

Simitu Project, Tunisia

Drilling commences at King's Eye targeting Cu-Sb-Ag

A drilling program targeting an IP anomaly coincident with high-grade copper (21%)-silver (>100g/t)-antimony (1.49%) has commenced

HIGHLIGHTS

- A four to six hole 600 metre diamond drilling program has commenced at the King's Eye Prospect within PhosCo's 100% owned Simitu Project.
- Previously announced geophysical surveys successfully mapped historical underground workings and identified possible extensions to the sulphide mineralisation.
- The initial King's Eye drill program is designed to test outcropping copper, antimony, and silver veins coincident with a prominent IP anomaly.
- If successful, additional holes will be drilled to confirm the tenor over the full 600-metre-wide copper mineralised corridor.
- Recently announced results from King's Eye include:

Copper	21 samples >1% to a maximum of 21.2%, with 5 samples >10%
Silver	8 Samples over 31g/t to a maximum of 100g/t
Antimony	5 samples over 0.5% and including assays of 1.49% and 1.25%
- Simitu is an early-stage project covering a 30km plus zone of alteration and scattered copper mineralisation. King's Eye is the most advanced target within this project.
- Success at Simitu will give first-mover advantage for copper in Tunisia to PhosCo complementing the Company's flagship Gasaat phosphate project.

PhosCo Managing Director, Taz Aldaoud said:

“PhosCo remains firmly focused on advancing the Gasaat Phosphate Project towards development. In tandem, we are excited to have commenced drilling at King’s Eye, one of multiple prospects within the broader Simitu Project. This represents a compelling opportunity to establish a second project targeting highly sought-after metals, deepening PhosCo’s first mover advantage in this underexplored region.”

PhosCo Ltd (PhosCo or the Company) (ASX:PHO) is pleased to announce the commencement of a four to six hole maiden drilling program targeting an IP anomaly at the King’s Eye (Ain El Bey) Prospect within the Company’s 100% owned Simitu Project in northern Tunisia (Figure 1). The anomaly is broadly coincident with high-grade outcropping copper, antimony and silver mineralisation in low angle south-southwest trending siderite-baryte-quartz veins and a set of prominent subvertical north-south trending bedding parallel laminated quartz veins. The drilling is designed to intersect the low angle veins and associated vertical shears (Figure 2).

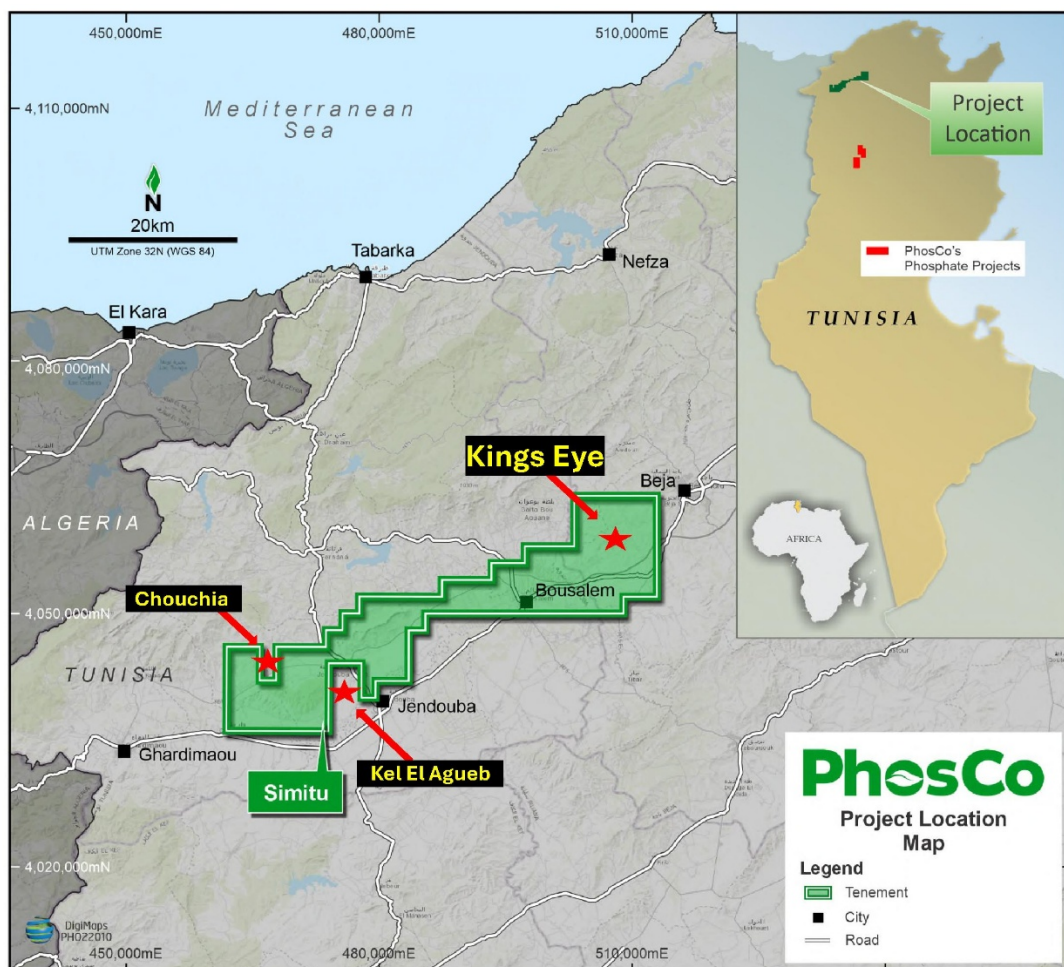
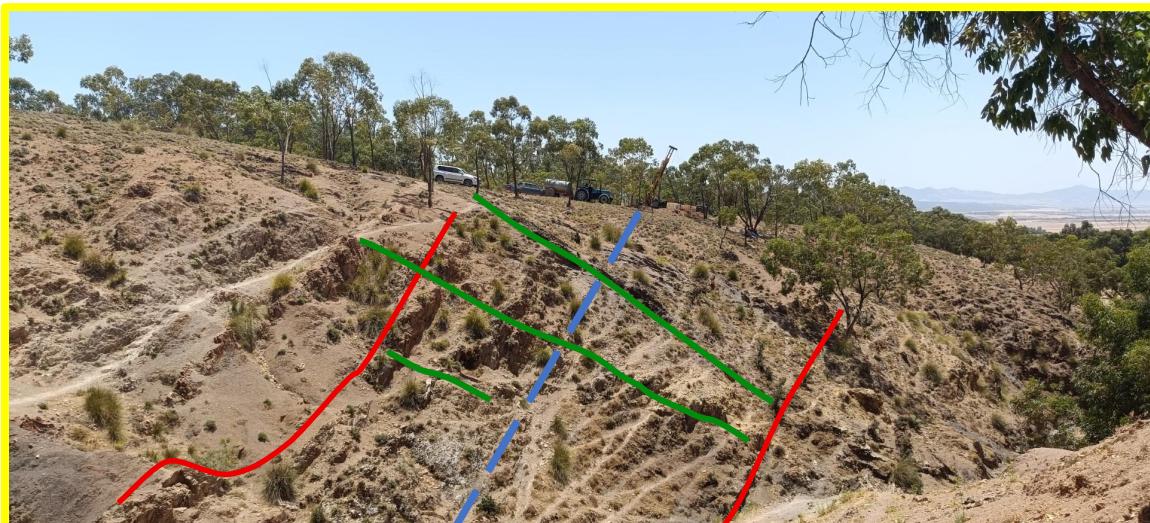


Figure 1. Simitu project showing location of King’s Eye and other prospects.

Position of hole KEDD-2026-01, -90° to 090E

Red = North-South laminated bedding parallel quartz-carbonate +/- siderite-baryte veins on shears. Green = Stacked siderite +/- Baryte-quartz veins



Planned trace of hole

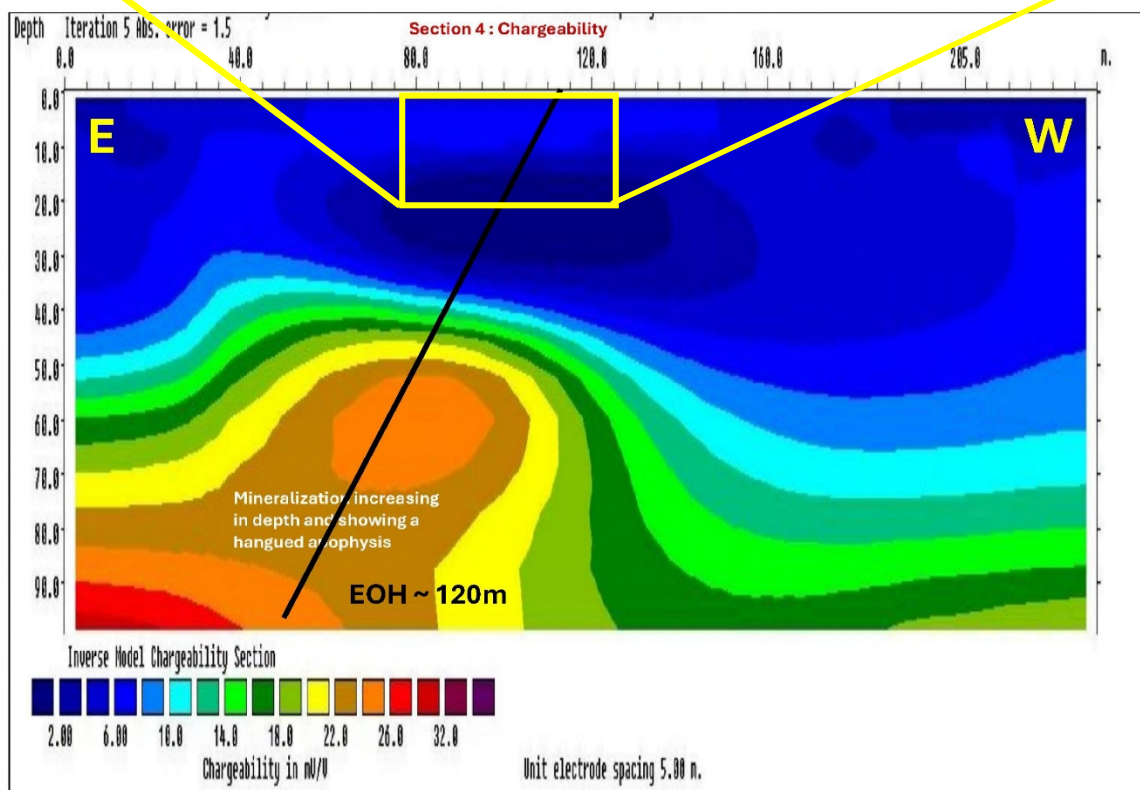


Figure 2. Schematic section of first hole

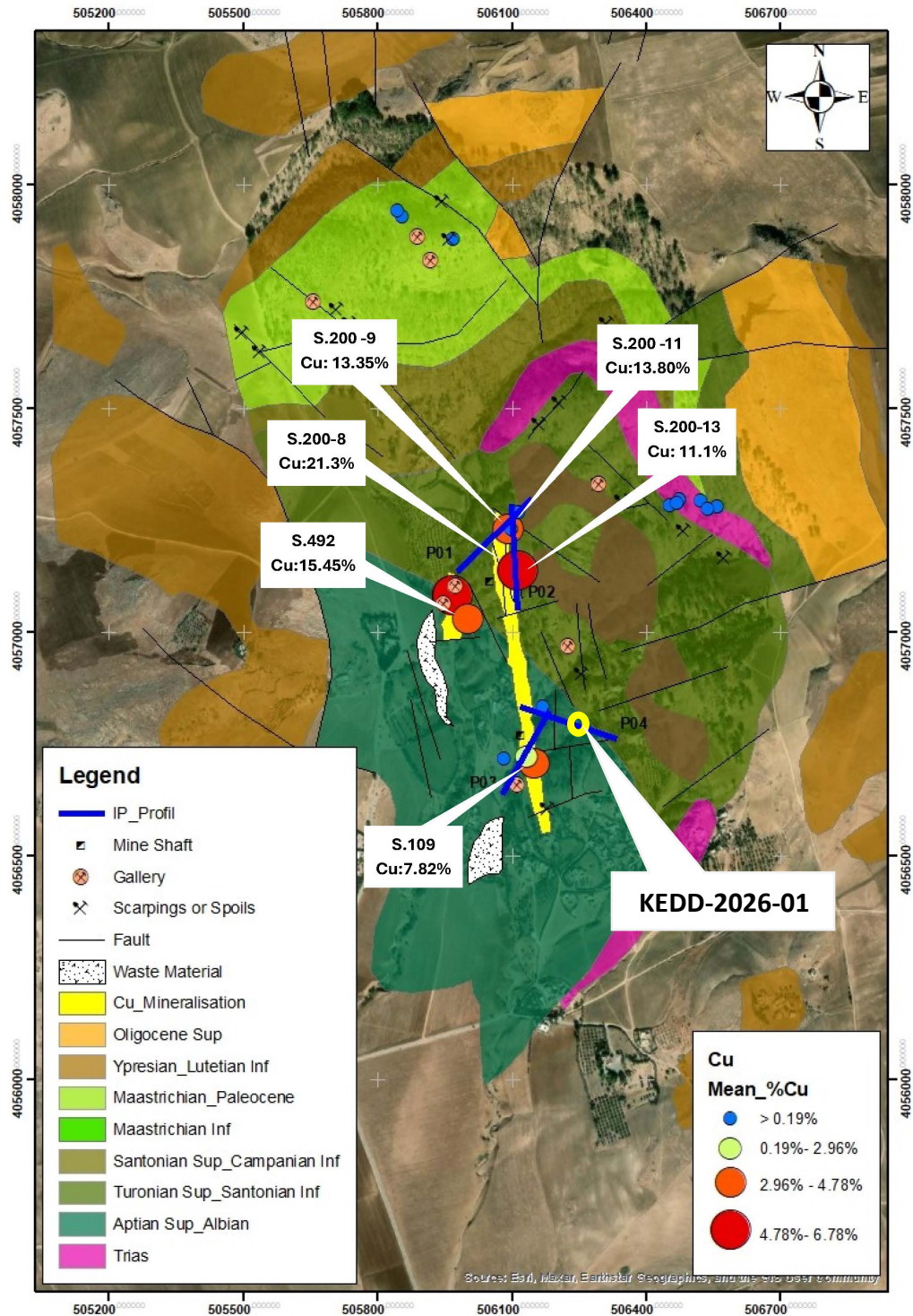


Figure 3. King's Eye geology, historic workings.
Surface trace of laminated shears in yellow.

Key rock chip results from King's Eye are summarised in the table below:

Table 1. Recently announced Cu-Sb-As-Ag Mineralisation Assays

Sample No	Cu	Sb	As	Ag	Pb	Zn	Fe	S
	%	ppm	ppm	ppm	%	%	%	%
200-8	21.30	1,630	7,620	21.2	0.00	0.06	34.2	>10.0
492	15.45	6,530	11,200	64.4	0.00	0.04	41.6	6.17
200-11	13.80	14,900	25,000	78.4	0.04	0.25	37.4	>10.0
200-9	13.35	4,570	4,560	28.8	0.09	0.13	39.4	9.81
200-13	11.10	12,500	31,000	>100	0.01	0.43	40.1	>10.0
109	7.82	853	1,685	5.9	0.00	0.02	39.2	6.03
200-4	7.24	1,175	7,950	8.8	0.00	0.06	40.6	9
CG3	6.61	4,150	21,100	62.8	0.01	0.26	37.9	8.42
200-14	6.61	707	2,920	9.1	0.00	0.03	40.9	5.48
200-1	5.89	1,300	7,540	15.4	0.01	0.09	41.4	5.59
200-7	5.78	6,200	11,350	71.1	0.01	0.20	47.8	8.8
110	4.44	1,665	1,620	12.4	0.02	0.03	40.5	3.41
210	4.11	142	767	<0.5	0.00	0.09	>50	0.12
105-B	3.87	574	2,320	5.9	0.00	0.03	40.6	3.44
495	3.66	5,150	11,450	90.6	0.01	0.20	>50	1.8
200-3	3.65	2,920	7,520	38.0	0.01	0.11	44.1	3.3
200-12	3.65	415	3,610	4.8	0.00	0.03	41	3.45
200-10	3.31	508	1,750	2.2	0.00	0.02	40.8	2.64
200-2	2.82	4,090	5,990	47.1	0.00	0.11	42.7	5.22
200-15	2.52	368	1,155	4	0.00	0.01	42.1	2.13
108	1.05	996	4,150	11.5	0.00	0.02	41.2	1.8

The assay results in this announcement have been reported previously and should not be taken as representative of overall grade as the samples were specifically selected to confirm the mineralogy of the veins.

The results of four Electric Resistivity Tomography (ERT) and Induced Polarization (IP) profiles have been announced previously. These geophysical surveys were carried out in conjunction with the rock-chip sampling program. The ERT is interpreted to have successfully mapped the underground workings on two profiles and indicate that the workings only extend to 40 vertical metres which aligns with historical accounts. A strong IP response at depth on 4 indicates potential sulphide mineralisation below 100 metres depth. The copper mineralised veins at surface and the deeper IP anomaly present attractive targets for drill testing (Figures 2 and 3).

GEOLOGY

The Simitu Exploration Permit is held 100% by Himilco Resources Limited, a wholly owned subsidiary of PhosCo Ltd (Figure 1). The permit covers an area of 396km² centred on the Medjerda Thrust Zone.

The Medjerda thrust is one of several thrust wedges forming part of the Atlas Mountains, a complex tectonic zone in Northern Tunisia, Algeria, and Morocco. The geology is characterized by thrust faults, folds, and nappe stacking associated with the North-South convergence of African and Eurasian plates. Deformation was accompanied by low grade metamorphism and igneous activity.

The King's Eye Prospect is in a distinct 'dogleg' in a regional scale gravity high that also defines the trend of the prospective belt of silica alteration parallel to the northern margin of the Medjerda Basin. At surface the prospect is characterized by a lack of vegetation that coincides with malachite (Cu) bearing gossans and gossanous float over mixed clastic and carbonate sediments. The vegetation anomaly is caused by elevated levels of metals in the soils and measures approximately 1,800m by 750m.

There is excellent geological exposure at the King's Eye Prospect where the rocks consist of Cretaceous to Oligo-Miocene claystone, marl, and limestone that sit unconformably on Lower Cretaceous autochthonous substratum, which in turn rests disconformably on a sliver of Triassic rocks. The limestones and marls occur at the top of the sequence where they form a broad open anticline. The shales that are found deeper in the series are tightly folded at depth which equates to the core of the fold. The prospect is transected by deep erosion gullies that give good geological exposure. The shales are tightly folded and vertical in the core of the anticline, where multiple parallel shears are developed.

Previous studies have suggested a close inter-relationship between the ascent of hydrothermal fluids and fracturing. Polymetallic mineralisation is widely distributed along and parallel to the axis of the Medjerda thrust. The deposits are presumably controlled by reactivation of pre-existing shear faults. Styles of mineralisation with region can be broadly subdivided as:

1. Au and Cu-Fe mineralisation with variably elevated As, Sb, Bi, at **Chouchia** and **King's Eye (Bey)**. Au mineralisation at **Kef El Agueb** is spatially associated with Fe and Cu, but without elevated Sb, U or REE.
2. MVT Zn-Pb base metal mineralisation which may be spatially associated with polymetallic mineralised centres with typically elevated Cd and variably elevated As, Sb, Ba and Sr.
3. Hg-polymetallic mineralisation, where Hg is associated with base-metals (Zn, Pb and variable Cu), weak to moderate As-Sb, and weak Au. Ba, Sr and F may also be strongly elevated.

Notable mineral prospects include Chouichia and Ferza, Zeflana, Kef El Agab and King's Eye. These Cu-As, Sb, Ag, Bi-rich deposits containing trace gold, were prospected in the period 1900 to 1912, and were mined later from 1912 to 1956 with prolonged downtime periods linked to fluctuations in metal prices. Most mines were abandoned after independence (Ferza, La Galite, Chouichia). King's Eye (Bey) mine continued underground mining from 1962 to 1970. Gottis and Sainfeld (1952; Inter. Geol. Congress, Algiers) indicated that the Chouichia and King's Eye-deposits produced a total of 2,000 tons of copper and a few thousand ounces of silver extracted by electro-refining techniques.

Mine workings at King's Eye (quarries, trenches, galleries and mine spoils) have been mapped at surface. Apart from surface prospecting, sampling, and regional gravity surveys, no systematic exploration has been conducted. No aeromagnetic data is available. Historical exploration consisted of development on ore and hand trenching. Mining was small scale and the deposits were only tested to about 40 vertical metres depending on topography.

Several geological models are available to explain the copper mineralisation in the Medjerda trust zone. Studies on Chouichia (Ben Aissa et al. 2017 and 2023) and King's Eye (Ben Aissa 2023) indicate that the mineralizing fluids, particularly those associated with tetrahedrite-tennantite and chalcopyrite, had a magmatic component and reached peak temperatures of 350°C.

This announcement is authorised for release to the market by the Board of Directors of PhosCo Ltd.

For further information, please contact:

Taz Aldaoud
Managing Director
T: +61 473 230 558

 Follow [PhosCo](#) on LinkedIn

 Follow [@PhoscoLtd](#) on Twitter

Competent Person's Statement

The information in this report that relates to Exploration Results of the Simitu Project is based on information compiled by Mr Donald Thomson, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy, a full-time employee of Indigo Exploration Services Ptd Ltd, and is engaged by PhosCo as a consultant. Mr Thomson has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves". Mr Thomson has provided written consent to the inclusion of the Exploration Results in the form and context in which they appear.

References

Ben Aissa R, Ben Aissa W, Ben Haj Amara A, Ben Aissa L, Tlig S (2021) The trace and rare earth element contributions to the understanding of Chouichia iron-copper deposits in Northern Tunisia: metal sources interrelated with magmatism and metamorphism. Arab J Geosci 14:783. <https://doi.org/10.1007/s12517-021-07095>

Ben Aissa R, Ben Aissa W, Ben Haj Amara A, Ben Aissa L, Tlig S (2023) Fe–Cu (Ag, Au) ore deposits and thermodynamic conditions of the mineralizing hydrothermal fluids of the Chouichia abandoned mine (Northern Tunisia): mineral geothermometers and occurrence evidence of native gold traces, silver, and Ag-related minerals. Arab J Geosci 16(2023):1–20. <https://doi.org/10.1007/s12517-023-11300-9>

Ben Aissa R, Ben Aissa W, Tlig S, Ben Aissa L, Ben Haj Amara A (Dec 2023) Geochemistry, mineral paragenesis and geothermal conditions of ore forming fluids from the King's Eye Cu–Fe deposit: potential occurrence of native gold and precious metal traces (North African orogenic belt, Northern Tunisia).

PhosCo Ltd ASX Announcement (7 Mar 2024) - Simitu Copper-Gold Project First Pass Results - Bey Prospect

Table 1 –JORC Code, 2012 Edition

Section 1 Sampling Techniques and Data

CRITERIA

Sampling techniques

COMMENTARY

Selective rock chip samples were collected across the King's Eye prospect for investigated by thin -section microscopy and analysis of select minerals by Scanning Electron Microscope—Energy Dispersive Spectroscopy and Transmission electron microscopy analyses (EDS) to determine their composition in major elements. SEM-EDS analysis is point analysis, so whole rock samples were submitted to ALS for determination of the concentration of elements of economic interest.

Drilling techniques

Drilling is not being reported.

Drill sample recovery

Drilling is not being reported.

Logging

Brief sample descriptions were recorded for each sample

Sub-sampling techniques and sample preparation

The samples were sent ALS's facility at Seville, Spain, where they underwent sample preparation as follows LOG-22 - Raw sample weighed and log into global tracking system WEI-21 – Received sample weight recorded PUL-32 - Pulverise a 1,000g split to 85% passing 75 microns. A large sample size is used to mitigate nugget effect. PUL-QC – Select samples were checked for QC of sample preparation.

Quality of assay data and laboratory tests

Split of the sample were forwarded from ALS; Seville facility to Loughrea County facility in Galway, Ireland for analysis by the following methods:
Au-ICP22 - Au by fire assay and ICP-AES finish on 50g sample.
ME-MS61 – Four acid digest and determination of 33 elements by ICP-AES. This method might not give total digest.
ME-OG62 Four-Acid digestion for ore-grade concentrations.

Verification of sampling and assaying

Verification of sampling was not carried out as sufficiently large number of samples was collected to confirm the results, Mineralisation was noted in hand specimen and confirmed by observation in thin-section.

Location of data

Data points were located by a using a Garmin GPSMAP65s with a positional accuracy of 5 metres, confirmed by using two instruments, one for navigation and for recording of the sample point. Locations are in WGS 84 Geographic (latitude and longitude) coordinates.

Data spacing and distribution

The sample coverage was designed to confirm the various types of mineralisation and was reconnaissance in nature.

No Mineral Resources or Ore Reserves are being reported

Orientation of data in relation to geological structure

Samples were collected at random in the field from outcrop, float or mine dumps.

Sample security

Samples were in the custody of PhosCo employees at all-times prior to shipping. The splits were packed in secure sealed 30 litre plastic drums. Transport to ALS Seville, a freight forwarding agent licenced for this work who also arranged secure commercial airfreight and delivery.

Audits or reviews

No audits have been conducted

Section 2 Reporting of Exploration Results

Criteria listed in the preceding section also apply to this section

CRITERIA	COMMENTARY
Mineral tenement and land tenure status	The Simitu project consists of a Research Permit (the Tunisian equivalent of an Exploration Licence) covering an area of 396km ² . The permit was granted on the 7 November 2023 for a period of 3 years renewable for a second 3 term if expenditure commitments have been met.
Exploration done by other parties	Bey was mined for Cu intermittently from the early 1900's. There is no record of the production or the duration of the mining operations. The ore was hand sorted and transported to the Bouaouene mine 6 kilometres to the northwest. The tailings from Beys have a distinct red-brown tinge compared to that from the Pb-Zn mine adjacent the processing plant. The Bey prospect was held by Albidon, (later Zinifex and OZ Minerals 2001-2006). Other than stream sediment sampling these companies did no substantive work at Bey. Prior to the current program no detailed exploration has been carried out at the prospect.
Geology	The geology is described in the body of the report.
Drill hole information	No drill hole results are reported in this announcement.
Data aggregation methods	Not applicable.
Relation between mineralisation widths and intercept lengths	Intercepts and seam thicknesses are not reported.
Diagrams	See diagrams included in this announcement.
Balanced reporting	All assay results for the target and key path-finder elements and sample locations are reported.
Other substantive exploration data	As detailed in the bodied of this announcement there have been several academic studies on the siderite hosted chalcopyrite Cu mineralisation at Bey. Chief amongst these is the work by Ben Assia et al (Dec 2023), these workers identified visible free gold in quartz veins under the microscope in thin section. In March 2024 PhosCo reported results of a soil sampling program which complements the resulting in this announcement
Further work	Plans for further work are outline in the body of the report.

Section 3 Estimation and Reporting of Mineral Resources

Criteria listed in the preceding sections also apply to this section

Mineral Resources are not being reported in this announcement.

Appendix 1. Assays for Major Elements of Interest

Sample No	Cu	Sb	As	Ag	Pb	Zn	Fe	S
	%	ppm	ppm	ppm	ppm	ppm	%	%
101	0.03	24	44	<0.5	15	30	>50	0.08
210	4.11	142	767	<0.5			>50	0.12
209	0.04	63	108	<0.5			>50	0.06
CG3	6.61	4,150	21,100	62.8			37.9	8.42
105-B	3.87	574	2,320	5.9			40.6	3.44
200-1	5.89	1,300	7,540	15.4			41.4	5.59
200-2	2.82	4,090	5,990	47.1			42.7	5.22
200-3	3.65	2,920	7,520	38			44.1	3.3
200-4	7.24	1,175	7,950	8.8			40.6	9
200-5	0.21	162	468	1.7			44.3	1.14
200-6	0.50	117	501	1.3			43.8	2.56
200-7	5.78	6,200	11,350	71.1			47.8	8.8
200-8	21.30	1,630	7,620	21.2			34.2	>10.0
200-9	13.35	4,570	4,560	28.8			39.4	9.81
200-10	3.31	508	1,750	2.2			40.8	2.64
200-11	13.80	14,900	25,000	78.4			37.4	>10.0
200-12	3.65	415	3,610	4.8			41	3.45
200-13	11.10	12,500	31,000	>100			40.1	>10.0
200-14	6.61	707	2,920	9.1			40.9	5.48
200-15	2.52	368	1,155	4			42.1	2.13
108	1.05	996	4,150	11.5			41.2	1.8
108-B	0.87	517	3,010	6.3			40.8	1.22
109	7.82	853	1,685	5.9			39.2	6.03
110	4.44	1,665	1,620	12.4			40.5	3.41
111	0.62	132	679	0.5			39.6	0.61
116	0.19	342	365	3.2			40.2	0.38
489	0.01	23	53	<0.5			>50	0.04
490	0.15	371	359	<0.5			17.05	0.03
491	0.00	13	116	<0.5			>50	0.03
492	15.45	6,530	11,200	64.4			41.6	6.17
493	0.01	24	1,010	<0.5			19.05	0.08
494	0.01	46	61,300	<0.5			5.47	2.65
495	3.66	5,150	11,450	90.6			>50	1.8
496	0.00	12	28	<0.5			22.4	<0.01
497	0.00	60	100	<0.5			42.5	0.04
498	0.03	40	230	<0.5			44.5	0.02
499	0.09	187	295	<0.5			45.6	0.02
500	0.00	14	46	<0.5			42.9	0.02
501	0.06	148	345	<0.5			44.9	0.02

Appendix 1. Assays for Major Elements of Interest

Sample No	Cu ppm	Sb ppm	As ppm	Ag ppm	Pb %	Zn %	Fe %	S %
502		43	473	0.21	0.98	3.71	2.24	0.02
503		2	19.8	0.22	0.10	0.30	1.15	0.02
504		7	97	0.01	0.02	0.13	0.53	0.02
505		49	168	0.03	0.38	>30.0	0.24	0.02
506		7	71	0.01	0.03	0.21	0.54	0.02
507		77	1,735	0.38	0.50	11.85	7.92	0.05
508		73	3,060	0.19	1.03	13.00	7.93	0.05
509		9	395	0.21	0.79	15.65	7.76	0.03
511		13	107	0.02	0.15	0.68	0.31	0.03
512		93	2,980	0.45	0.69	9.49	9.84	0.06
513		350	1,315	0.03	0.17	1.38	17.35	<0.01
514		24	478	0.33	0.97	11.90	8.06	0.06
515		1,010	6,740	0.76	10.50	23.60	0.36	0.06
516		89	2,890	0.09	0.68	21.20	9.36	0.07
518		455	1,345	0.12	0.94	>30.0	11.75	0.02
519		1,165	9,200	0.52	12.65	>30.0	0.56	0.08
520		303	1,390	0.05	3.20	>30.0	1.2	0.04
521		64	586	0.13	0.48	>30.0	1.02	0.04
522		105	442	0.48	0.34	>30.0	1.79	0.04
523		4	39	0.01	0.03	0.27	0.1	0.02
524		7	238	0.28	0.53	28.10	4.93	0.02
525		3	183	0.06	0.16	5.71	9.89	0.01
526		34	1,135	0.19	0.22	16.05	9.73	0.01
527		6	70	0.02	0.05	0.20	0.79	0.05
528		4	13	0.08	0.01	0.03	2.69	0.06
530		0	5	0.03	0.02	0.06	0.21	0.06
531		111	911	0.03	0.45	0.87	3.72	0.02
532		356	320	0.03	0.97	4.84	1.84	0.1
533		2	15	0.02	0.00	0.06	0.03	0.04

Appendix 2. Sample Locations and Descriptions

Sample Number	WGS84 - Coordinates		Description
	E-UTM	N-UTM	
101	506083.48	4056716.45	Iron oxides and carbonates filling fractures in the Lower Cretaceous
210	506092.05	4057230.41	Vein enriched in Fe and Cu oxyhydroxides.
209	506099.50	4057228.57	Vein enriched in Fe oxyhydroxides.
CG3	505967.04	4057080.57	Spoil sample rich in sulphides.
105-B	506150.52	4056705.4	Cu sulphides/sulfosalts in a siderite gangue from spoils.
200-1	506113.37	4057137.99	Sulphides siderite gangue, Cu- and Fe-oxides
200-2	506113.37	4057137.99	Sulphides siderite gangue, Cu- and Fe-oxides
200-3	506113.37	4057137.99	Sulphides siderite gangue, Cu- and Fe-oxides
200-4	506113.37	4057137.99	Sulphides siderite gangue, Cu- and Fe-oxides
200-5	506113.37	4057137.99	sulphides/sulfosalts in siderite gangue, Cu- and Fe-oxides
200-6	506113.37	4057137.99	sulphides/sulfosalts in siderite gangue, Cu- and Fe-oxides
200-7	506113.37	4057137.99	sulphides/sulfosalts siderite gangue, Cu- and Fe-oxides
200-8	506113.37	4057137.99	sulphides/sulfosalts in siderite gangue, Cu- and Fe-oxides
200-9	506113.37	4057137.99	sulphides/sulfosalts in siderite gangue, Cu- and Fe-oxides
200-10	506113.37	4057137.99	Vein enriched in Fe oxyhydroxides.
200-11	506113.37	4057137.99	Vein enriched in Fe oxyhydroxides.
200-12	506113.37	4057137.99	Vein enriched in Fe oxyhydroxides.
200-13	506113.37	4057137.99	Vein enriched in Fe oxyhydroxides.
200-14	506113.37	4057137.99	Vein enriched in Fe oxyhydroxides.
200-15	506113.37	4057137.99	Vein enriched in Fe oxyhydroxides.
108	506134.12	4056722.03	Sulphides (Chalcopyrite, Pyrite, gray copper) siderite
108-B	506134.12	4056722.03	Sulphides (Chalcopyrite, Pyrite, gray copper) siderite.
109	506134.12	4056722.03	Siderite with sulphides and sulfosalts.
110	506134.12	4056722.03	Siderite with sulphides and sulfosalts
111	506134.12	4056722.03	Siderite with sulphides and sulfosalts
116	506171.28	4056832.98	Sidérite/ankérite/ Barite veins.
489	506454.46	4057281.83	Iron and carbonate-rich samples
490	506454.46	4057281.83	Iron and carbonate-rich samples
491	506454.46	4057281.83	Iron and carbonate-rich samples
492	506001.58	4057026.98	Cu (malachite, azurite), with local baryte.
493	506001.58	4057026.98	Cu (malachite, azurite), with local baryte.
494	506001.58	4057026.98	Cu (malachite, azurite), with local baryte.
495	506001.58	4057026.98	Cu (malachite, azurite), with local baryte.
496	506114.12	4057267.4	Iron and carbonate rich samples
497	506474.55	4057294.78	Iron and carbonate rich samples
498	506469.1	4057288.62	Iron and carbonate rich samples
499	506560.46	4057278.83	Iron and carbonate rich samples
500	506524.21	4057291.74	Iron and carbonate rich samples
501	506538.87	4057273.88	Iron and carbonate rich samples

Appendix 2. Sample Locations and Descriptions			
Sample Number	WGS84 - Coordinates		Description
	E-UTM	N-UTM	
502	505855.00	4057929.00	Sample of calamine (ZnO) mineralisation in karsted limestone unconformity between Upper Cretaceous and Eocene
503	505855.00	4057929.00	
504	505845.00	4057942.00	
505	505845.00	4057942.00	
506	505845.00	4057942.00	
507	505845.00	4057942.00	
508	505845.00	4057942.00	
509	505845.00	4057942.00	
511	505845.00	4057942.00	
512	505845.00	4057942.00	
513	505845.00	4057942.00	
514	505845.00	4057942.00	
515	505845.00	4057942.00	
516	505845.00	4057942.00	
518	505845.00	4057942.00	
519	505845.00	4057942.00	
520	505845.00	4057942.00	
521	505845.00	4057942.00	
522	505845.00	4057942.00	
523	505845.00	4057942.00	
524	505845.00	4057942.00	
525	505845.00	4057942.00	
526	505845.00	4057942.00	
527	505845.00	4057942.00	
528	505969.00	4057878.00	
530	505969.00	4057878.00	
531	505969.00	4057878.00	
532	505969.00	4057878.00	
533	505969.00	4057878.00	

Appendix 3 – Descriptions Geophysical Methods and Equipment Used

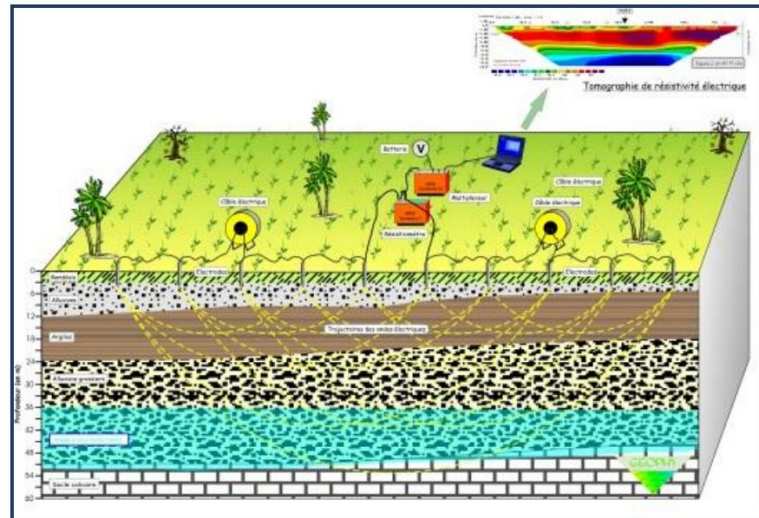
Electrical resistivity tomography (ERT), or electrical imaging, is the measurement of the electrical resistivity of the subsurface along a linear profile composed of injection electrodes and electrical current measurement devices. This technique provides a vertical cross-section of the subsurface geology along a profile (electrical resistivity tomography) indicating the variations in the resistivity of strata.

Induced polarization (IP) is geophysical technique for measuring the capacity of the subsurface to store electrical charges (chargeability). The technique complements resistivity. By injecting an alternating or pulsed current, the minerals (sulphides) are charged, creating a secondary voltage which discharges slowly after interruption, revealing geological structures or mineralisation. Its fundamental principle is based on the capacitive effect of rocks:

- **Injection:** An electric current is injected into the ground via electrodes.
- **Polarization:** The current causes the polarization of disseminated metal grains or clay interfaces in the subsurface, that store energy.
- **Relaxation measurement:** When the current is cut off (after 3 hours of injection), the voltage between the receiving electrodes does not instantly drop to zero but decreases slowly (“relaxation” or discharge effect).
- **Chargeability:** The speed of this decay is measured (in millivolts per volt) and indicates the presence of Mineralisation.

The concept and results of Induced Polarization (IP) in mV/V, are distinctly different to Electric Resistivity Tomography (ERT) in Ohm.m. IP is very sensitive to the presence of sulphides even at low concentrations, where resistivity alone fails. It is particularly effective for mapping areas of low resistivity with high chargeability, typical of shear-faults or alteration zones.

The electrical profiling process is similar for both techniques and involves installing 48 metallic electrodes at a depth of 40 cm, spaced 5 meters apart, and connected by a 48-wire electrical cable. A current of approximately 200 milli-amperes (mA) is injected into the electrodes to determine the apparent resistivity of the soils located within the study area. A 12-volt battery capable of electronic cycling, supplies the injected electrical power. The electronic field terminal used was a Syscal R1 Plus, manufactured by IRIS Instruments, Orléans, France.

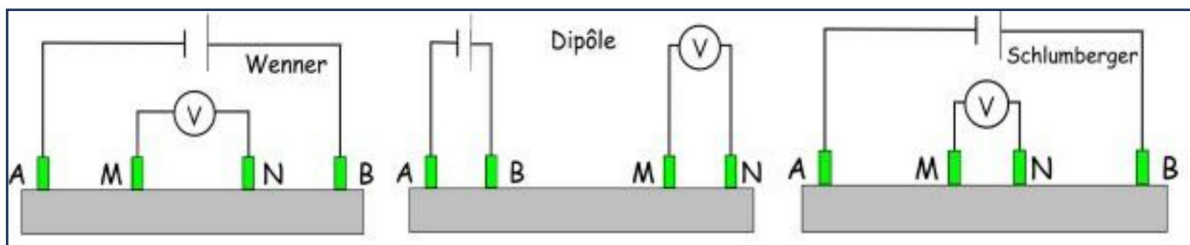


Model for field acquisition of ERT.

The acquisition time for a profile composed of 48 electrodes is approximately two hours, plus roughly the same amount of time for device setup. Once the acquisition is complete, the data transferred to a computer is processed using the RES2DINV software. This produces an image of the subsoil in terms of "true resistivity" and "induced polarization".

Soil Resistivity contrasts with Induced Polarization

Electrical resistivity depends on a large number of parameters, making its interpretation sometimes difficult without specific data such as soil boreholes or boreholes. It depends primarily on water content, water Mineralisation, and the clay content of the rock. The degree of fracturing strongly influences the result. Furthermore, the presence of metallic conductors near the ground surface (buried pipes, conduits, electrical networks, reinforcing bars in concrete structures, ground-anchored wire mesh) can significantly degrade the accuracy of measurements. Depending on the desired depth of investigation and the objectives to be achieved, several acquisition protocols are available among which: Wenner, Schlumberger, Pole-Dipole, Pole-Pole. They differ from each other in the arrangement of the injection dipole (AB) and the measurement dipole (MN):



Model acquisition protocols for ERT and IP.

For this mission, we opted for the pole-dipole configuration. The principle of pole-dipole electrical tomography for chargeability (or induced polarization) measurement combines the injection of direct current via a distant electrode (current electrode A) and the movement of a measurement dipole (M and N) along a line. The other current electrode, is placed at infinity, which simplifies resistivity and chargeability calculations. The potential difference induced by the current is then measured at each position of the M-N dipole, and an inversion is applied to obtain a 2D or 3D image of the resistivity and chargeability variations of the subsurface.

4.3 Field devices

For this campaign, we used:

A **SYSCAL R1 PLUS** resistivity meter, whose specifications are presented in the following table:

Transmitter

- Max voltage: 600 V in switch mode
- Max current: 2.5 A with internal DC/DC converter and 12 V external battery.
- Option: 25 mA MAX FOR READING ON SAMPLES
- Pulse duration - Secons: 0.2, 0.5, 1, 2, 4, 8
- Internal: 12 V, 7 Ah battery.

Receiver

- Automatic ranging, 1 true differential input channel
- Input impedance: 100 Mohm
- Max input voltage: 15 V
- Protection up to 1000 V
- Typical accuracy: 0.2%, resolution: 1 μ V
- Digital rejection better than 120 dB at power lines 50 and 60 Hz
- Two 48-output multi-conductor cables spaced 5 meters apart
- 50 stainless steel ground stakes
- ELECTREPRO software for creating sequences
- RES 2 D INV software for automatically interpreting resistivity pseudo-cuts
- A handheld GPS (Garmin eTrex)
- All-terrain vehicle