferred



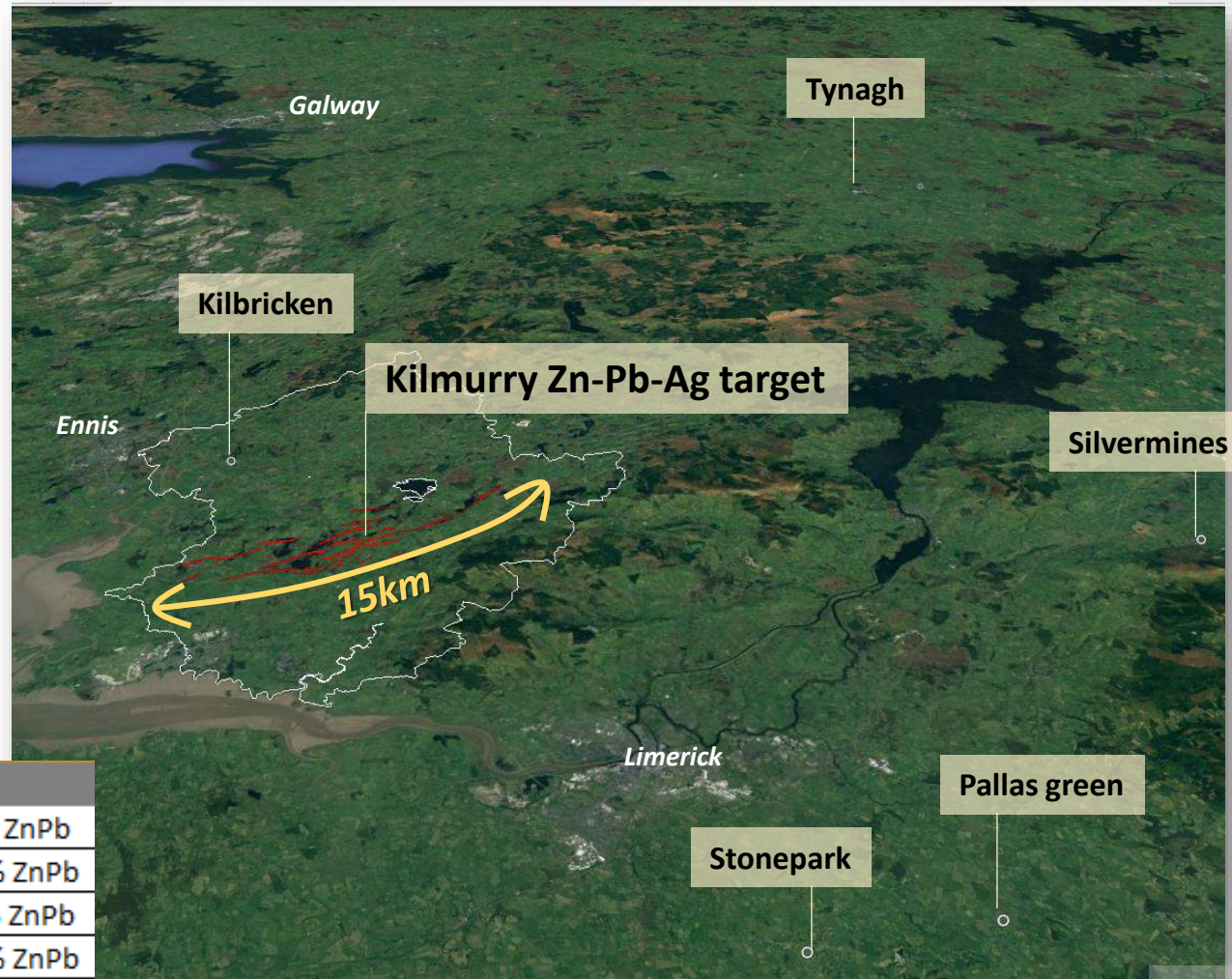
> 85 km² Base of Waulsortian reef subcropping in license block and >100km² blind target

The Kilmurry Zn-Pb-Ag target

Syn-sedimentary fault system with >650m fault offset

Target depth <800m

Drill target defined over 6km of strike



Significant Irish Zn-Pb Deposits		
Pallas green	44.2Mt	8.4% ZnPb
Stonepark	5.1Mt	11.3% ZnPb
Silvermines	18Mt	8.9 % ZnPb
Tynagh	9Mt	11.2% ZnPb

The Kilmurry Zn-Pb-Ag target

6km

Drill ready targets >6km strike

11-3643-10 – A key drillhole

- ✓ Hydrothermal hematite alteration in ABL unit
- ✓ 0.3m @57% ZnPb from 166m structurally hosted massive sulphide
- ✓ 65m of pervasive calcite-dolomite alteration of the Waulsortian limestone

019-08: 40cm of massive py
11-3643-18: 4m @ 0.72% ZnPn from 183m

10-3508-04: 8.5m @ 2.1% ZnPn
from 43m incl 2m @ 5.14% ZnPb
10-3508-05: 5m @ 2.97% ZnPb
from 55m incl 2m @ 5.82 % ZnPb

Drill holes with dissolution or dolomitization alteration.

- 1: Max off-set target
- 2: Amplitude target
- 3: Relay target
- 4: Relay target

Kilmurry vs Lisheen

6km

Drill ready targets >6km strike

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Lisheen

World's 12th largest zinc deposit

- 1: Max off-set target
- 2: Amplitude target
- 3: Relay target
- 4: Relay target

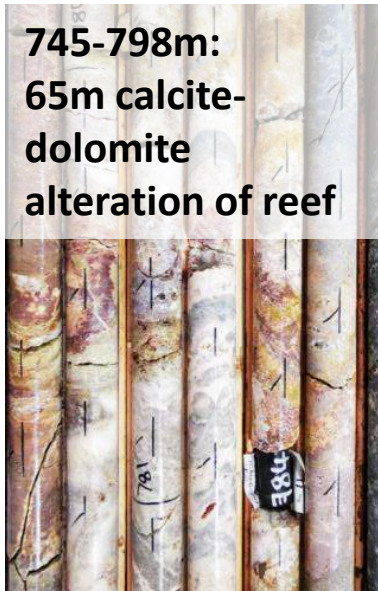
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Drill holes with dissolution or dolomitization alteration.

The Kilmurry target- context

745-798m:
65m calcite-
dolomite
alteration of reef



745-798m:
Gossanous patches
after pyrite



745-798m:
Calcite
replacing barite



800-806m:
Hematite
alteration of
ALB

