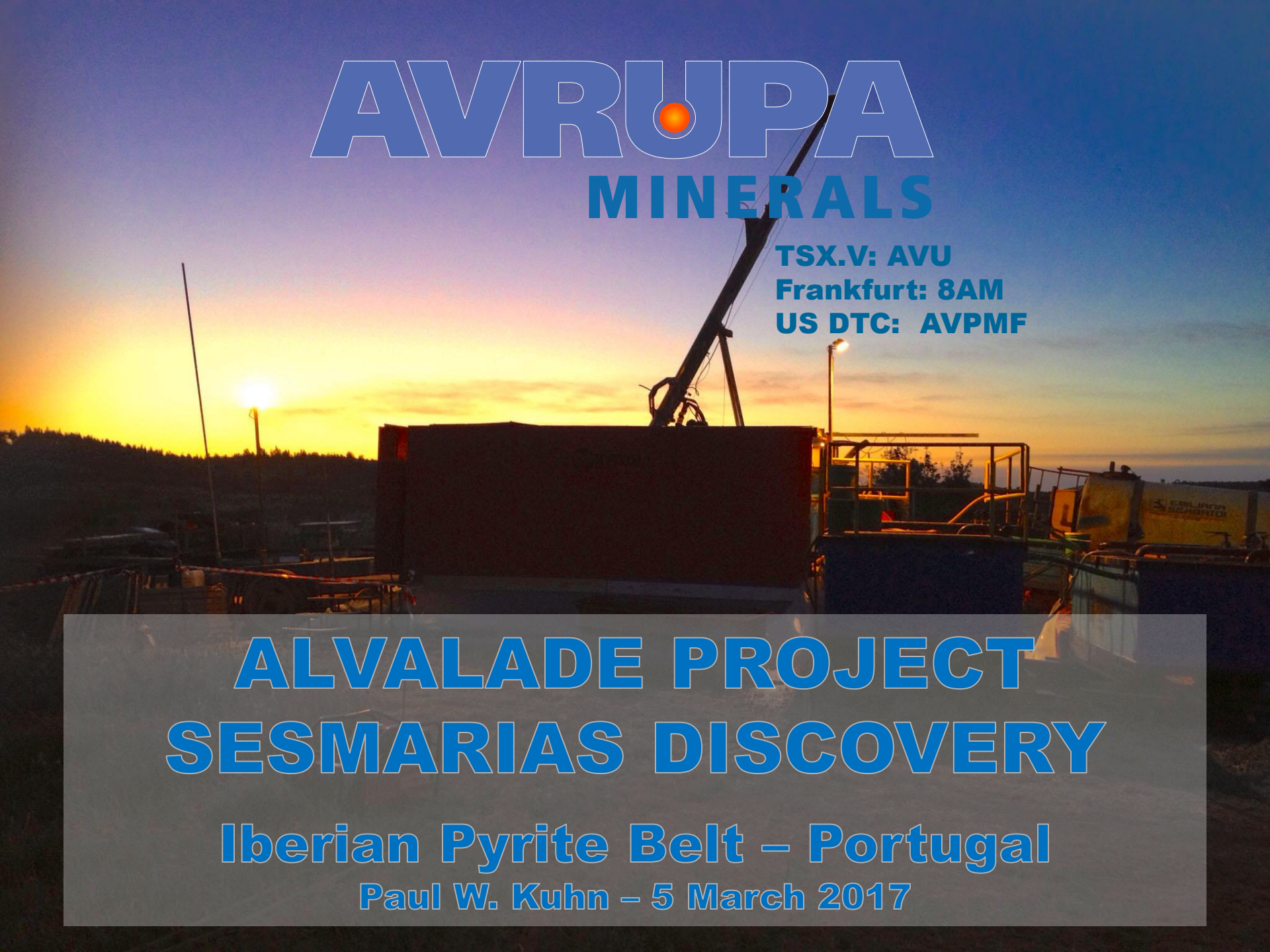

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ALVALADE PROJECT
SESMARIAS DISCOVERY

Iberian Pyrite Belt – Portugal

Paul W. Kuhn – 5 March 2017

Forward Looking Statements

Some of the statements contained in this presentation are forward-looking statements. Forward-looking statements are not historical facts and are subject to a number of risks and uncertainties beyond the Company's control, including, but not exclusively, statements regarding potential mineralization, exploration results, completion of work program and studies, and future plans and objectives of the Company. Resource exploration, development and operations are highly speculative, characterized by a number of significant risks, which even a combination of careful evaluation, experience and knowledge may not eliminate, including, among other things, unprofitable efforts resulting not only from the failure to discover mineral resources but from finding mineral deposits which, though present, are insufficient in quantity and quality to return a profit from production. This presentation does not constitute an offer of the securities described herein.

Qualified Person: Mr. Paul W. Kuhn, M.S., C.P.G., has acted as the qualified person as defined in National Instrument 43-101 for this disclosure and supervised the preparation of the technical information in this release.

Acknowledgements

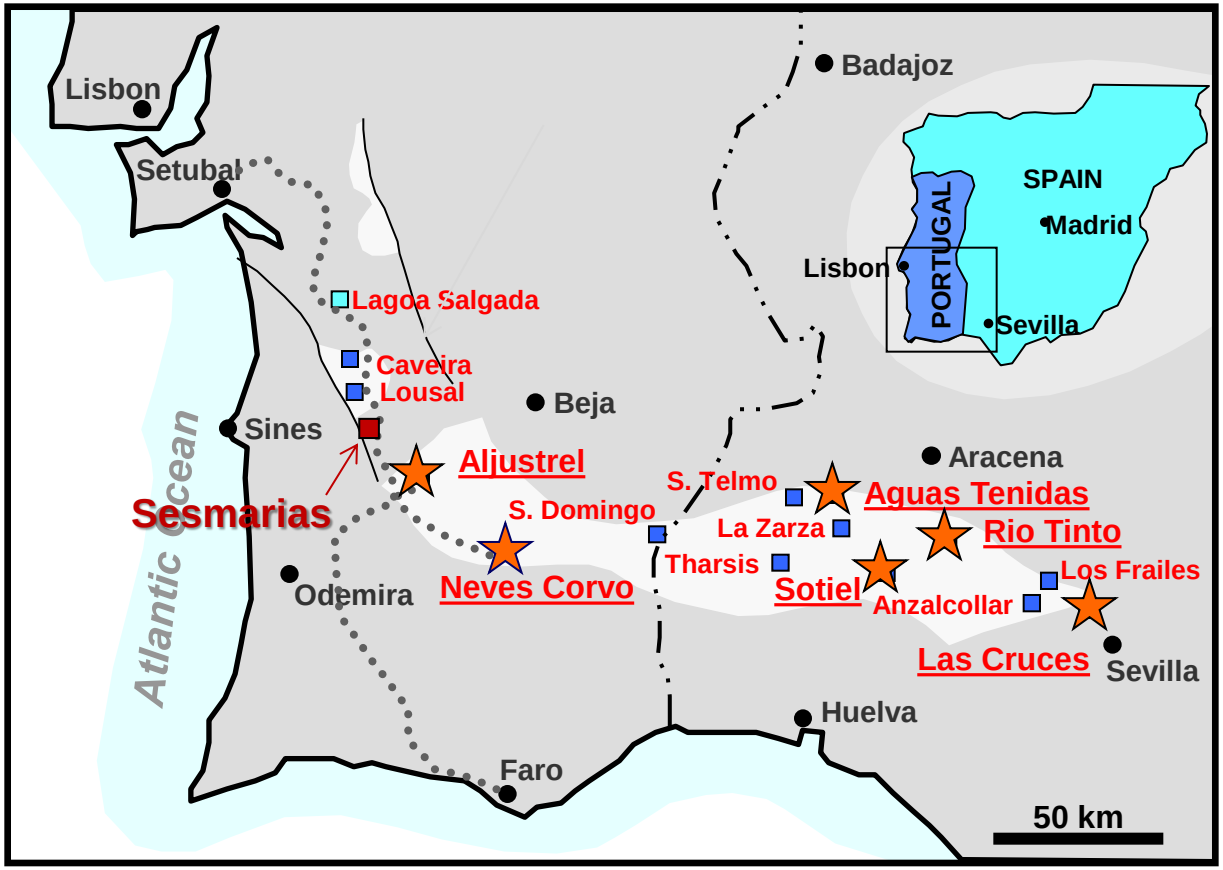
Exploration Team

- Bryan MacFarlane and Dave Coller, exploration structural geologists
- Dick Sillitoe (geology) and Brian Williams (geophysics), Antofagasta consultants
- Bob Earhart (geology) and Ozcan Yiğit (geochemistry), Avrupa/MAEPA consultants
- MAEPA management: Adriano Barros and Paul Kuhn
- MAEPA staff geologists and geotechs: Joana Fragoso, Ana Fernandes, Carlos Cunha, Filipe Malainho, Vitor Boucos, Paulo Caessa, Jeff Geier, Hugo Caessa, Antonio Gomes
- Antofagasta geological management: John Clifford, Pepe Perello, Humberto Brockway, Sonia Vila
- Colt Resources geological management: Luis Martins and Jorge Valente
- LNEG, João Matos provided access to historic Alvalade core

Project Financial Support

- Avrupa Minerals Ltd.
- Antofagasta Minerals SA
- Colt Resources

Pyrite Belt – Mines and deposits



Producing Mine

Past Producer

Known Deposit

Iberian Pyrite Belt

Rail Line

- **Las Cruces** produced 70,029 tonnes of copper in 2015
- **Aguas Tenidas** produced 3.6 million tonnes of copper-zinc-lead-silver ore in 2015. Opened new **Magdalena Mine** and re-opened old **Sotiel Mine**.
- **Neves Corvo** produced 117,752 tonnes of copper and zinc in 2015
- **Aljustrel** produced 28,000 tonnes of copper in 2016.
- The historic **Rio Tinto Mine** re-opened in 2015.

Remember: more than 85 known deposits and ~2 billion metric tonnes of contained metal sulfides

Pyrite Belt – Alvalade

License/Project

- 3 licenses acquired by Avrupa/MAEPA during 2008 – 2011 time period
- Licenses amalgamated in 2013 and valid through end of 2018
- First work on licenses by Avrupa/MAEPA in 2011
- Antofagasta JV December 2011 through early 2015
- Colt Resources purchases Antofagasta portion September 2015
- Project on care and maintenance from February 2016 to present
- Reviewing new funding possibilities in early 2017

Project Financial Support

- Avrupa Minerals Ltd. -- € 270,000
- Antofagasta Minerals SA – US$ 6.5 million
- Colt Resources -- € 972,000 credited to date

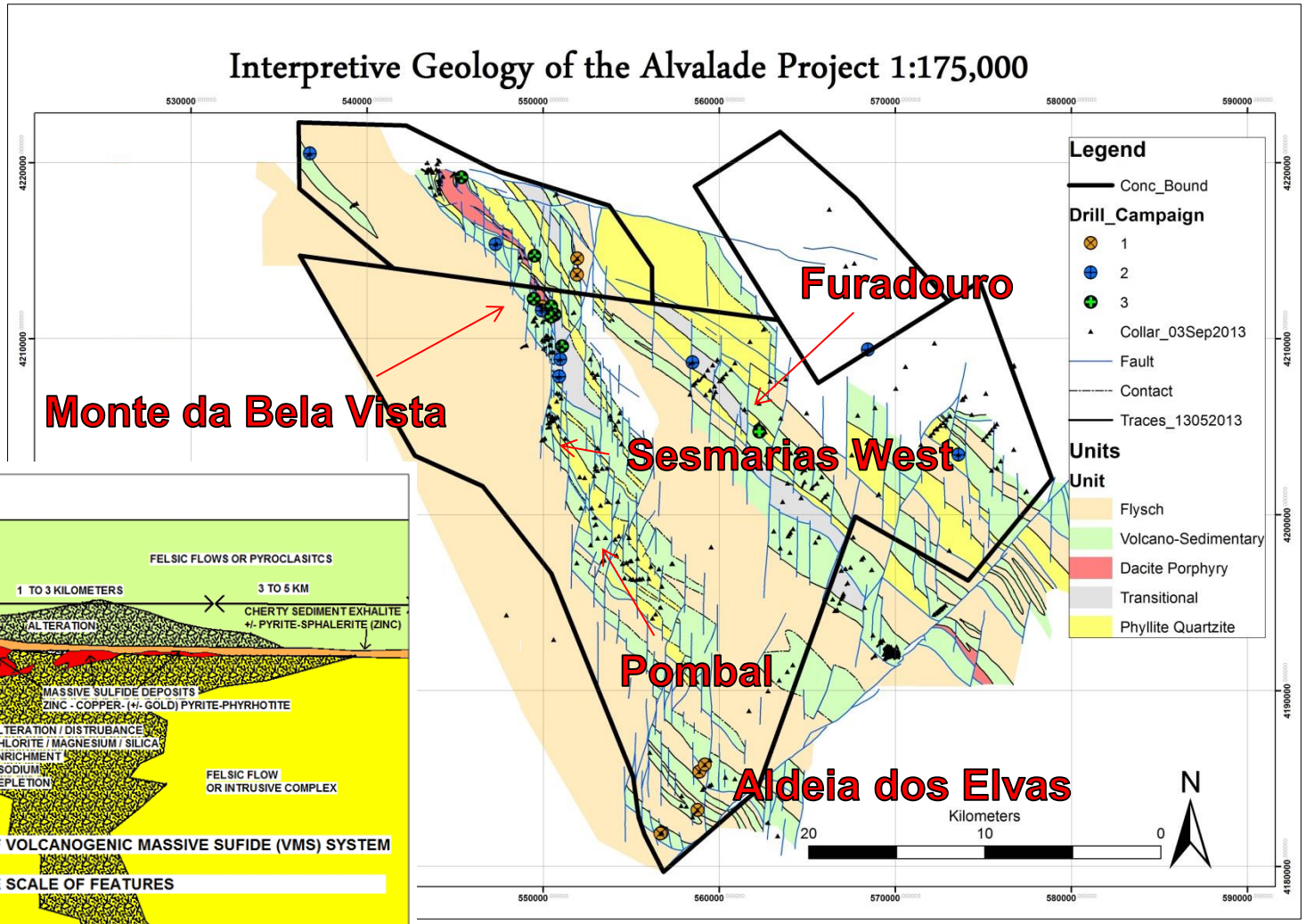
Pyrite Belt – Alvalade

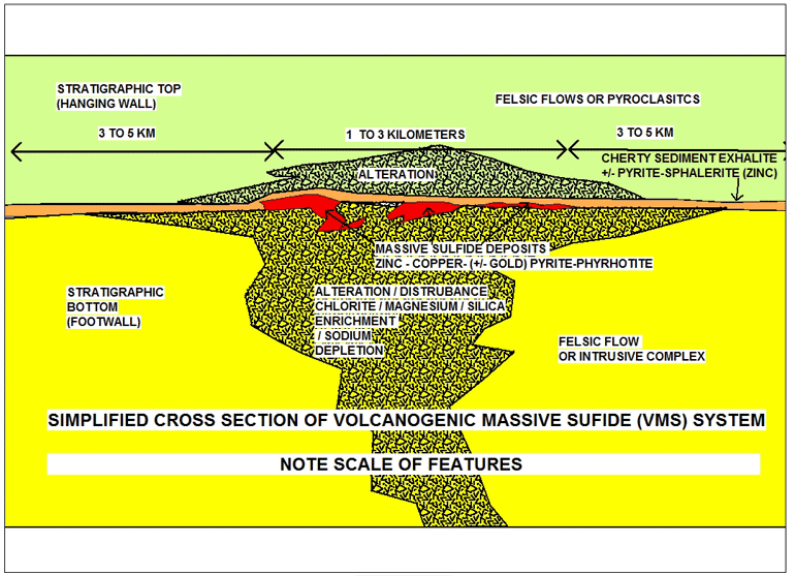
What we've done at Alvalade

- **Came up with a new geological model to drive exploration**
- Re-logged +50,000 meters of available core and collected close to 6,000 samples of all types
- Compiled, reviewed, re-processed, and re-interpreted regional gravity and magnetics data, geochemical data
- Re-mapped all available outcrops on and adjacent to the license block and re-designed the structural interpretation of the region in order to put it all back together
- Visited most operating mines in IPB, numerous former operations and prospects
- To date, in 6 phases, drilled 54 holes and 21,120.7 meters, «the other way»
- **Discovered a potential new massive sulfide system at Sesmarias West and four new massive sulfide targets in the Sesmarias District;**
- **New targets at Pombal, located 15 km to the south of the Sesmarias area;**
- **Discovered stockwork mineralization zone at Monte da Bela Vista, located 10 km north of the Sesmarias area – several targets undrilled**

Pyrite Belt – Alvalade

Basement geo interpretation at the end of the 3rd phase of drilling





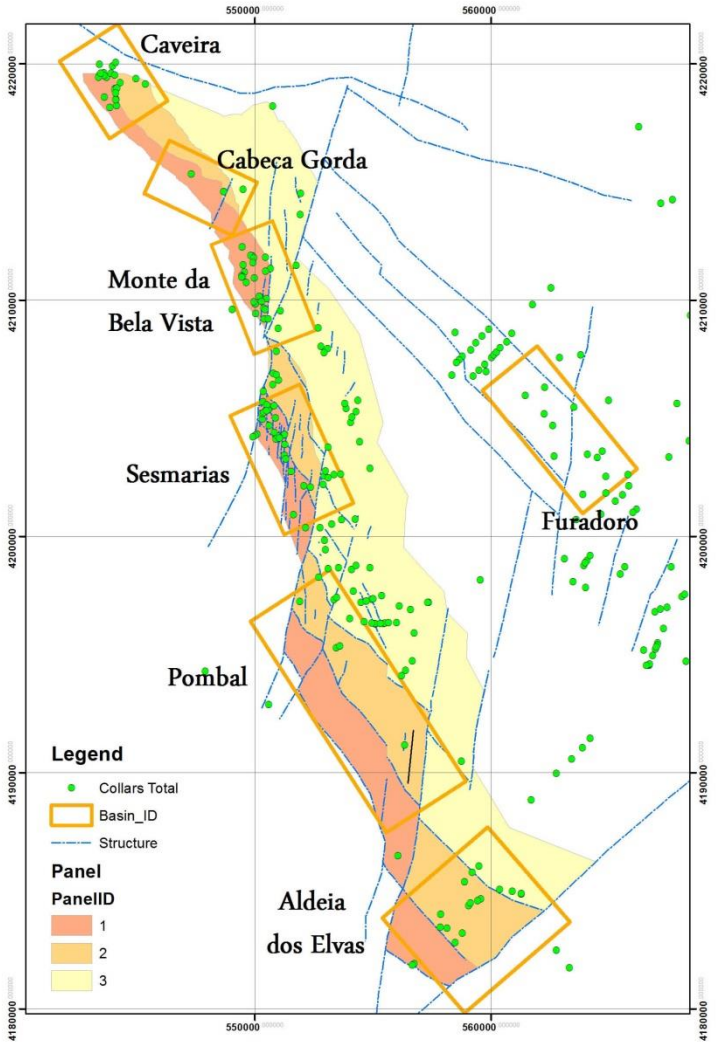
Pyrite Belt – Alvalade

Keys to discovery

- Structural analysis
- Squeezing of existing geophysical data
- In-house soil sampling and lithogeo-chemistry
- Detailed vein logging
- Basin analysis

Targeting criterion

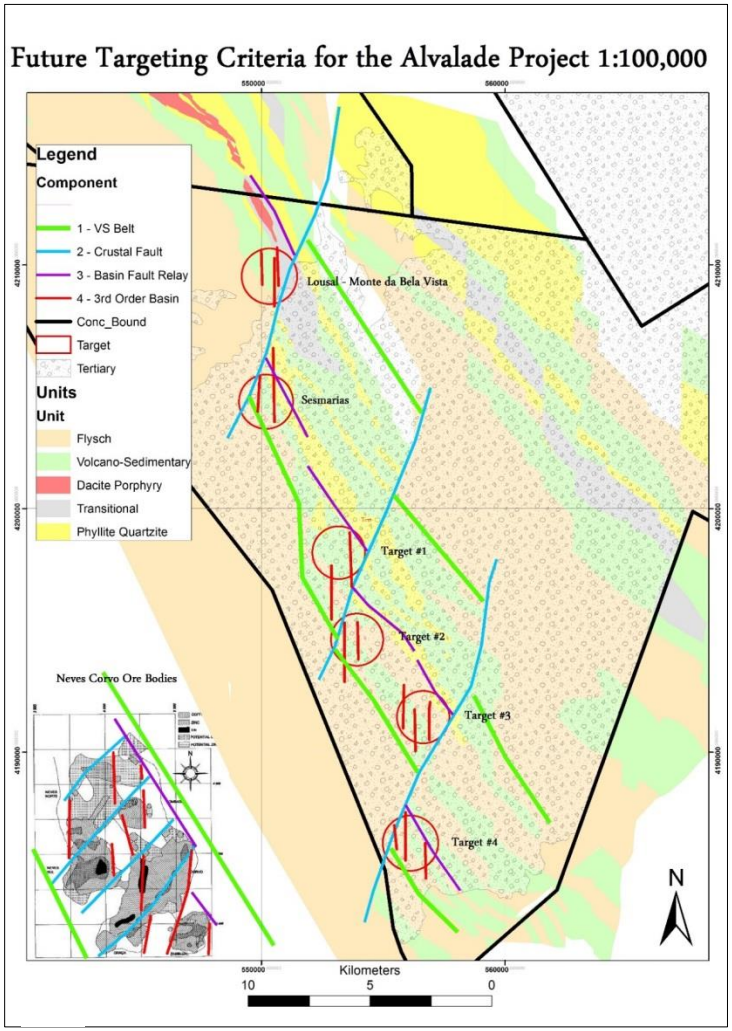
- VS rocks in known producing trend
- Close proximity to deep-penetrating growth structure/relay zone
- In footwall horst of long-lived growth structure
- In a second or third order basin within the horst block



Pyrite Belt – Alvalade

Phase 4 targeting

- Basins fit general targeting criterion
- Red circles cover areas that fit all four criterion on the Neves Corvo mineral trend
- Four of these areas had no or minimal previous drilling
- Selected two areas for first pass, top-of-bedrock, orientation/vectoring holes: Sesmarias and Pombal (targets 1-2-3)
- Further modification/addition of targeting criterion helped make the Sesmarias area the top target basin and set collar locations for vector holes
- **Sesmarias MS mineralization discovered on second vector hole**



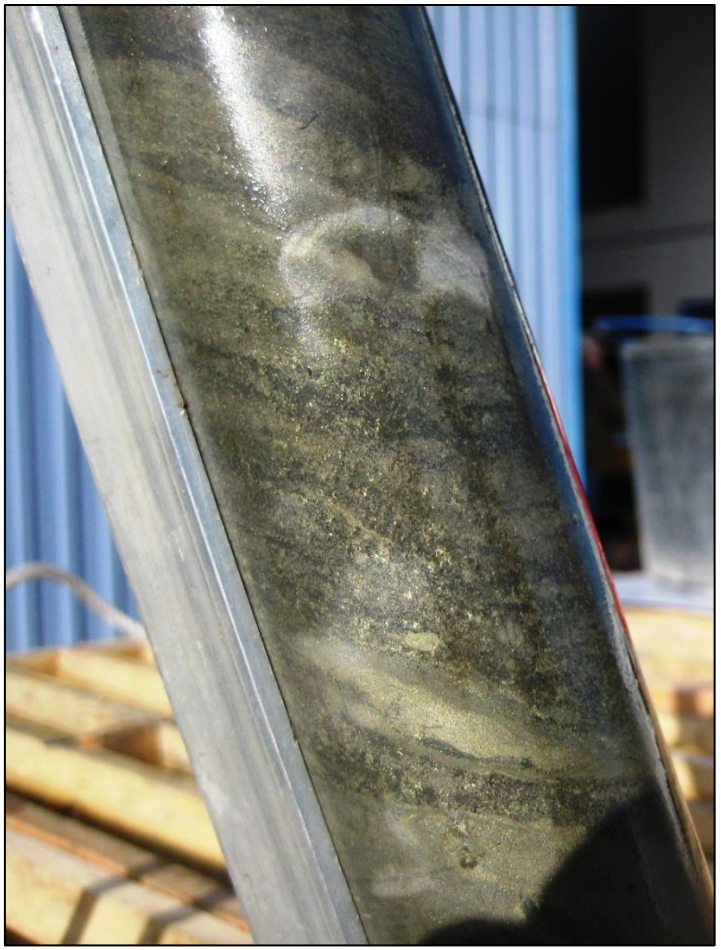
Discovery at Sesmarias!!

Sesmarias – SES002

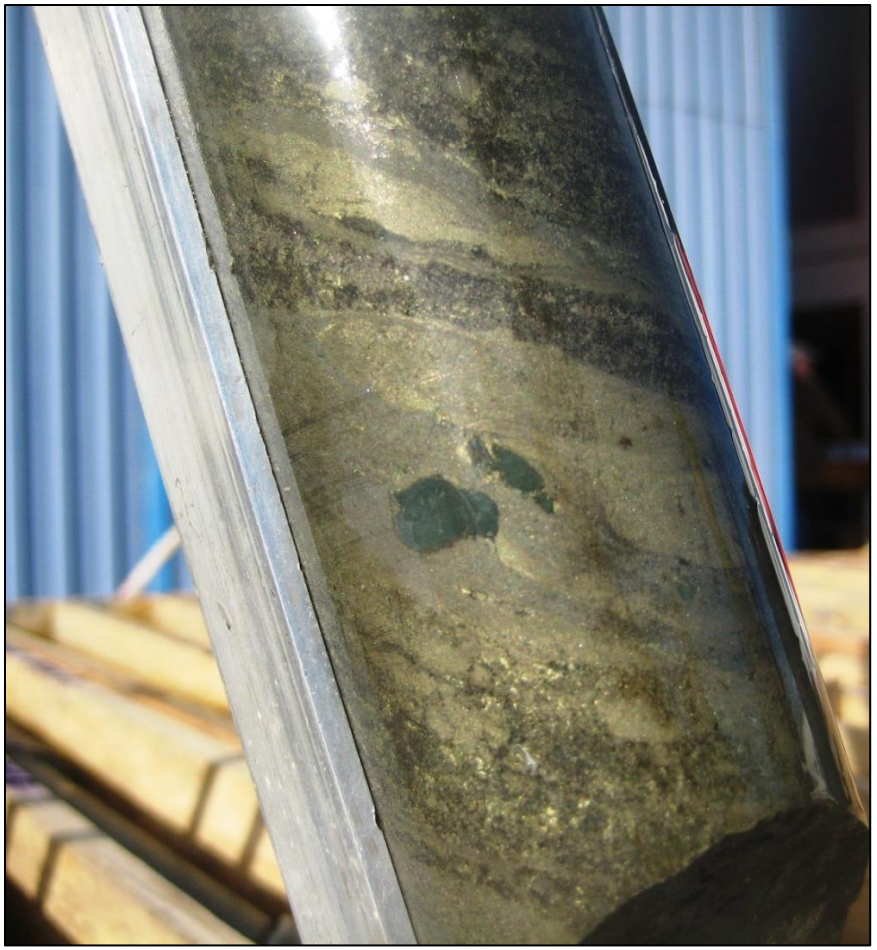
- Used exploration criteria developed in-house during three years of exploration work, drilling, and adequate funding from partner
- Used all available tools, but mostly **geology-driven**, and cost-efficient
- **Drilled** 26 holes, ~ 11,500 meters before discovery hole
- SES002 was a blind hole: 95 meters of Tertiary-age cover + 55 meters of Devonian-age Pyrite Belt target volcano-sedimentary rocks before massive sulfide intercept
- First new area discovery in the IPB since Las Cruces discovery in 1994
- Really good luck, but we manufactured alot of that!!

SULFIDE TYPE	FROM	TO	TOTAL	CU %	AG ppm	PB %	ZN %	FE %	SN %	CO %
Massive	151.65	159.60	7.95	2.21	89.8	3.05	4.82	29.74	0.15	0.084
Semi-massive/stockwork	159.60	162.50	2.90	0.71	35.45	1.27	3.17	17.76	0.092	0.051
TOTAL			10.85	1.81	75.27	2.57	4.38	26.54	0.13	0.075
	FROM	TO	TOTAL	CU ppm	AG ppm	PB ppm	Zn ppm	Fe %	---	CO ppm
Weak/moderate stockwork TOTAL	162.50	168.50	6.00	4514	10.57	1886	4838	21.4	---	528

SES002 – main massive sulfide zone

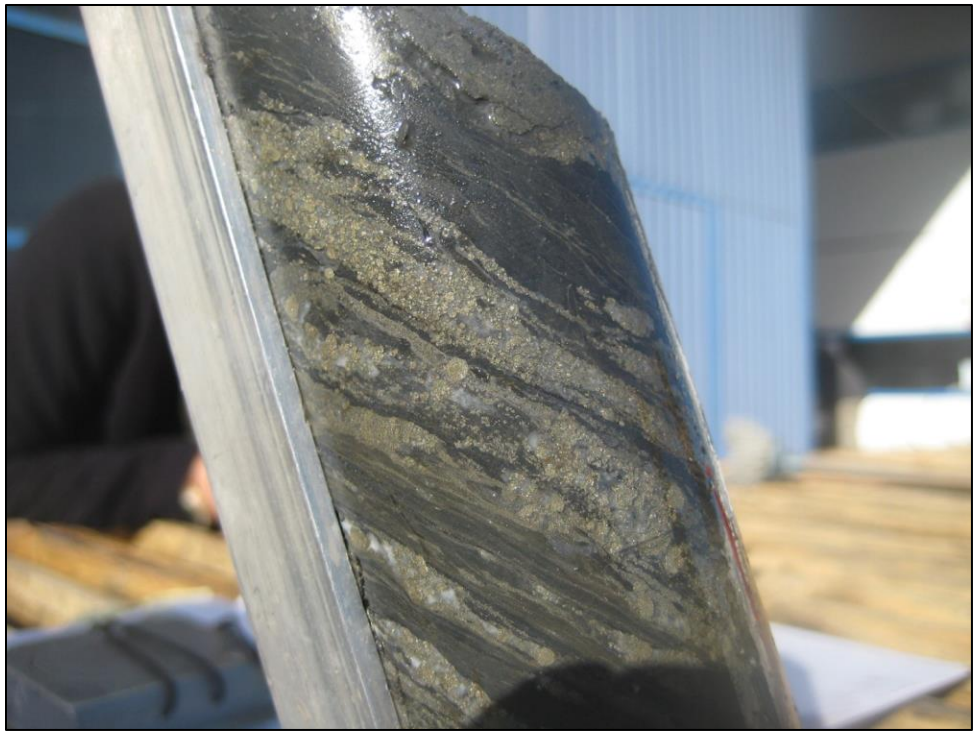


Main massive sulfide layering @ 154 m



Chlorite clasts in massive sulfide zone @ 154 m

SES002 – main massive sulfide zone



Transition from massive sulfide to semi-massive/ stockwork sulfides @ 160 m

Sulfide-quartz vein stockwork in black shale @ 162 m

SES002 – main massive sulfide zone

Sheared semi-massive sulfide stockwork with quartz veining and second stage fracture-fill chalcopyrite @ 162 m

Dense vein stockwork with fracture mesh @ 162 m

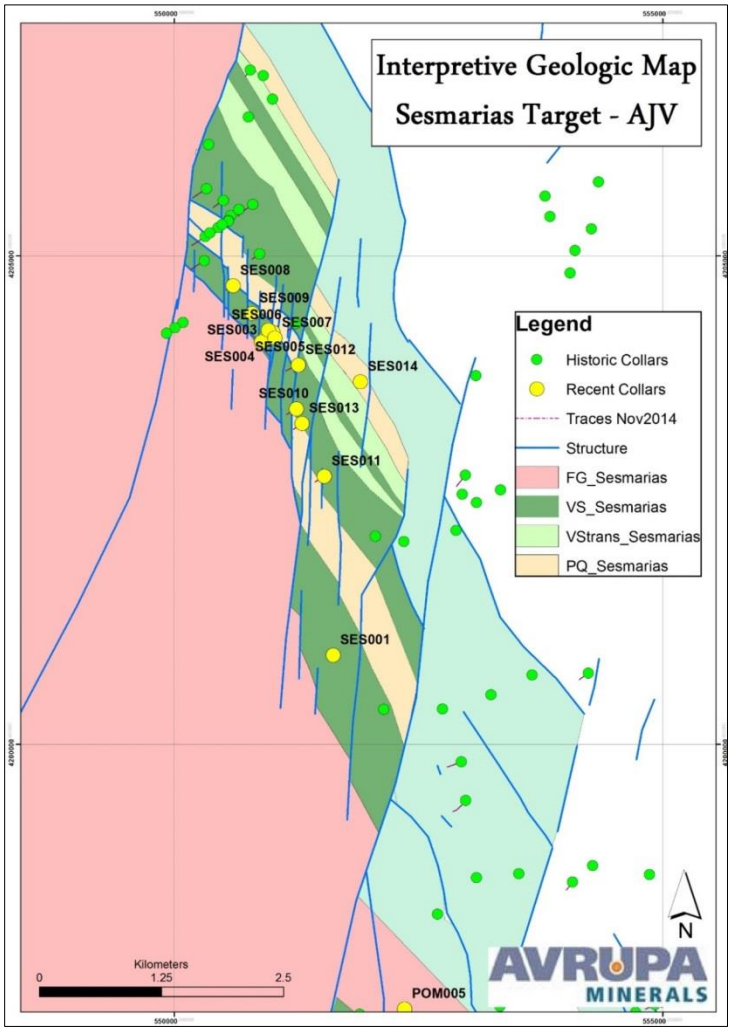
SES002 – main massive sulfide zone

Thin sulfide and sulfide-quartz veining and quartz-chalcopyrite fracture veins near the base of the stockwork zone

Pyrite Belt – Alvalade

Sesmarias follow-up: SES001 to SES014

- Sesmarias target up to 2 km in strike length
- Of these holes:
  - 3 intercepted ore grade mineralization over +10 meters true thickness;
  - 3 intercepted massive sulfide mineralization 1-10 meters thick; and
  - 3 others hit massive sulfide fragments in fault breccias.
  - 5 did not hit target horizon
    - SES001 and SES014 wildcats
    - Other three missed due to structural disruption
- The target zone is structurally complex



Pyrite Belt – Alvalade

Sesmarias follow-up: SES001 to SES014

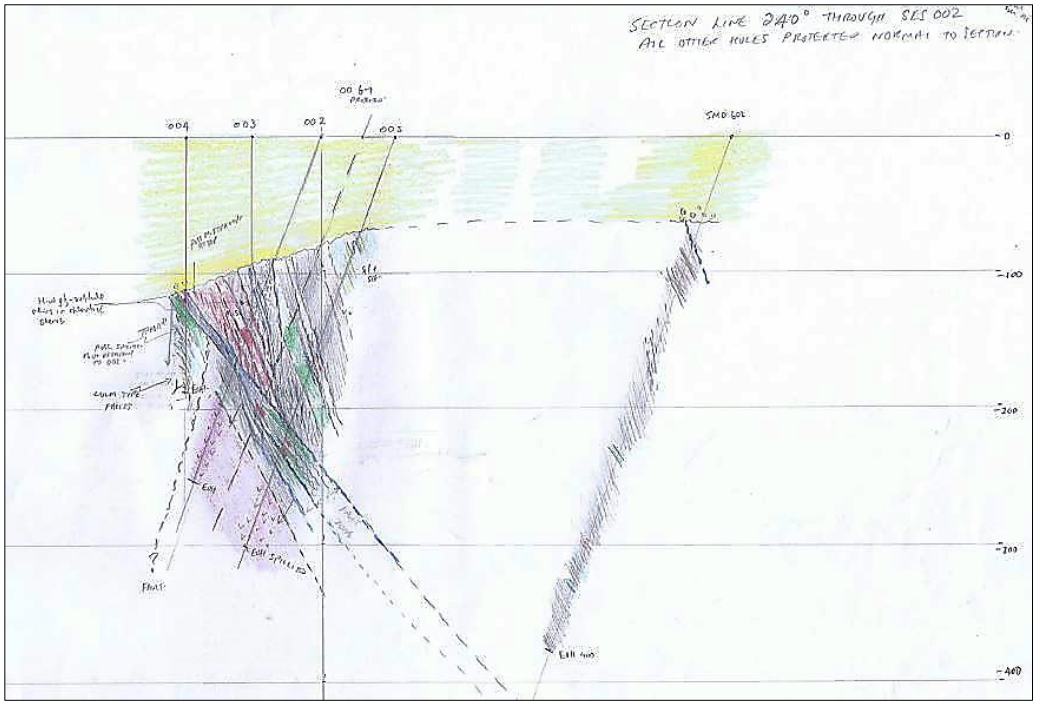
- Sesmarias target up to 2 km in strike length
- Target only tested between 100 and 300 meters below surface
- Excluding downdip potential, four other target areas present at Sesmarias
- Refined geo-structural model, targeting criterion to explain all known mineralization on Alvalade license
- Key points of model also noted at Neves Corvo, Aljustrel, Rio Tinto, Aguas Tenidas, Tharsis
- Realized that Panel 1 is least explored and has most potential

Drill Hole	Massive Sulfide	Thickness	Grade	Description
SES001	NO		NSV	Tertiary into basalt, no follow up drilling conducted
SES002	YES	11m	1.81% Cu, 4.38%Z Zn, 2.57% Pb, 75.27ppm Ag, 0.056ppm Au, 0.13% Sn	7m @ 0.12ppm Au and 0.25% Cu below massive sulfide
SES003	YES	14m	did not assay	geophysical entry hole as SES002 was
SES004	NO		NSV	Tertiary into shale, basalt, and
SES005	NO		NSV	wide zone of dissemination and vein sulfide
SES006	YES	1.5m	1.61% Cu, 3.66% Zn, 2.3% Pb, 54ppm Ag, 0.11ppm Au, 0.091% Sn	mineralization cut off by faulting
SES007	YES	frag	NSV	massive sulfide clasts in fault breccia
SES008	YES	5.5m	0.64% Cu, 1.54% Zn, 0.94% Pb, 36.8ppm Ag	lower contact by fault
SES009	YES	2.5m	massive pyrite	did not analyze
SES010	YES	58m	0.32% Cu, 1.95% Zn, 0.61% Pb, 25ppm Ag, 0.45ppm Au, 0.03% Sn	true thickness between 35-45
SES011	YES	frag	NSV	massive sulfide clasts in fault breccia
SES012	YES	frag	NSV	massive sulfide clasts in fault breccia
SES013	NO		NSV	massive sulfide horizon displaced by strike-slip fault
SES014	NO		NSV	anomalous sulfide, including chalcopyrite hosted in deformation veins. Off hole conductor.

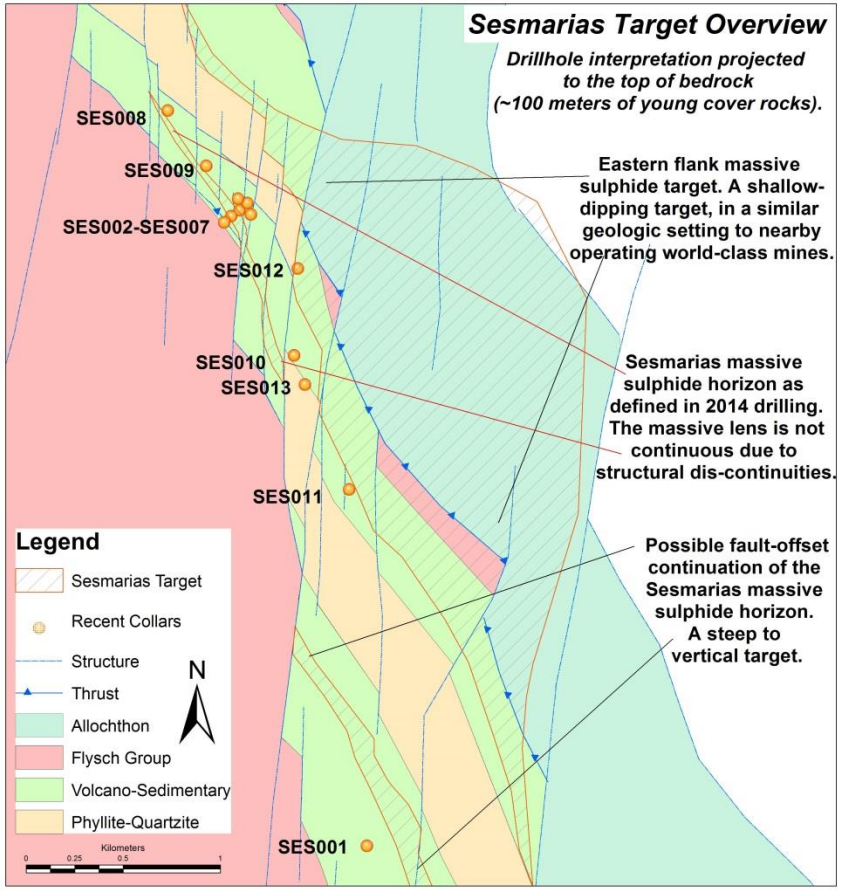
Pyrite Belt – Alvalade

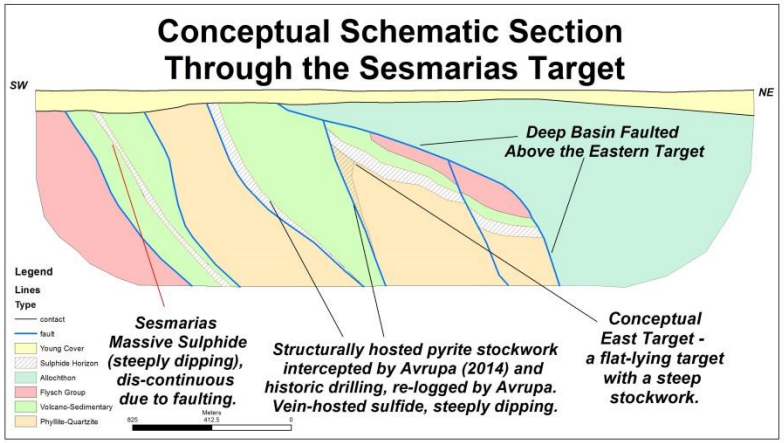
Sesmarias follow-up: SES002 to SES007

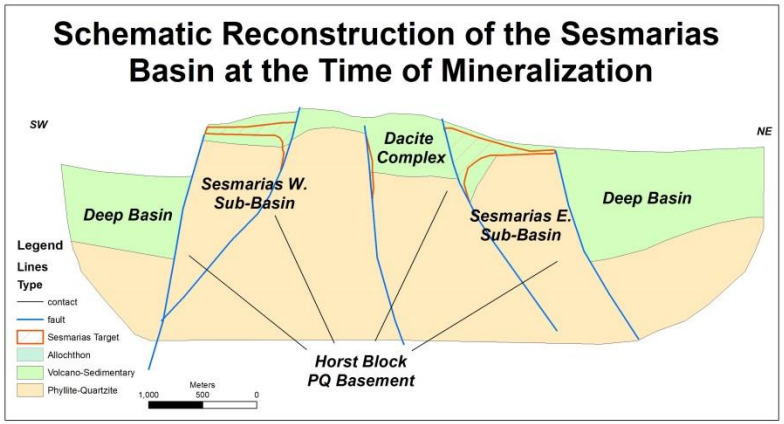
- SES002 cluster hit mineralization in overturned limb of syncline, which itself is located in the hangingwall of structure
- Further mineralization is thus suggested in the footwall of the sturcture
  - Not tested in the SES002 to SES007 cluster



Pyrite Belt – Alvalade







AVRUPA MINERALS

Sesmarias Target - Alvalade JV, Portugal

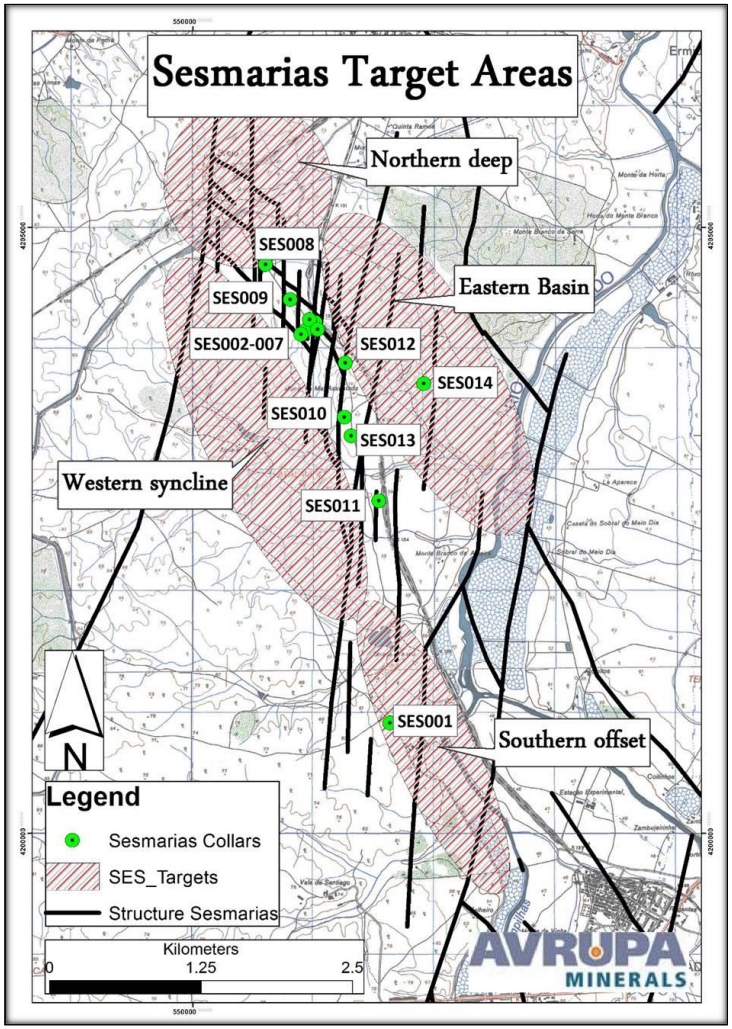
Ongoing exploration to discover a Neves Corvo-size massive-sulphide system

MAEPA
Empreendimentos Mineiras e Participacoes Lda.

Pyrite Belt – Alvalade

Phase 4 targeting

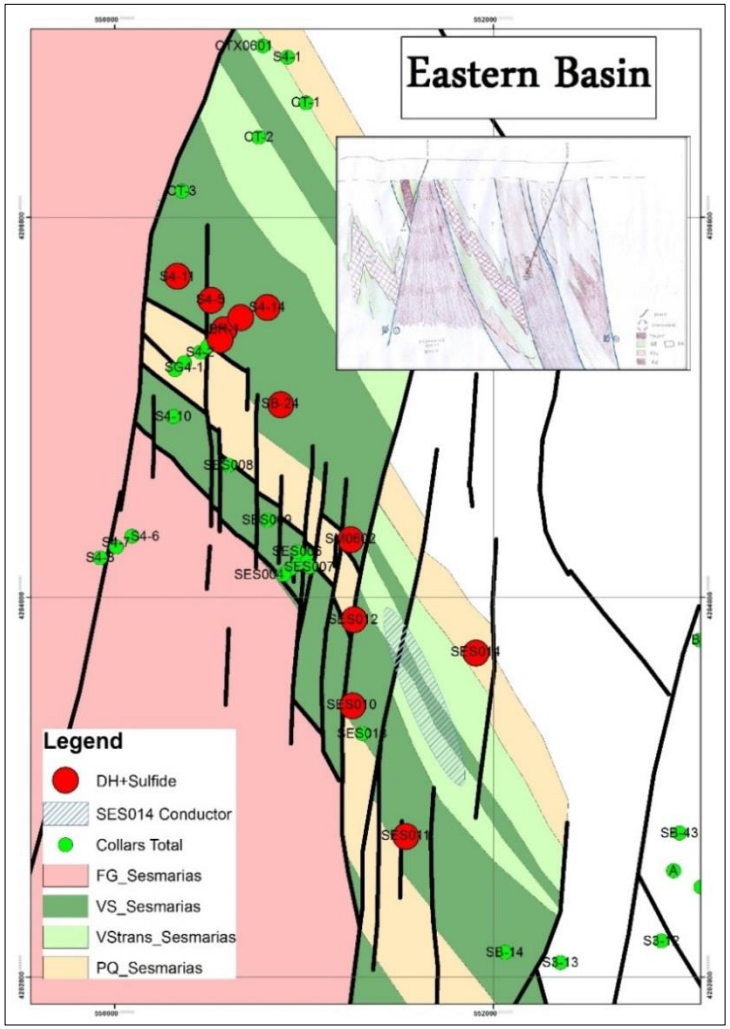
- Further refinement of Phase 4 results led to four major target areas outside of the 2 km strike length:
  - Eastern Basin
  - Northern Deep
  - Southern Offset (Panel 1)
  - Western Syncline
- All potentially related to the Sesmarias mineralizing system, but East and North would be hosted in separate sub-basin traps, South would be structurally separated by faulting, and West would be stucturally separated by folding
- Eastern Basin targeted in SES014



Pyrite Belt – Alvalade

Eastern Basin

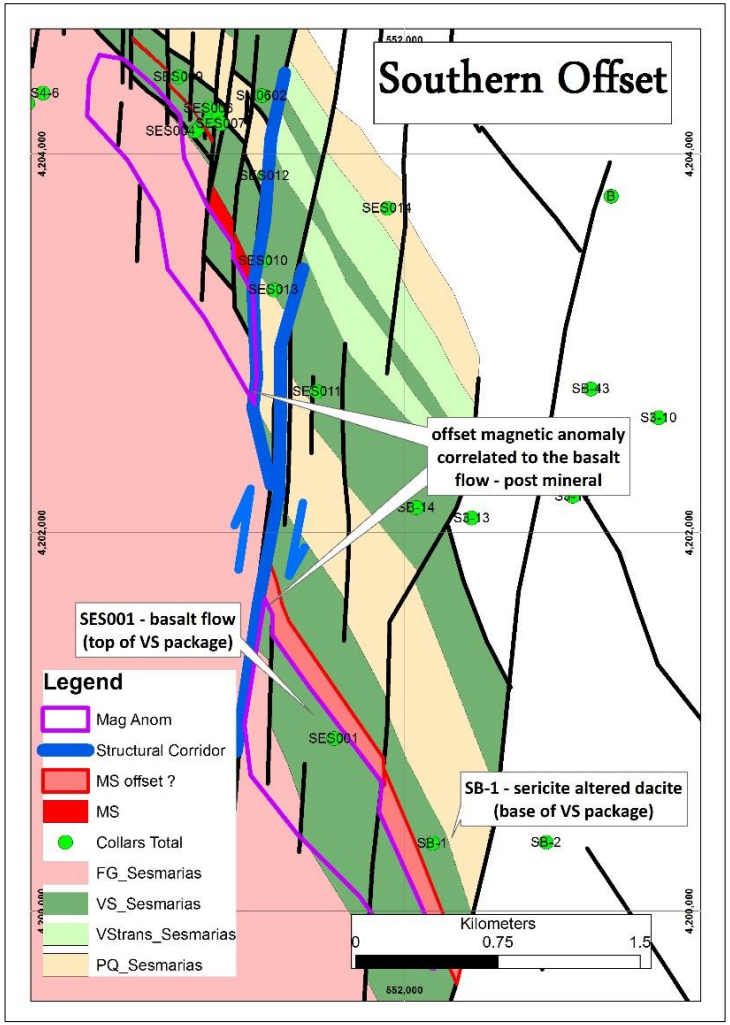
- Eastern Basin targeted in SES014
  - Hope was for relatively flat-lying Neves Corvo-type intercept
  - Sulfide zone not reached, but off-hole EM conductor suggests steep dipping target remains



Pyrite Belt – Alvalade

Southern Offset

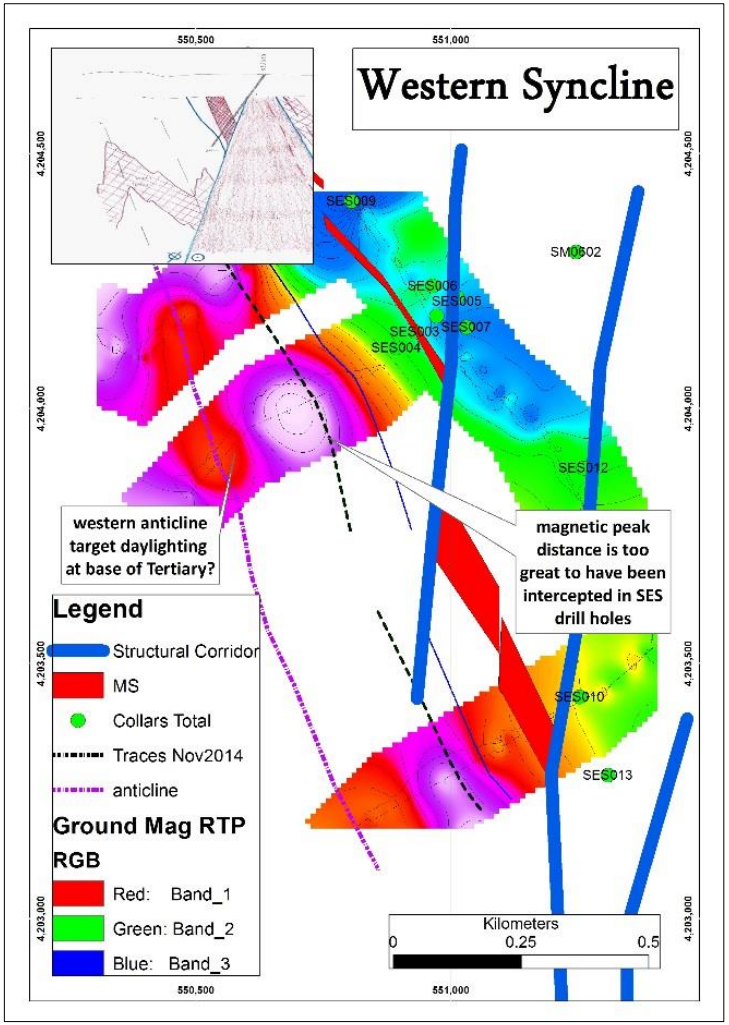
- Thickest MS intercept came in SES010
- But mass is cut off on the south by zone of NNE-trending structures displaying net right lateral offset
- SES001 and one historic hole constrain the target package in southern offset area, making targeting relatively straight forward:
  - Understanding of stratigraphy puts target to NE of SES001, below basalt flows intercepted in this hole
  - Supported by offset in magnetics anomalism which indicates the mafic volcanic units



Pyrite Belt – Alvalade

Western Syncline

- Target based on understanding of structure at Sesmarias – overturned limb of Sesmarias mineralization may reach a buried syncline and then fold into an upright-oriented anticline
- Magnetic anomalism shows up several 100's of meters west of mafic flows encountered in the bottom of the SES002 to SES007 cluster (black dashed line) -- implies a repeat of section (and presumably mineralization target)
- Corresponding western anticline may even «daylight» at paleosurface, as shown by second belt of magnetic anomalism (purple dashed line)
- More ground magnetics needed before further drilling



Pyrite Belt – Alvalade

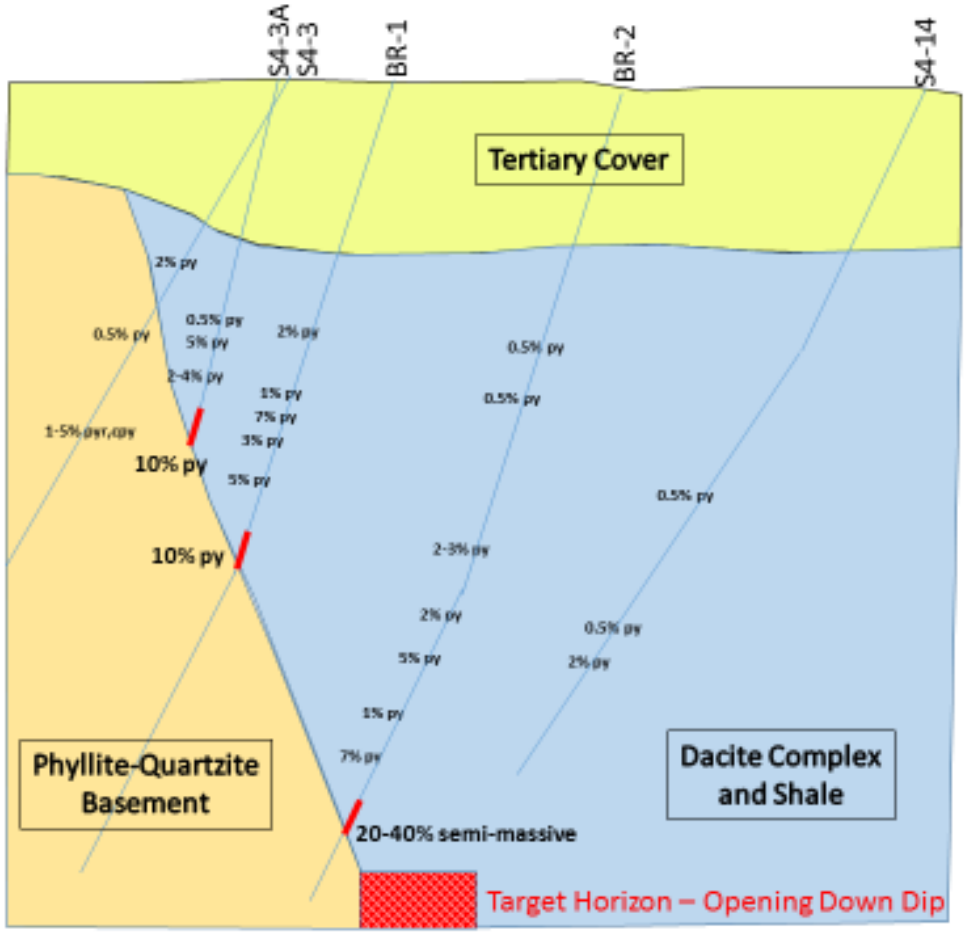
Northern Deep Target

Increasing Sulfide
down-dip in historic fence
S4-3 – 0.5%
S4-3A – 10%
BR-1 – 10%
BR-2 – 10-40%
S4-14 – not deep enough

Chalcopyrite present in deformation veins

Single hole test 500-600 meters

20-40% semi-massive sulfide over 15 meters

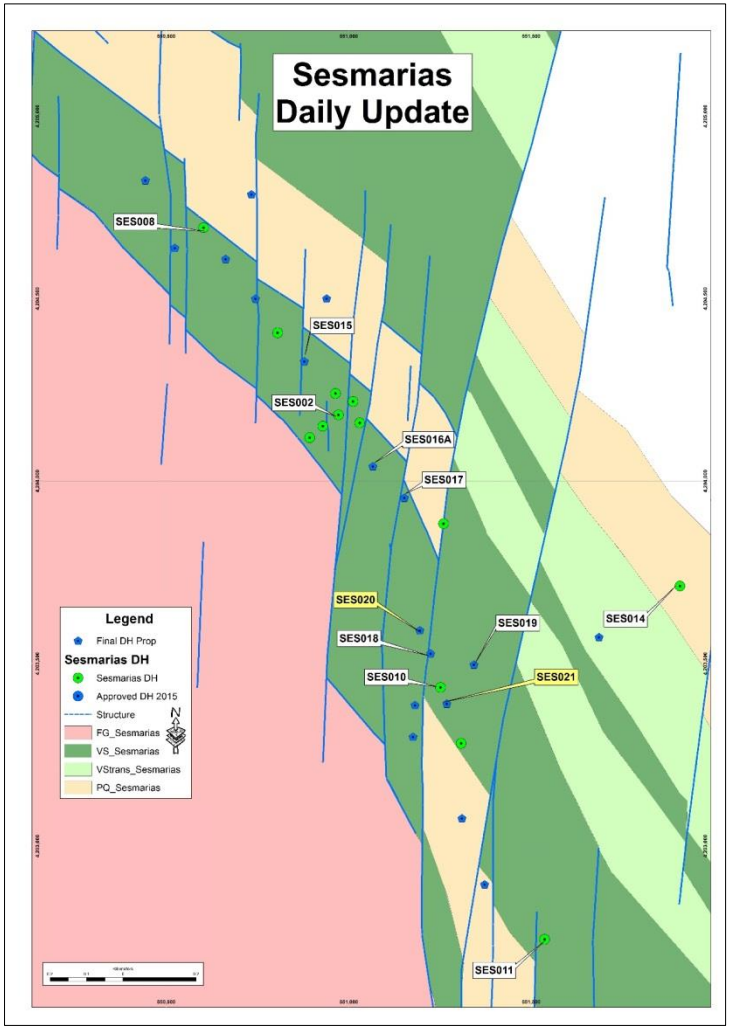


Historic drilling at the north end of the Sesmarias zone shows increasing sulfides at depth adjacent to the horst block. Historic hole S4-14 did not reach implied target horizon.

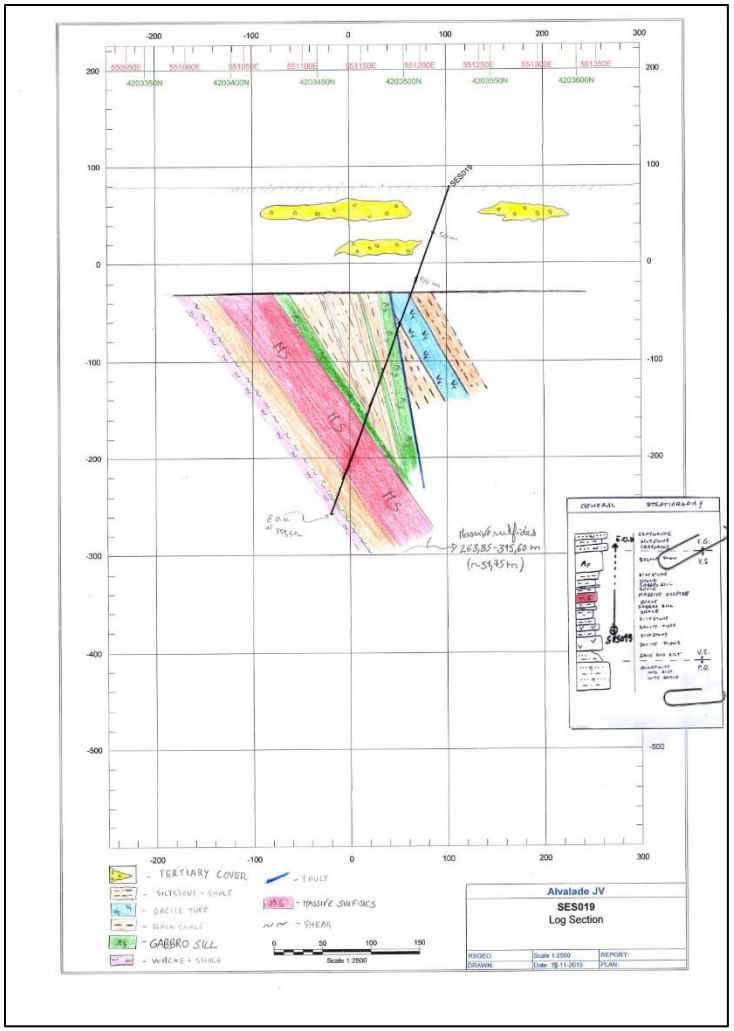
Pyrite Belt – Alvalade

Sesmarias follow-up: SES015 to SES022

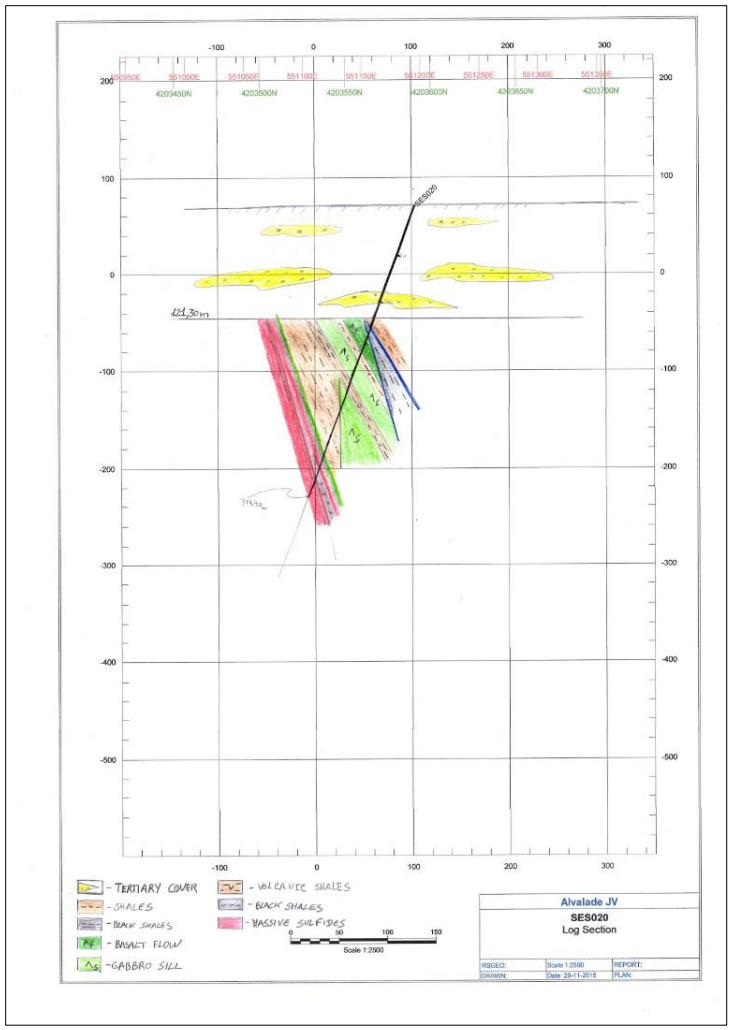
- SES015 to SES017 designed to laterally extend mineralization in SES002 cluster: did not hit mineralization due to structural disruptions
- SES018 designed to hit downdip projection of SES010 mineralization, but missed due to fault zone: continuation projected down structure (normal movement)
- SES019, SES020, SES022 designed to add to strike length to NW of SES010 massive sulfide: successful so far to 255 meters out to NW
- SES021 designed to add to strike length of SES010: successful to 50 meters to SE
- Physical strike length of 300 meters; MALM geophysics takes this target a further 300 meters to NW



Pyrite Belt – Alvalade

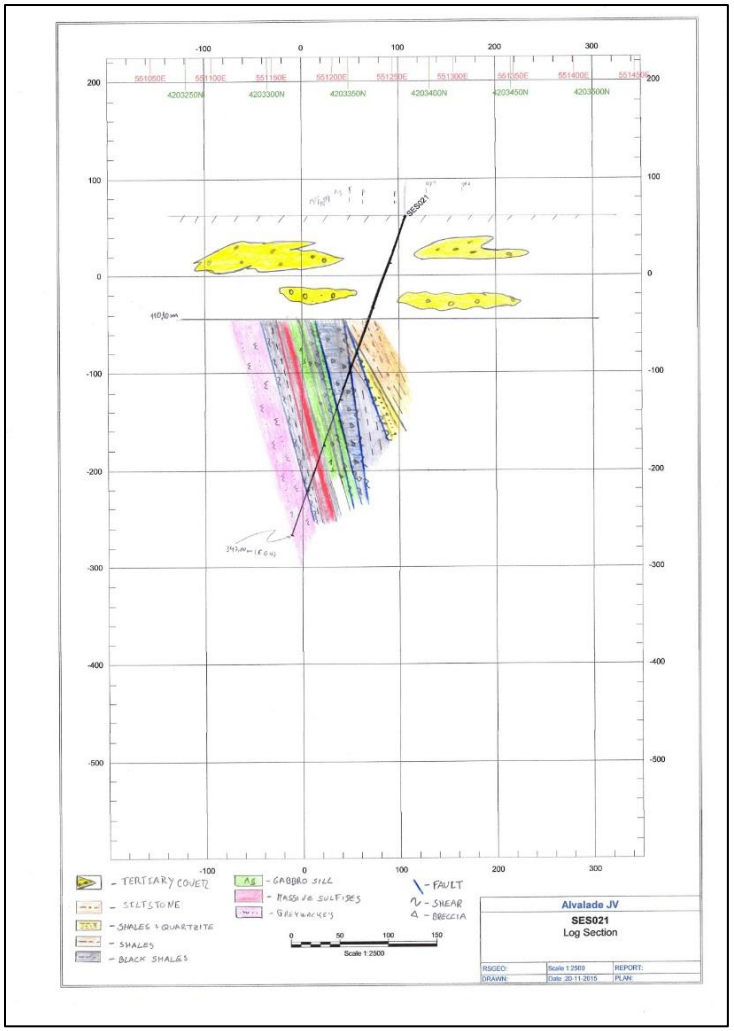


SES019 section

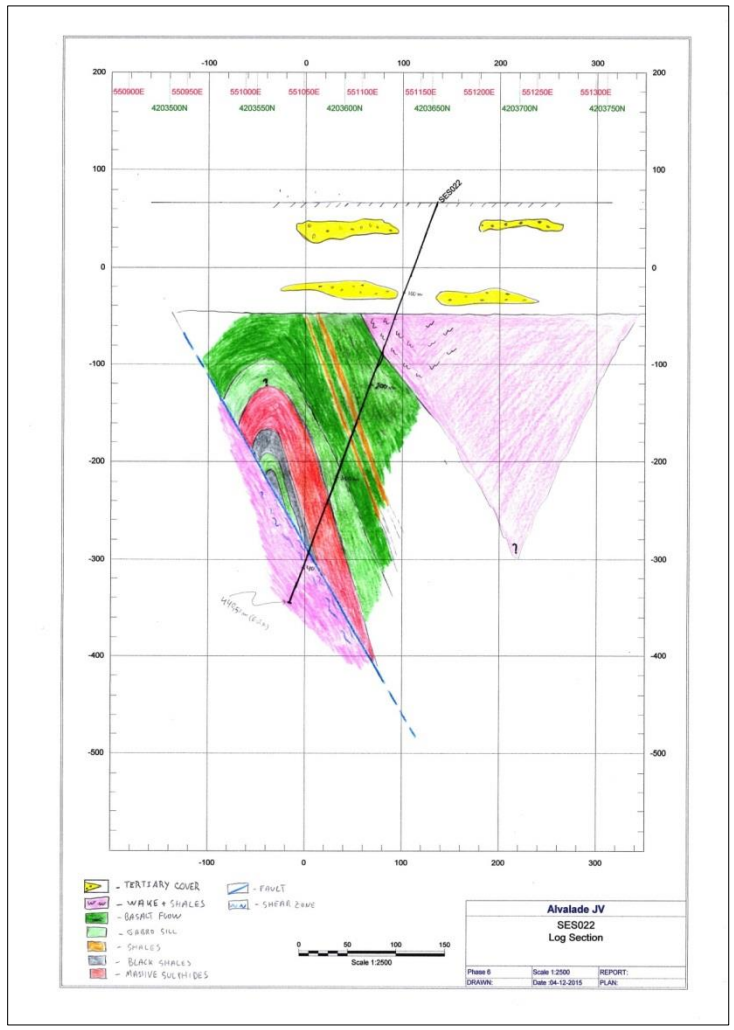


SES020 section

Pyrite Belt – Alvalade



SES021 section

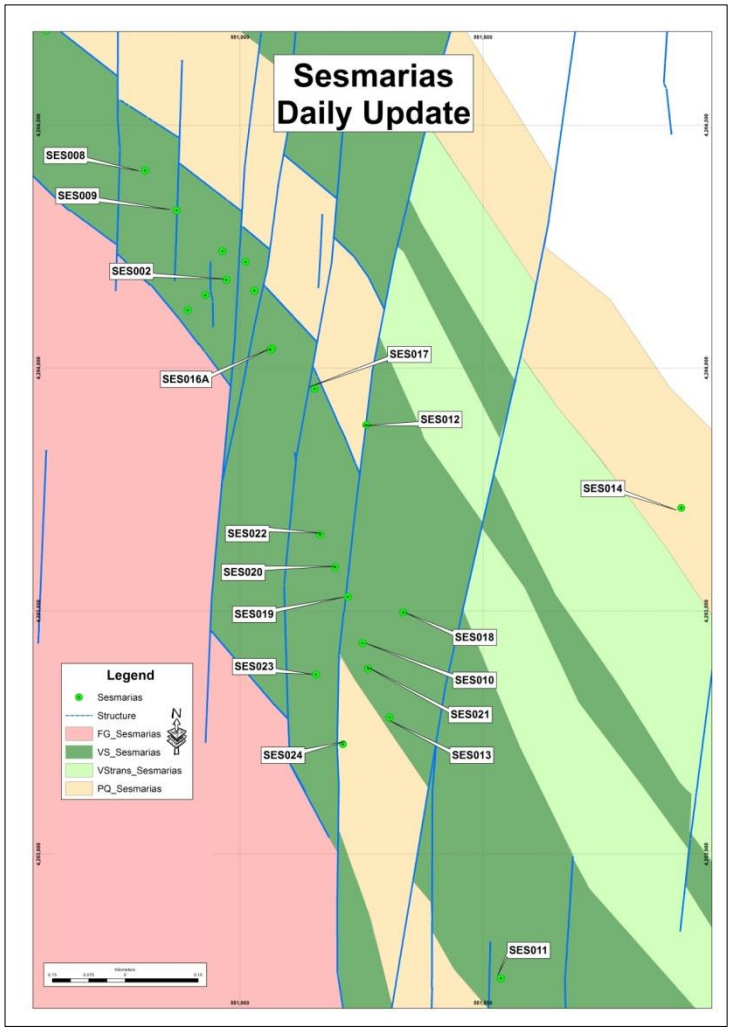


SES022 section

Pyrite Belt – Alvalade

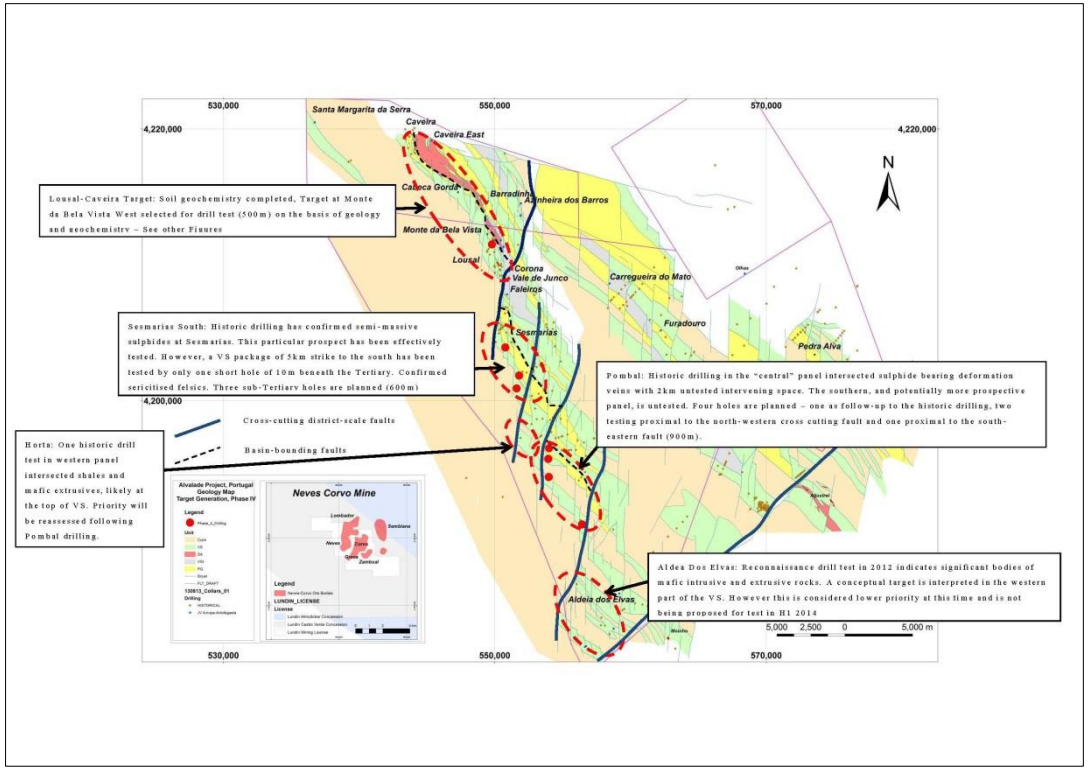
Sesmarias follow-up: SES023 to SES024

- SES023 designed to intercept potential gossan above SES010 massive sulfide: unsuccessful due to continued structural modification
- SES024 designed to extend massive sulfide a further 100 meters SE of SES021: thick gabbro sill in target horizon



Reasons for first discovery in 20 years

- Large land package, covering favorable discovery terrane, in elephant country
- Lots of available historic data and stored drill core from previous exploration programs
- Geology – re-mapped all available outcrops within license area
- Re-logged and sampled over 50,000 meters of historic core
- Re-interpreted the regional geophysical data
- Desire to re-evaluate and re-interpret all data in light of what we saw, not what was reported
- Drilling
- Review the results, go back to the drill core, update the exploration model, drill again
- Develop a working exploration model utilizing mostly geological and structural criterion developed over three years of work, drill again
- Adequate funding from, and great working relationship with Partner

More to come… !!

- Tertiary target areas along Neves Corvo trend at Horta, Pombal, Aldeia dos Elvas, possibly others
- Furadouro area on Aljustrel trend
- Numerous Tertiary target areas along Aljustrel and São Domingos trends
- Monte de Bela Vista still has targets
- Monte de Bela Vista to Caveira area on Neves Corvo trend
- Santa Margarida da Serra trend unexplored
- Sesmarias targets are still mostly untested
- Need to re-start project with fresh funding