TECHNICAL REPORT
on the
VILA VERDE PROPERTY
District of Vila Real
Portugal
UTM 29T 621184 m East 4580112 m North

- Report Prepared For –

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Effective Date: July 30, 2024
Signature Date: October 1, 2024

J. Douglas Blanchflower, P. Geo.
Consulting Geologist

DATE and SIGNATURE PAGE

The undersigned, a consulting geologist of Minorex Consulting (Permit to Practice No. 1002071), prepared this Technical Report titled 'Technical Report on the Vila Verde Property, District of Vila Real, Portugal', dated effective July 30, 2024, to provide a geological introduction to the Project, summarize historical and recent exploration work, historical tungsten-tin mine production, and provide recommendations for future exploration programs. This Technical Report has been prepared in accordance with the Canadian Securities Administration's ('CSA') National Instrument 43-101 Standards of Disclosure for Mineral Projects ('NI 43-101') and guidelines for technical reporting by the Canadian Institute of Mining, Metallurgy and Petroleum's ('CIM') 'Best Practices and Reporting Guidelines' for disclosing mineral exploration.

Effective Date: July 30, 2024

Signed by,

(Signed by J. Douglas Blanchflower)
(signed and sealed original copy on file)

October 1, 2024
Signature Date

J. Douglas Blanchflower, P. Geo.
Consulting Geologist

***Title Page Photograph**: View Looking Southeastward at the exposed Mina A vein of the old Vale das Gatos Mine, Vila Verde Property.*

CERTIFICATE OF QUALIFIED PERSON

In connection with the technical report entitled 'Technical Report on the Vila Verde Property, District of Vila Real, Portugal', effective July 30, 2024 (the '**Technical Report'**), which was prepared for the issuer, Deeprock Minerals Inc., I, J. Douglas Blanchflower do hereby certify that**:**

1) I am a Consulting Geologist with business office at 25856 – 28th Avenue, Aldergrove, British Columbia, V4W 2Z8; and President of Minorex Consulting (email: minorex@shaw.ca).

2) The Technical Report to which this certificate applies is titled the 'Technical Report on the Vila Verde Property, District of Vila Real, Portugal', dated effective July 30. 2024.

3) I am a graduate of Economic Geology with a Bachelor of Science, Honours Geology degree from the University of British Columbia in 1971. I have practised my profession as a Professional Geologist since graduation. I am familiar with Tungsten-Tin deposit models and have experience writing technical reports. I am a Registered Professional Geoscientist in good standing with the Association of Professional Engineers and Geoscientists of British Columbia (No. 19086) and the Professional Engineers and Geoscientists of Newfoundland-Labrador (No.10683). I am familiar with *National Instrument 43-101—Standards of Disclosure for Mineral Projects* ('N**I 43-101'**) and, by reason of education, experience in exploration, mineral resource development and the evaluation of mining projects and professional registration, I fulfil the requirements of a Qualified Person as defined in NI 43-101.

4) I visited the Vila Verde property (the 'Property') which comprises the Vila Verde Tungsten Project and is the subject of this Technical Report between March 29 and 30, 2023 and more recently on July 7, 2024.

5) I am responsible for all sections of this Technical Report.

6) I am independent of Deeprock Minerals Inc., Allied Critical Metals Corp. and its subsidiaries, Dalmington Investments Limitada, and the Project, and I am a 'Qualified Person' as defined in Section 1.1 of NI 43-101.

7) I have not had prior involvement with the Property that is the subject of this Technical Report.

8) I have read National Instrument 43-101 and Form 43-101F1, and this Technical Report has been prepared by me in compliance with the foregoing Instrument and Form.

9) As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Respectfully submitted by,

(Signed by J. Douglas Blanchflower)
(signed and sealed original copy on file)

J. Douglas Blanchflower, P. Geo.
Consulting Geologist

Dated at Aldergrove, British Columbia, Canada this 1st day of October 2024

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1 EXECUTIVE SUMMARY

1.1 Introduction

The author, J. Douglas Blanchflower, P. Geo., was retained to conduct an examination of the Vila Verde property (the "**Property**") in northern Portugal and prepare this independent NI 43-101 technical report (‘**NI 43-101**’) to be a comprehensive review of the exploration activities on the property to meet the requirements of NI 43-101 for Deeprock Minerals Inc. (‘**Deeprock**’ or the ‘**Issuer**’).

The author visited the Vila Verde property during March 29 and 30, 2023 and more recently on July 7, 2024. The property examination included: examining several mineral showings within the property, collecting drill reject verification samples and reviewing all aspects of the historical exploration work including: local topographical, lithological and structural features; drill core geological logging procedures, sampling, analytical results and shipping procedures; and exploration documentation procedures.

1.2 Property Description and Ownership

The Property is centred around the past-producing Vale das Gatos mine. The Vila Verde permit area is located about 12 km east of the city of Vila Real or 90 km east-northeast of the major city of Porto, Portugal. The old Vale das Gatos Mine at the centre of the 75.1 sq km Experimental Mining License is situated at approximately UTM 29T 621184 m East by 45801112 m N. The property has three main zones, namely: Justes, Gatas, and Prainelas. All three zones are situated along a strike length of approximately 7 km and well within the existing Experimental Mining License area described below.

Minerália-Minas, Geotecnia E Construcoes Lda. ("**Minerália**") currently holds title to 90% of the Vila Verde Property beneficially in trust for Pan Metals Unipessoal Limitada ("**Pan Metals**") pursuant a property agreement (the "Property Agreement") dated April 29, 2024. Pan Metals is a wholly-owned subsidiary of Allied Critical Metals Corp. (“ACM”) which is a private Ontario company with whom Deeprock has contracted for a reverse takeover transaction described below. The Property covers an area of approximately 14 sq. km (1,400 hectares) under the Prospecting License (MN/PPP/325) granted by the DGEG covering the main nodes of mineralisation shown in Figure 4.2 below. Under the Property Agreement, Minerália holds title of the Property beneficially in trust for PanMetals and has agreed to transfer the legal registration of the Property licence to PanMetals upon payment of a licencing fee of approximately €25,000 and committing to continue further exploration work on the Property, and PanMetals may also acquire the remaining 10% ownership of the Property by paying €60,000 to Minerália, which was acquired on April 29, 2024 by payment to Minerália of a promissory note in the amount of €85,000.

Minerália applied for an Experimental Mining Licence (EML), which was publicized in the official gazette of Portugal–Diario da Republica No 69, dated 8th April 2019, under Aviso no 6363/2019, and an area of 14 sq. km (1,400 hectares) was approved by the DGEG covering the main nodes of mineralisation (Figure 4.2, below). The EML is pending presentation to the DGEG of financial guarantees for approximately EUR 250,000 and a corresponding work program. The EML will permit mining of up to 150,000 tonnes per annum and exploration on the property. Within 5 years an application must be made to convert the EML into a full mining licence.

This Technical Report has been prepared on behalf of Deeprock and ACM, by the author on behalf of Minorex Consulting ('**Minorex**') in connection with a proposed reverse takeover (the "**RTO**") of Deeprock by ACM which beneficially owns the Property through its wholly-owned subsidiary, Pan Metals. Pursuant to the RTO, Deeprock will, among other things, under a statutory plan of arrangement transfer all of its other mineral properties to a wholly owned subsidiary in exchange for shares to be distributed pro rata to the shareholders of Deeprock as a spinout transaction, after which the post-spinout Deeprock ("**New Deeprock**") will consolidate all its issued and outstanding shares on a 40-to-1 basis and change its name to "Allied Critical Metals Corp.", and a wholly-owned subsidiary of New Deeprock will amalgamate (the "**Amalgamation**") with ACM ("**Amalco**") and all of the securityholders of ACM will receive like securities of New Deeprock on a 1-for-1 basis and the securityholders and business of ACM will become the securityholders and business of New Deep as the resulting issuer (the "**Resulting Issuer**"). Prior to the Amalgamation, ACM will complete a concurrent equity financing to provide sufficient net proceeds to meet the working capital requirements of the Resulting Issuer, the common shares of which will be listed and posted for trading on the Canadian Securities Exchange (the **"Exchange**"), subject to Exchange approval.

ACM is an Ontario corporation in Canada which acquired 100% ownership of a private Portuguese company named PanMetals Unipessoal Limitada (**'Pan Metals**') on April 29, 2024 (the **'Acquisition**'). ACM acquired 100% ownership of Pan Metals (through a wholly-owned subsidiary named ACM Tungsten Unipessoal Lda. incorporated in Madeira, Portugal. Under the Acquisition, Pan Metals became 100% owner of the tungsten mineral projects (the '**Tungsten Projects**') in Portugal known as the Borralha Tungsten Project ('**Borralha**') and the Vila Verde Tungsten Project ('**Vila Verde**' or the '**Project**'), in consideration for transferring 10% beneficial interest in the Tungsten Projects (the '**Retained Interest**') to Dalmington Investments Limitada ('**Dalmington**') and granting a 1% net smelter returns royalty in respect of all production from the Tungsten Projects (the '**1% NSR**') to Dalmington.

Accordingly, ACM now owns 90% of the Tungsten Projects and the only royalty on the Tungsten Projects (other than government taxes, fees or royalties under the laws of Portugal) is the 1% NSR. ACM also has the right to repurchase the 10% Retained Interest in respect of Borralha and Vila Verde from Dalmington upon commencement of commercial production from the Borralha and Vila Verde properties, respectively at a purchase price equal to a 30% discount to 10% of the net present values (using a discount rate of 7%) for the respective Tungsten Projects payable 30% in cash and 70% in shares of ACM (or its listed issuer parent company) at a share price equal to the 20-day volume weighted average price. Prior to commencement of commercial production at the respective Tungsten Projects, the Retained Interest will be a fully-carried, non-participating interest, and after it then becomes a participating net profits interest. ACM has the right, after production commencing at the Tungsten Projects, to purchase 50% of the 1% NSR for a cash purchase price equal to 70% of 1% of the combined net present value of the Tungsten Projects.

The surface and water rights where the main exploration activities have taken place are privately owned. They were conducted with the approval of the property owners and without any issues with the community. Future exploration work does not require additional permits, though they must be proposed for approval by General Directorate for Energy and Geology. Besides industry-standard environmental responsibilities that are to be followed, the Property owner does not have any responsibilities concerning some pre-existing environmental liabilities from historic underground and surface mining.

1.3 Accessibility and Local Environment

The Vila Verde property is accessible via National Road EN 322 that connects the city of Porto with the municipal capital city of Vila Real to the northeast and then on to the property. By road, it is approximately 110 km to the mining license from the Porto International Francisco Sá Carneiro Airport, or 19 km by road from Vila Real.

The mining license is situated in hilly terrain on an elevated upland above the Pinhão river. Local elevations vary from 500 to 900 m AMSL. Vegetation is typical of a marine-influenced climate with oak and pine forests covering much of the non-agricultural areas with many active vineyards on the cleared southerly-facing hillsides.

There is both water and electric power from the national grid available at the old Vale das Gatas mine site. Elsewhere, there is nearby water and power to all exploration targets. Local experienced miners and specialized contractors with heavy equipment are readily available. There is local lodging, plus restaurant and grocery stores in the nearby town of Sabrosa.

1.4 Exploration and Mining History

The Vale das Gatas mining license dates to 1883. It was granted until the mine closure in 1986 due to the decline of the tungsten prices. The mine operated almost uninterrupted from 1883 to 1986, except during a governmental decree between mid-1944 to late 1946. In 1982 the mine was bought by Sociedade Portuguesa de Empreendimentos (‘**SPE**’) that worked in joint venture with Bureau de Recherches Géologiques et Minières (‘**BRGM**’). The joint venture partners carried out reconnaissance mapping, geochemical surveying and diamond drilling in the Justes zone. From 1986 to 1992 there was some maintenance of the mining infrastructure but by 1992 the Vale das Gatas mine was totally abandoned.

No exploration work was carried out on the property after 1986 until 2014 when Minerália carried out the first systematic exploration program.

1.5 Geological Setting and Mineralization

The Vila Verde project area is situated within the central part of the northwest-southeast trending antiform, part of the Central Iberian Zone of northern Portugal. The antiform is flanked to the northeast and southwest by the Douro Group formations of intercalated quartzite and phyllite belonging to the Cambrian-age Schist-Graywacke Complex. Several varieties of granitic rocks have intruded the antiform and have been subdivided according to their temporal relationship with the last deformation phase, namely: syn-tectonic, late-tectonic and post-tectonic.

There are two main structural features controlling the mineralized structures: the Vinheiros-Vale das Gatas-Saudel shear zone that is a WNW-ESE sinistral thrust fault and the NE-SW Prainelas-Delegada-Coelheira shear zone which has a dextral component. Hydrothermal alteration at the Vale das Gatas deposit includes: greisenization, albitization, tourmalinization, sericitization and silicification. It appears that these various alteration facies are commonly related to the intrusion of the earlier syn-tectonic Vale das Gatas granite while a variety of later granitic stocks increased the permeability of the granitic hosts for coeval and younger hydrothermal fluids that weakly to intensely altered the host rocks from weak chloritization to intense greisens.

The tungsten-tin and associated sulphide mineralization of the Vila Verde project occur spatially- and genetically-associated with fracture-filling veins, veinlets, and vein stockworks hosted by variably-altered granitic intrusions, some of which have been moderately to intensely greisenized. The mineralization is dominantly cassiterite and wolframite (probably ferberite) with lesser associated scheelite, arsenopyrite, pyrite, pyrrhotite chalcopyrite, sphalerite and stannite.

1.6 Deposit Summary

The wolframite-cassiterite mineralization at the Vale das Gatas zone occurs associated with quite distinct fracture infilling quartz and aplite-pegmatite veins hosted by syn-tectonic porphyritic medium- to coarse-grain granite near its contact with metasedimentary rocks. In contrast, the same mineralization at the Prainelas zone occurs as a large vein stockwork of numerous 1 to 10 cm wide veins, commonly striking northwesterly over a 1 sq km area. In the Justes zone the mineralization occurs as veinlets and vein stockworks hosted by both early and later granitic intrusions as quartz veinlets and disseminations in moderately to intensely greisenized granite.

1.7 Exploration Work

Minerália acquired the Vila Verde project in 2014. After Minerália's personnel compiled the available historical data, they carried out an extensive program of brush clearing, trenching and geological mapping, in addition to topographic surveys, grid preparation and geochemical sampling. The results of this work identified the Vale das Gatas, Prainelas and Justes-Cumieira zones as being worthy of further exploration.

Two phases of underground channel samples were collected from the Prainelas zone underground workings: the first phase of the various veins and vein selvages and the second phase of only the individual veins. After Minerália personnel mapped and sampled the Vale das Gatas underground workings. Surface trenching and channel sampling were then carried out on the Prainelas zone. The results of this work show Trench PT_01 returned a 30-metre interval grading 2.505 ppm W and Trench PT_02 returned a 10-metre interval grading 6.282 ppm W.

Minerália cleared more than 800 m of old trails in the Cumieira area of the Justes zone. This work revealed many old workings and that the Cumieira area is well covered by relatively thick overburden, decomposed bedrock and old waste rock material. Based upon the 1980's drilling results from of SPE's 12 drill holes, a greisenized granitic intrusion of approximately ±1500 by 800 m was identified hosting tungsten-tin-lithium plus associated bismuth and molybdenum mineralization. The historical data also showed that the old open pit at Cumieira is underlain by a large greisen zone hosting mineralization in greisenized bodies with dimensions of 50 to 70 m wide.

Initial brush and trail clearing followed by reconnaissance geological mapping within the Porqueira area of the Justes zone revealed an old open pit measuring approximately 200 m long by 20 to 50 m wide, plus numerous surface old test pits and waste dumps surrounding the open pit.

In 2024 the Minerália field geologists collected 300 kg of wolframite-mineralized waste rock from various waste rock dumps scattered within the Cumieira area. This composited sample was then shipped to ALS processing laboratory in Seville, Spain, for crushing and pulverizing, and later shipped directly to Minepro Solutions in Almeria, Spain for gravimetric concentration processing.

1.8 Drilling

The historic drilling by SPE and BRGM included eight drill holes, totalling 814.55 m, in the Justes zone. Recent drilling campaigns by Minerália in 2015 and 2016 included five holes, totalling 647.10 m, tested the Prainelas zone and in 2018 four holes, totalling 640.95 m, tested the Justes zone for a total meterage of 1,288.05 m of mostly HQ-size diamond drilling. Thus, a total of 17 holes totalling 2,102.60 m have now tested the Vila Verde project area.

The reported results from the 2015-16 drill testing of the Prainelas zone included significant results from: drill hole Pr2 that intersected 1,939 ppm WO_3 over a drilling length 36.0 to 48.0 m, including 5 m grading 4,102 ppm WO_3 from the drilling length 36.0 to 41.0 m.; and drill hole Pr4 that intersected 5 m grading 1,045 ppm SnO_2 and 49.2 ppm Ag from the drilling length 104.0 to 109.0 m.

In 2018 Minerália tested the Cumieira and Porqueira areas of the Justes Zone with four diamond drill holes totalling 640.95 m. Two holes were drilled by the old Cumieira open pit, designated Jc1 and Jc2, and two near the open pit in the Porqueira area, designated Jp1 and Jp2.

- Drill hole Jc_1 reportedly intersected 57 m of mineralization grading 885 ppm WO_3 and 367 ppm Sn from the drilling length 31.0 to 88.0 m, including 11 m grading 452 ppm WO_3 from the drilling length 31.0 to 42.0 m; and 24 m of mineralization grading 1,286 ppm WO_3, and 484 ppm Sn from drilling length 74.0 to 98.0 m, including: 5 m grading 3,926 ppm WO_3 from drilling length 83.0 to 88.0 m.

- Drill hole Jc_2 reportedly intersected 22 m of mineralization grading 1,054 ppm WO_3 and 198 ppm Sn from the drilling length 7.0 to 49.0 m, including 5 m grading 3,503 ppm WO_3 and 420 ppm Sn from the drilling length 44.0 to 49.0 m; and 8 m grading 3,099 ppm WO_3 and 251 ppm Sn from the drilling length 153.0 to 161.0 m.

Both drill holes intersected a variety of lithologies including variably altered or greisenized granite, rhyolite, dacite and microgranite. The mineralization occurs with quartz veins, as void infillings and disseminations hosted by greisenized granite.

Two drill holes, Jp_01 and Jp_02, tested the Porqueira area northeast of an old illegal open pit. The holes were oriented in a south-southeasterly direction between and beside two earlier drill holes completed in the 1980's by SPE.

- DDH Jp_01 reportedly intersected 22 m grading 1,054 ppm WO_3 and 198 ppm Sn from the drilling length of 7.0 to 49.0 m, including 5 m grading 3,503 ppm WO_3 and 420 ppm Sn from the drilling length 44.0 to 49.0 m; and

- DDH Jp_01 also reportedly intersected 17 m grading 1,918 ppm WO_3 and 146 ppm Sn from the drilling length 147.0 to 164.0 m, including 8 m grading 3,099 ppm WO_3 and 251 ppm Sn from the drilling length 153.0 to 161.0 m. Most of the wolframite-cassiterite mineralization occurs as disseminations in a greisenized granite or with fracture filling quartz veins.

1.9 Sampling Information

The pre-2015 sample preparations, analytical procedures and securities are not documented. The sample preparation and handling during Minerália's 2015 to 2018 exploration programs are well documented in both their exploration reports and their own internal sampling procedures document. It appears that during all the sampling and drilling campaigns Minerália's sampling and handling procedures were well within industry standards and CIM guidelines.

Minerália's drill core samples were securely and directly shipped to the ALS preparatory facilities in Sevilla, Spain. There the samples were prepared for analysis prior to being direct shipped to the certified ALS Minerals Laboratory in Loughrea, Ireland for analyses.

The author collected quartered core from stored drill hole JC_01 (76.0-77.0 and 159.0-160.0 m) and drill hole JC_02 (25-26.0 and 38.0-39.0 m), both drill holes of which tested the very prospective Cumieira area. The drilling length intervals from stored drill holes JP_01 (159-160 m) and JP_02 (92.0-93.0) were selected to verify drilling results in the Porqueira area. Lastly, one drilling length interval from 106.0 to 107.0 in diamond drill hole PR_4 was selected for verification of the Prainelas zone drilling. The quartered drill cores and one standard material sample were individually described, bagged, labelled and placed in woven-poly shipping bags and, like Minerália's earlier drill core samples, were direct shipped to the ALS preparatory facilities in Sevilla, Spain. There the author's verification samples were prepared for analysis in a similar process as Minerália's core samples prior to being direct shipped to the certified ALS Minerals Laboratory in Loughrea, Ireland for analyses.

Two procedures were used to analyse the sample pulps. The first procedure (ALS Code ME-4AACD81) analysed for base metals using a 4-acid digestion, and a second procedure (ME-MS8S) used Lithium Borate Fusion and Mass Spectrometry to tungsten, tin and other elements.

It is the author's opinion that both Minerália personnel and the author exercised appropriate care and attention to handling, preparing, and securely shipping their samples for analyses.

1.10 Data Verification

Minerália personnel verified the historical data with site visits to the various project areas and by validating a resource database. They also conducted a detailed verification of the historical SPE/BRGM drill holes in the Justes Zone and the data was found to be trustworthy.

The author verified and photographed the locations of various historical workings at the northern Justes, central Vale das Gatas and southern Prainelas during his property examination. He also examined most of the available records, maps and data pertaining the Vila Verde project. In addition, six verification samples were collected from drill core of six different intervals from five widely-spaced drill holes that tested three areas within three mineralized zones. These samples, plus a standard material sample, were direct shipped to be processed and analysed by the same ALS Global preparatory and assay facilities as Minerália had utilized previously.

The results of the verification sampling demonstrate the 'nuggety' distribution of the mineralization, and the need for complete multi-element analyses of all samples. A comparison between Minerália's reported tungsten values and those of the author's from the same drilling intervals show a wide variance between the original half-core samples and later quarter-core verification samples using the same analytical procedures. These differences can be easily explained by the extreme 'nuggety' distribution of the mineralization as fine-grained disseminations and/or that associated with irregular fracture-filling quartz stockwork veining.

There is a significant difference between the two tungsten analyses of the certified standard reference material. One explanation of the difference might be that the standard material in a small brown envelope had been shelved since 2018 and was not completely re-homogenized at the laboratory prior to its analysis which could result in a lower tungsten analysis. However, the ALS internal quality control procedures and QA/QC results indicate that the six verification samples are credible and reliable.

There are three noteworthy results from the verification sampling. The first being the high tin value of 2,730 ppm Sn returned from sample JC_02_25. The drill logs do not report any significant cassiterite mineralization. Secondly, both verification samples JC_01_76 and PR_4_106 returned high zinc values, 1,010 and 1,275 respectively. The latter sample, PR_4_106, also had anomalously high silver, lead and arsenic values indicating that the base metals observed and reported in the logs were both galena and arsenopyrite. Lastly, the results show that multi-element analyses of all samples are important for the detection of not only the tungsten and tin values, but also the associated chalcopyrite, galena, sphalerite, arsenopyrite and silver mineralization.

1.11 Metallurgical Testing

In June 2024, qualified geologists of Minerália collected 300 kg of rock samples from the Cumieira sub-zone at the Justes zone on the Via Verde property. These hand samples were collected from large fragments of tailings and eluvial gravel where wolframite mineralization was observed. These samples were collected with the goal of being metallurgically processed to simulate the predicted performance of an eventual pilot plant regarding the quality of concentrate of wolframite. Wolframite is characterized by its high density and magnetic properties, so gravimetric concentration and magnetic separation are theoretically the most appropriate and effective processes for enhancing the yield and purity of the final concentrate.

The results of the preliminary metallurgical test work show that the wolframite from Justes deposit is recoverable at saleable grade, and that the mineralization should be processed by combining gravimetric concentration and magnetic separation techniques to enhance WO_3 grades and recoveries both in rougher and cleaning stages. The main impurities are iron oxide, silica, tin and sulphides. Other important impurities as Cu, As, Th and U do not appear to be deported in significant quantities in the final WO_3 concentrates.

It is recommended to complete a metallurgical test work program with a representative sample, including a detailed characterization of the ore, WO_3 pre-concentration tests, grinding calibration, gravimetric concentration and magnetic separation tests and detailed analysis of concentrates and tailings.

The results show that pending further test work it will be possible to do a more suitable grinding calibration and multiple cleaning stages of the middlings in order to simulate an initial sense of feed grade and recovery. The apparent amount of iron oxides at the concentrate show that the WO_3 concentrate grade might be upgradable, and that with further testing the 62.5% WO_3 initial concentrate can be beneficiated into a premium very high-grade concentrate with very low or non-penalties product.

On Jul 7, 2024 the author examined several sites from which the metallurgical wolframite-bearing samples were collected. It is the author's opinion that Minerália, Minepro *et al* and ALS personnel exercised appropriate care and attention to the collection, handling, preparing, processing and analyses of the collected 300-kg composite metallurgical sample.

1.12 Interpretation and Conclusions

The Vale das Gatas mine situated centrally within the large Vila Verde project area was ranked as the third largest tungsten producer in Portugal. This project has at least six known tungsten-tin mineral occurrences over approximately 9 km. These occurrences have received only minimal exploration since underground mining ceased at Vale das Gatas in 1986.

The central Vale das Gatas and southern Prainelas tungsten-tin occurrences are situated along a regional contact between the medium- grained, porphyritic, syn-tectonic granite of the Vale das Gatas Group and the Cambrian-age metasedimentary rocks of the Schist and Greywacke Complex. Similarly, the tungsten-tin mineralization varies from multiple stockwork quartz-wolframite-cassiterite and associated base metals in the Prainelas zone, to narrow to quite wide and distinct quartz-wolframite-cassiterite (+/- associated base metals) quartz veins at Vale das Gatas. At the northern Justes zone largely disseminated wolframite-cassiterite (+/- associated base metals) with lesser stockwork quartz vein-hosted mineralization are hosted by greisenized Lararea Granite.

Alteration facies vary with location and intensity throughout the project area, mainly related to several periods of hydrothermal fluid activity associated with the various granitic intrusions. Alteration facies include: greisenization, albitization, tourmalinization, sericitization and silicification. The mineralization, like the alteration, varies with location and abundance. At the Vale das Gatas deposit the paragenesis of the mineralization is firstly cassiterite, then wolframite, scheelite, arsenopyrite, pyrite, pyrrhotite, chalcopyrite, sphalerite, stannite, to lastly, galena.

The results of the verification sampling illustrate the extreme ‘nuggety’ distribution of the mineralization. Furthermore, the sample results show that multi-element analyses of all channel and drill core samples are important for the detection of not only the tungsten and tin values, but also the associated base metal mineralogy and associated silver values.

Since their acquisition of the project area in 2014, Minerália has carried out verification of historical data, detailed geological mapping, grab and channel rock sampling, trenching and 1,288 m of diamond drilling. The results of this recent exploration have demonstrated the excellent exploration potentials of the stockwork vein-hosted mineralization at the Prainelas zone and especially the greisen-hosted disseminated mineralization at the Justes zone.

1.13 Recommendations and Proposed Exploration Budget

It is the author's opinion that the Vila Verde property has excellent exploration potential and may have good economic potential pending future detailed exploration. The following exploration work is recommended in two phases.

Phase I

1) Compile and digitize data, maps and plans for the Vale das Gatas, Justes and Prainelas zones;

2) Backhoe trenching and channel sampling across and, at intervals, along the stockwork veining at the Prainelas zone and various locations in the Cumieira area of the Justes zone;

3) Initiate hydrological, flora and fauna and baseline environmental studies over the entire project area; and

4 Initiate community and government meetings and communications.

The estimate cost for the above proposed exploration work is approximately **EUR 147,660 or CAD $226,000** (rounded) (Currency Conversion of EUR 1 = CAD $1.532).

Pending the results of the Phase I exploration work, the following Phase II exploration work is proposed to advance the project for a future Environmental Impact Study.

Phase II

1) Prepare and submit permitting documents to DGEG for approval;

2) Continue hydrological and baseline environmental studies;

3) Continue community and government meetings and communications;

4) Conduct HQ-size diamond drilling to test the structural settings, boundaries and depths of the Cumieira and Prainelas mineralization;

5) Conduct RC drilling to optimize the drill hole spacing within the Cumieira and Prainelas areas;

6) Carry out detailed metallurgical studies on the weathered and fresh mineralized material;

7) Conduct preliminary mine planning, including economic analyses, for possible mining methods, infrastructure sites, water supplies, containment areas;

8) Estimate maiden mineral resources for the Cumieira and Prainelas deposits; and

9) Lease pilot plant equipment and conduct bulk sampling in the Cumieira area.

The estimate cost for the proposed Phase II exploration work is approximately **EUR 1,487,835** or **CAD $2,279,000** (rounded) (Currency Conversion of EUR 1 = CAD $1.532).

Thus, the combined total of the proposed Phase I and II exploration work is estimated at **EUR 1,635495** or **CAD $2,505,000**.

2 INTRODUCTION and TERMS OF REFERENCE

2.1 Introduction and Terms of Reference

The author, J. Douglas Blanchflower, P. Geo., was retained by Deeprock Minerals Inc. (‘**Deeprock**’ or the ‘**Issuer**’) to conduct an examination of the Vila Verde property and prepare this independent NI 43-101 (‘**NI 43-101**’) technical report to be a comprehensive review of the exploration activities on the property. This independent technical report (the ‘Report’) was prepared in accordance with the formatting requirements of National Instrument 43-101 and Form 43-101F1 (Standards of Disclosure for Mineral Properties).

Units used in the report are metric units unless otherwise noted. Monetary units are in Euros (‘**EUR**’ or ‘**€**’) or Canadian dollars (‘**CAD**’) unless otherwise stated. All ounce units refer to troy ounces. The Report uses Canadian English. It is intended to be read in its entirety.

2.2 Site Visit

The author, an independent qualified person according to NI 43-101, visited the Vila Verde property on March 29 and 30, 2023 and more recently on July 7, 2024. The author examined several mineral showings within the property, collected drill reject verification samples and reviewed all aspects of the historical exploration work including local topographical, lithological and structural features; drill core geological logging techniques, sampling, analytical results and shipping procedures, and exploration documentation procedures.

2.3 Sources of Information and References

Reports and documents listed in Section 27 of the report are used to support preparation of this Report. Additional information was provided by PanEx Resources (Pty) Limited (‘**PanEx**’) and Minerália – Minas, Geotecnia e Construções Lda. (‘**Minerália**’) personnel as required, as listed in Section 27.

2.4 Abbreviations and Units of Measure

Metric units are used throughout in this report and costs are in Euros (‘EUR’ or ‘€’) or Canadian Dollars (‘CAD’). Precious metal prices are reported in USD$ per troy ounce. A list of abbreviations that may be used in this report is provided below.

%	per cent	m2	square metre
Ag	silver	m3	cubic metre
AMSL	above mean sea level	Ma	million years ago
As	arsenic	mg	magnetite
Au	gold	mm	millimetre
b.y.	billion years	mm2	square millimetre
CAD$	Canadian dollar	mm3	cubic millimetre
cl	chlorite	mo	molybdenite

cm	centimetre	Moz	million troy ounces
cm2	square centimetre	ms	sericite
cm3	cubic centimetre	Mt	million tonnes
cp	chalcopyrite	mu	muscovite
cs	cassiterite	m.y.	million years
Cu	copper	NI 43-101	National Instrument 43-101
cy	clay	oz	troy ounce (31.1035 grams)
°C	degree Celsius	Pb	lead
°F	degree Fahrenheit	pf	plagioclase
DDH	diamond drill hole	ppb	parts per billion
ep	epidote	ppm	parts per million
ft	feet	py	pyrite
ft2	square feet	QA	Quality Assurance
ft3	cubic feet	QC	Quality Control
g	gram	qz	quartz
gl	galena	RC	reverse circulation drilling
GPS	Global Positioning System	RQD	rock quality description
gpt	grams per tonne	sc	scheelite
ha	hectare	SG	specific gravity
hm	hematite	st	short ton (2,000 pounds)
ICP	induced coupled plasma	Sn	Tin
kf	potassic feldspar	t	tonne (1,000 kg or 2,204.6 lbs)
kg	kilogram	to	tourmaline
km	kilometre	W	Tungsten
km2	square kilometre	um	micron
l	litre	US$	United States dollar
li	limonite	wo	wolframite
m	metre	Zn	zinc

2.5 Acknowledgements

The author acknowledges the kind assistance and courtesies extended to him during his property examinations by the Barros family, Adriano and João Barros, and the Minerália personnel, including Vitor Arezes, Luis Lima and Avelimo Pinheiro.

3 RELIANCE ON OTHER EXPERTS

This Technical Report was prepared by Minorex Consulting, under the supervision of the author of the Technical Report who is qualified person ('QP') pursuant to NI 43 101 for Deeprock and ACM.

In preparing this Technical Report, the QP has fully relied upon certain work, opinions and statements of experts concerning legal, political, environmental or tax matters relating to the Project. The author considers the reliance on other experts, as described in this section, as being reasonable based on his knowledge, experience and qualifications. The following professional advisors have been retained by the Issuer and ACM to prepare various reports for the Project and have been relied upon in preparation of this Technical Report. The advisors and their involvement are listed as follows:

- Viera De Almeida Law Firm, located in Lisbon, Portugal provided a title opinion in respect of the ownership and good standing of the Tungsten Projects and a corporate law opinion for the ownership and good standing of PanMetals dated April 29, 2024 (the '**Title Opinion**'); and

- Aird and Berlis LLP, a law firm located in Toronto, Canada provided a corporate law opinion for the valid existence and good standing in respect of ACM dated April 29, 2024 (the '**Corporate Opinion**').

The QP believes the information provided by the third parties to be reliable, but cannot guarantee the accuracy of conclusions, opinions or estimates that rely on such third-party sources for information that is outside their area of technical expertise. This Technical Report is intended to be used by the Issuer and ACM as a Technical Report for Canadian securities regulatory authorities pursuant to applicable Canadian provincial securities laws.

4 PROPERTY LOCATION and DESCRIPTION

4.1 Property Description and Location

The Property is centred around the past producing Vale das Gatos mine. The Vila Verde permit area is located about 12 km east of the city of Vila Real and 90 km east-northeast of the more populous city of Porto, Portugal. The old Vale das Gatos Mine is at the centre of the 75.1 sq km Prospecting and Research License (MN/PPP/325) constituting the Property and is situated at approximately UTM 29T 621184 m East by 45801112 m North. The Property is beneficially owned 90% by PanMetals registered in the name of Minerália beneficially in trust for PanMetals and is currently being converted to an Experimental Mining License ('EML') covering 1,400 hectares (14 sq km). PanMetals may acquire the remaining 10% ownership of the Property by paying €60,000 to Minerália.

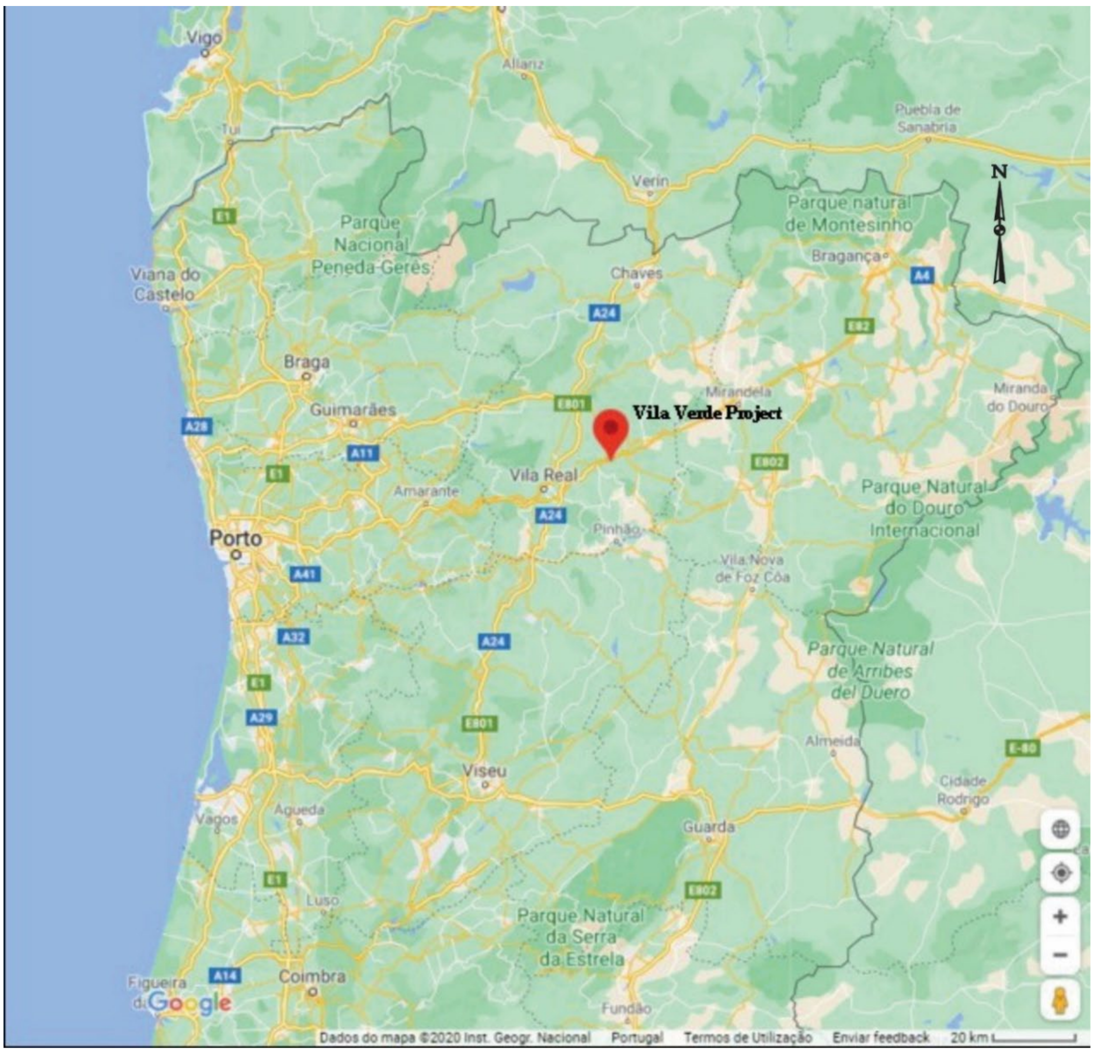


Figure 4.1: Location Map of the Vila Verde Property, Northern Portugal

4.2 Project Exploration Permit and Portuguese Mining Laws

In 1926, the Vila Verde mining property comprised 36 concessions with a total area of about 1,179 hectares later increased to 1,781 hectares and finally to about 1,788 hectares. The initial Prospecting and Research Licence awarded to Minerália (MN/PPP/325) was valid until 2016 and covered an area of 12,750 hectares (127.5 sq. km) which included all the old titles. An extension was applied for and accepted by the Direcao Geral de Energia e Geologia ('**DGEG**') (General Directorate for Energy and Geology). In 2019, following the completion of proposed work, Minerália applied for an Experimental Mining Licence (EML), which was publicized in the official gazette of Portugal–Diario da Republica No 69, dated 8th April 2019, under Aviso no 6363/2019, and an area of 14 sq. km (1,400 hectares) was approved by the DGEG covering the main nodes of mineralisation (Figure 4.2, below). The EML is pending presentation to the DGEG of financial guarantees for approximately EUR 250,000 and a corresponding work program. The EML will permit mining of up to 150,000 tonnes per annum and exploration on the property. Within 5 years an application must be made to convert the EML into a full mining licence (Minerália, 2020).

Minerália currently holds title to 100% of the Vila Verde Property beneficially in trust for Pan Metals Unipessoal Limitada ("**PanMetals**") pursuant a property agreement (the "**Property Agreement**") dated April 29, 2024. The Property covers an area of approximately 14 sq. km (1,400 hectares) under the Prospecting License (MN/PPP/325) granted by the DGEG covering the main nodes of mineralisation shown in Figure 4.2. Under the Property Agreement, Minerália holds title of the Property beneficially in trust for PanMetals and has agreed to transfer the legal registration of the Property licence to PanMetals upon payment of a licencing fee of approximately €25,000 and committing to continue further exploration work on the Property. Pan Metals held a 90% beneficial interest in the Property and on April 29, 2024 it acquired the remaining 10% by paying Minerália €60,000 for the remaining 10% as well as €25,000 for license fees paid by way of a promissory note in the amount of €85,000 paid to Minerália by ACM on behalf of its wholly-owned subsidiary Pan Metals.

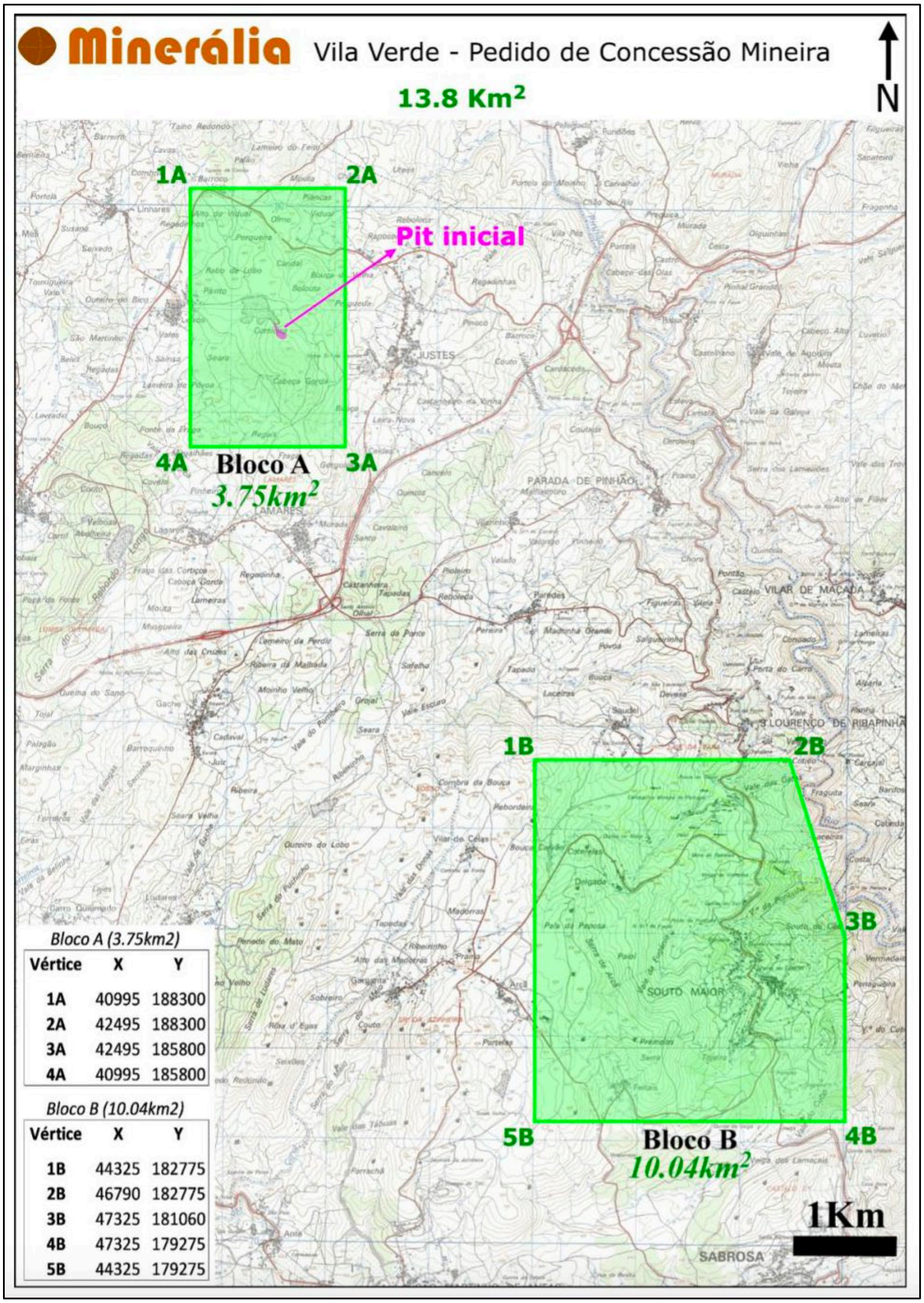


Figure 4.2: Plan of Vila Verde Experimental Mining License (Minerália, 2020)

4.3 Property Ownership

This Technical Report has been prepared on behalf of Deeprock and ACM, by the author on behalf of Minorex Consulting (‘**Minorex**’) in connection with a proposed reverse takeover (the “**RTO**”) of Deeprock by ACM which beneficially owns the Property through its wholly-owned subsidiary, Pan Metals. Pursuant to the RTO, Deeprock will, among other things, under a statutory plan of arrangement transfer all of its other mineral properties to a wholly owned subsidiary in exchange for shares to be distributed pro rata to the shareholders of Deeprock as a spinout transaction, after which the post-spinout Deeprock (“**New Deeprock**”) will consolidate all its issued and outstanding shares on a 40-to-1 basis and change its name to “Allied Critical Metals Corp.”, and a wholly-owned subsidiary of New Deeprock will amalgamate (the “**Amalgamation**”) with ACM (“**Amalco**”) and all of the securityholders of ACM will receive like securities of New Deeprock on a 1-for-1 basis and the securityholders and business of ACM will become the securityholders and business of New Deep as the resulting issuer (the “**Resulting Issuer**”). Prior to the Amalgamation, ACM will complete a concurrent equity financing to provide sufficient net proceeds to meet the working capital requirements of the Resulting Issuer, the common shares of which will be listed and posted for trading on the Canadian Securities Exchange (the **“Exchange**”), subject to Exchange approval.

ACM is an Ontario corporation in Canada. ACM acquired 100% ownership of Pan Metals effective on April 29, 2024 (the ‘**Acquisition**’). Pan Metals holds beneficial title to the Property, which is in the process of being licensed in the name of Minerália beneficially in trust for Pan Metals further to a research and prospecting agreement with the registry number MN/PP/014/13, entered into between the DGEG of the Government of Portugal and Minerália dated July 22, 2013, which expired March 20, 2020 but Minerália has applied to the DGEG for that agreement to be converted into an experimental exploration agreement (the “**Exploration Agreement**”), which would allow further mineral exploration and pilot mining of up to 150,000 tonnes per annum. The terms of the Exploration Agreement include a 3% production royalty payable to the Government of Portugal.

In particular, ACM acquired 100% ownership of Pan Metals (through a wholly-owned subsidiary named ACM Tungsten Unipessoal Lda. incorporated in Madeira, Portugal. Under the Acquisition, Pan Metals became 100% owner of the tungsten mineral projects (the ‘**Tungsten Projects**’) in Portugal known as the Borralha Tungsten Project (‘**Borralha**’) and the Vila Verde Tungsten Project (‘**Vila Verde**’ or the '**Project**'), in consideration for transferring 10% beneficial interest in the Tungsten Projects (the ‘**Retained Interest**’) to Dalmington Investments Limitada (‘**Dalmington**’) and granting a 1% net smelter returns royalty in respect of all production from the Tungsten Projects (the ‘**1% NSR**’) to Dalmington.

Accordingly, ACM now owns 90% of the Tungsten Projects and the only royalty on the Tungsten Projects (other than government taxes, fees or royalties under the laws of Portugal) is the 1% NSR. ACM has the right to repurchase the 10% Retained Interest in respect of Borralha and Vila Verde from Dalmington upon commencement of commercial production from the Borralha and Vila Verde properties, respectively at a purchase price equal to a 30% discount to 10% of the net present values (using a discount rate of 7%) for the respective Tungsten Projects payable 30% in cash and 70% in shares of ACM (or its listed issuer parent company) at a share price equal to the 20-day volume weighted average price. Prior to commencement of commercial production at the respective Tungsten Projects, the Retained Interest will be a fully-carried, non-participating interest, and after it then becomes a participating net profits interest. ACM also has the right, after production commencing at the Tungsten Projects, to purchase 50% of the 1% NSR for a cash purchase price equal to 70% of 1% of the combined net present value of the Tungsten Projects.

The surface and water rights where the main exploration activities have taken place are privately owned. The work on the Property was conducted with the approval of the property owners and without any issues with the community. Future exploration work does not require additional permits, though they must be proposed for approval by General Directorate for Energy and Geology. Besides industry-standard environmental responsibilities that are to be followed, the Property Owner does not have any responsibilities concerning some pre-existing environmental liabilities from historic underground and surface mining.

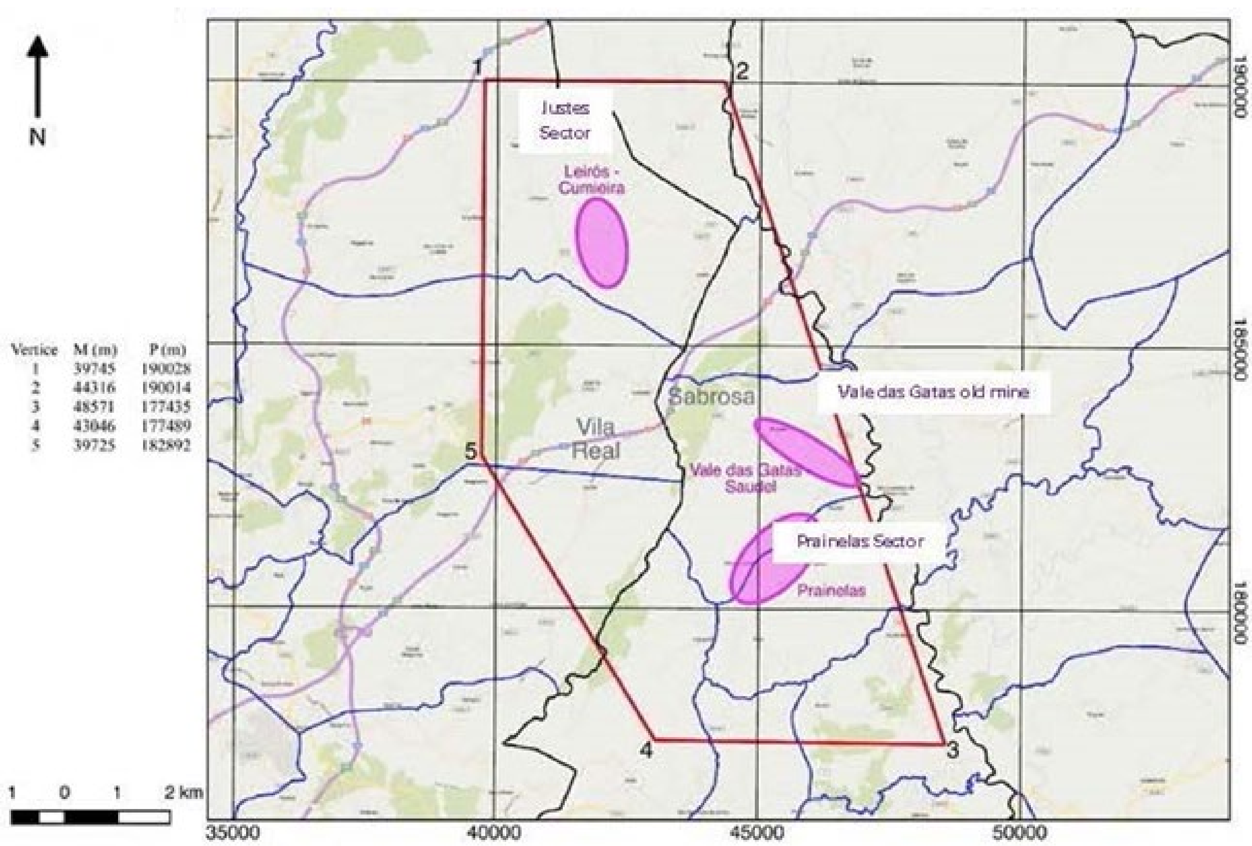


Figure 4.3: Mineralized Zones within the Experimental Mining License (Minerália, 2020)

4.4 Location of Mineralization

The property has three main mineralized zones, namely: Justes, Vale das Gatas and Prainelas. All three zones are situated along a strike length of 10 km and well within the footprint of the existing Experimental Mining License area (see Figure 4.3).

4.5 Exploration and Surface Rights, Environmental, Reclamation and Permitting

The surface and water rights where the main exploration activities have taken place are privately owned. They were conducted with the approval of the property owners and without any issues with the community and ACM intends to enter long-term arrangements for surface and water rights with the property owners. The exploration activities do not require additional permits, and there are no environmental or reclamation responsibilities in respect of pre-existing historical mining or exploration.

The future exploration work does not require additional permits, though they must be proposed to DGEG for approval. Besides industry-standard environmental responsibilities that are to be followed, the company does not have any responsibilities concerning pre-existing environmental liabilities from historic underground and surface mining.

5.0 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE and PHYSIOGRAPHY

5.1 Accessibility

The Vila Verde project is accessible via National Road EN 322 that connects the city of Porto with the municipal capital city of Vila Real to the northeast and on to the parish of Sabrosa. From Sabrosa there is a two-lane paved road to São Lourenço, a small town close to the project. By road, it is approximately 110 km to the mining licence from the Porto International Francisco Sá Carneiro Airport (‘OPO’), or the same distance from the nearby seaport of Leixões. The property is situated 19 km by road from Vila Real, or 7 km from Sabrosa.

5.2 Climate and Vegetation

Mainland Portugal occupies the most westerly longitudes in Europe and its weather and climate are influenced by the Atlantic Ocean. Its southerly latitude gives it a Mediterranean type of climate but one where the summer heat is tempered by the marine influence. In the north and central interior of Portugal the summers are cooler, and the winters may be quite cold. Summer temperatures and winter mildness increase moving southwards. Snow is very rare at sea level in Portugal, but it becomes more frequent inland and in the higher areas in the north. The project area may receive the occasional winter snow. In northern Portugal the daily sunshine averages from four to five hours in winter and ten to eleven hours in summer. In the south hours of sunshine rise to six in winter and twelve in summer. Portugal has an annual temperature average of 13°C.

5.3 Surface and Water Rights

The surface and water rights where the main exploration activities have taken place are privately owned. Surface and water rights sufficient for such exploration activities are pursuant to the approval of property owners and ACM intends to enter long-term arrangements for surface and water rights with the property owners. Minerália has a core logging and sampling facility available under the Acquisition Agreement for ACM's use which is located at the old mine town site at Vale das Gatas.

5.4 Local Resources and Infrastructure

At the old Vale das Gatas mine site there is both water and electric power from the national grid. Elsewhere, there is nearby water and power to all exploration zones. Many of the retired and unemployed miners continue to live locally and are a ready labour force for any future mining operation. Heavy equipment and specialized contractors are available in the area servicing the local quarries and infrastructures. The abandoned or temporarily occupied housing and other buildings at the old mine site of Vale das Gatas could also be renovated for a future operation.

Restaurants and groceries are available locally in the town of Sabrosa, but the nearby agricultural settlements of Souto Maior, Lamares and others do not offer such services.

5.5 Physiography

The mining license is situated in hilly terrain on an elevated upland above the Pinhão river. Local elevations vary from 500 to 900 m AMSL.

Vegetation is typical of a marine-influenced climate with oak and pine forests covering much of the non-agricultural areas with many active vineyards on the cleared southerly-facing hillsides.

6 HISTORY

6.1 Vila Verde Mining and Production History

The old Vale das Gatas mining camp is situated in the parishes of São Lourenço de Riba Pinhão, Souto Maior, Lamares and Justes; all part of the Council of Sabrosa in the District of Vila Real. The first known license for mining dates to 1883 as part of the Delgada Concession. It was granted until 1986 when the mine closed due to the decline of the tungsten prices.

In 1883 mining began as the Delgada concession. With the outbreak of World War I in 1914 the demand for tungsten for weapon manufacturing increased and led to an increase in the price of tungsten which in turn resulted in an increased production at the mine. After the war the price of tungsten fell, and little ore was produced until 1934 when demand for tungsten ore increased. From then onwards the production increased, as did the price of tungsten reaching a peak during the Second World War (1939-1945) due to its application in the manufacture of very hard steel alloys. Before the conflict began there was a mining company in Sabrosa parish owned by French interests, represented by Mr. Bouquet. With the outbreak of the war a German company, represented by Mr. Kurt Dietmar, operated the mining company. Maximum production of 635 tons of tungsten concentrates occurred at the Vale das Gatas mine in 1943.

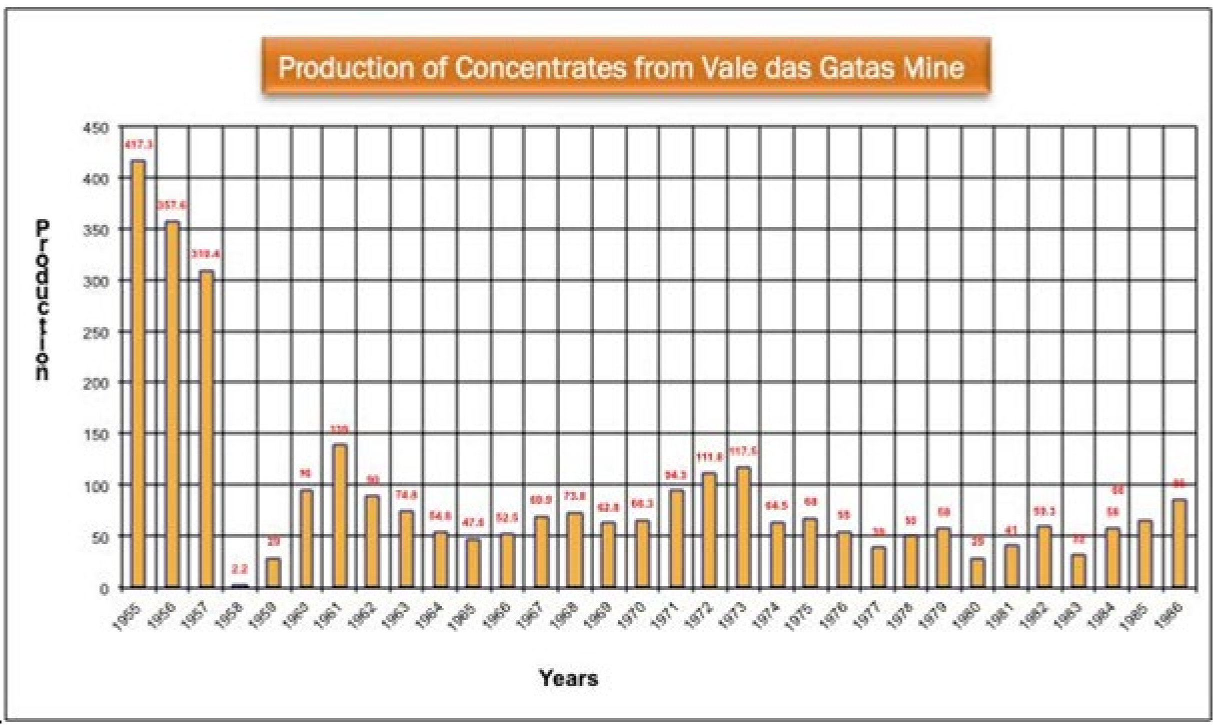


Figure 6.1: 1955 to 1986 Record of Vale das Gatas Mine Production (Minerália, 2020)

The mine operated almost uninterrupted from 1883 to 1986, except during a governmental decree between mid-1944 to late 1946. In 1955 the Korean War broke out and that led to mine production of 417 tons of tungsten concentrates per annum. In 1962 the ‘Couto Mineiro de Vale das Gatas’, a mining claim complex of Vale das Gatas concessions, was established. By the 1970’s, under the operatorship of the Couto Mineiro de Vale das Gatas, mining production had declined. In 1982 the mine was bought by Sociedade Portuguesa de Empreendimentos (‘SPE’), a Company with public and private capital formed by the technical Portuguese team that managed Diamang that worked in exploration joint venture with Bureau de Recherches Géologiques et Minières (‘BRGM’) in several areas in Portugal. They explored the Justes zone with some mapping, geochemistry and drilling.

Due to persistent low tungsten prices the mine was closed in 1986. From 1986 to 1992 there was some maintenance of the mining infrastructure but by 1992 the Vale das Gatas mine was totally abandoned. In 1994, the 16 mining rights in the name of Couto Mineiro of Vale das Gatas were cancelled by the order of the Portuguese Government. Figure 6.1 illustrates the historical production of tungsten concentrates for the last 30 years

No work was carried out on the property from 1986 until 2014 when Minerália acquired the property and carried out the first recent systematic exploration program.

Figure 6.2: Underground Workings of the Vale das Gatas Mine (Minerália, 2020)

6.2 Historic Mineral Resource Estimate

Following their 2015 and 2016 drilling campaigns on the Prainelas zone and 2018 drilling on the Justes zone, Minerália decided to estimate the maiden mineral resources for both zones. However, there was insufficient drilling in the Prainelas area for an estimate. Minerália then decided to just estimate the inferred mineral resources of the Cumieira and Porqueira areas within the Justes zone which are separated by 900 m. Based on their own drilling results and those of the 1980's drilling, Minerália used the results of 8 drill holes at the Cumieira area and 4 drill holes at the Porqueira area. Drill hole spacing distances between the various holes ranged from 20 to 100 m.

Drillholes samples show a high variation in grade distribution due to the very 'nuggety' occurrence of the tungsten-tin mineralization. Minerália used a 1.5m composite for their resource estimation as some historical assays were done on short intervals such as 5 to less than 10 cm. The historical assays generally were 2-metre sample intervals versus the Minerália samples that were collected at 1-metre intervals. A specific gravity average of 2.65 g/cc was used in the estimation. Ordinary kriging ('OK') was used for grade interpolation for the mineral domains, later compared with an Inverse Distance ('ID4') interpolation method using the same parameters.

In their 2020 report, Minerália documented the Cumieira and Porqueira Inferred mineral resource estimates, using a common cut-off grade of 500 g/t tungsten oxide, which amounted to 4.0 million tonnes mineralized material grading 1,347 g/t WO_3 and 264 g/t Sn at Cumieira and 3.3 million tonnes mineralized material grading 961 g/t WO_3 at Porqueira. While the historical estimate is helpful to understand the mineralization of the Project based on the parameters and methods described above, especially in regard to submissions to the Portuguese mining regulatory authorities pertaining to the license for the Project, Minerália is not independent from the Project. Accordingly, the author (or another independent qualified person, as defined under NI 43-101) would need to obtain updated new assay analysis for the samples verified from the applicable drill holes as well as additional drilling and assays to verify the previous assay analysis and complete the corresponding resource estimate to determine a current mineral resource. An independent qualified person has not done sufficient work to classify the historical estimate as current mineral resources or mineral reserves and neither the author nor the Company is treating the historical estimate as current mineral resources or mineral reserves.

It is the author's opinion that these historical maiden resource estimates are not 43-101 compliant and can not be relied upon given that they were estimated by a Minerália employee and the drilling within each area is too widely spaced.

More detailed, closer-spaced drilling, detailed metallurgical testing and conceptual mine planning will be required prior to estimating the mineral resources.

7 GEOLOGICAL SETTING and MINERALIZATION

7.1 Regional Geology

The Iberian Peninsula, including Portugal and Spain in the southeastern Europe, is part of the Variscan Fold Belt. This tectonic terrane is strongly arcuate, contrasting with the linear pattern of other Paleozoic-age fold belts in the continent, such as the Caledonides and Uralides (Figure 7.1).

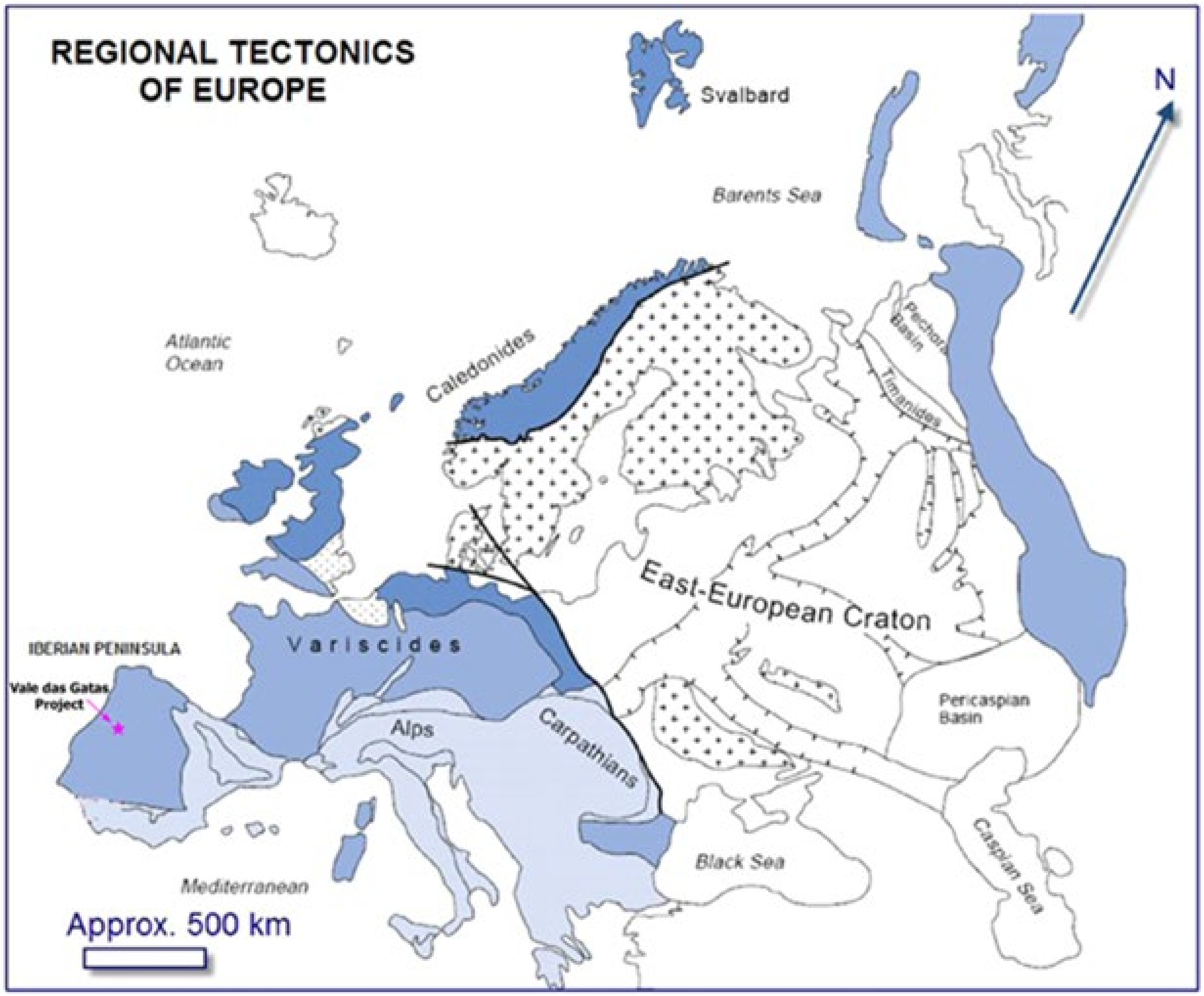


Figure 7.1: Major Tectonic Features of Europe (Ribeiro *et al.*, 1980)

The Vale das Gatas tungsten deposit is part of the Tin-Tungsten Metallogenic Province extending in the east from the Porto-Tomar shear zone to the northwest of the Juromenha carriage. The deposits belonging to this metallogenic province are located in different paleogeographical Iberian Variscan zones, such as the Central Iberian Zone (CIZ), the Galiza Trás os Montes Zone (GTOMZ), and the Astúrico Leonesa Zone (ALZ). The Vila Verde project area is situated in the Central Iberian Zone (see Figure 7.2).

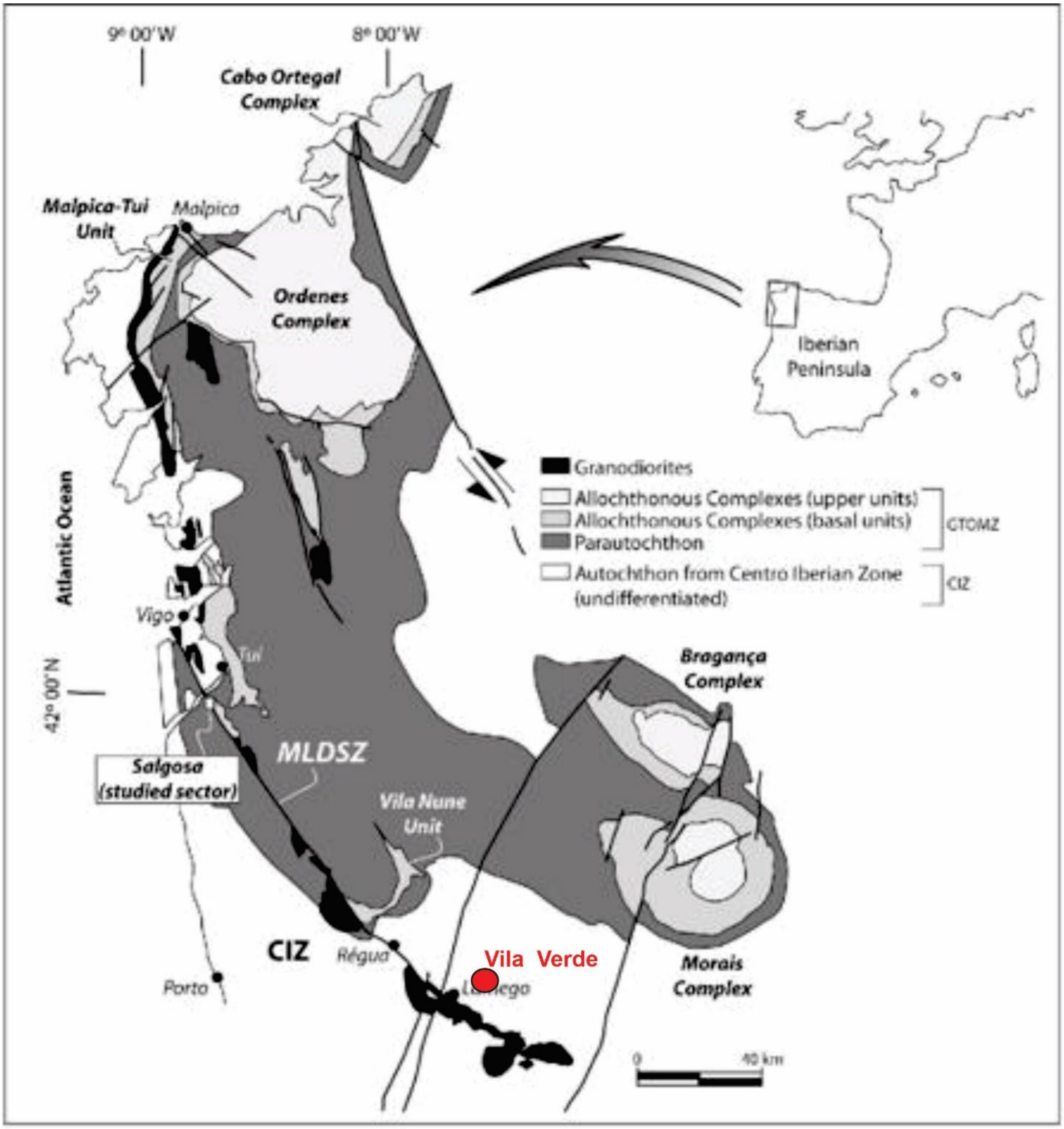


Figure 7.2: Iberian Peninsula Tectonostratigraphic Terranes (Llana-Funex *et al.*, 2000)

It was proposed by Dias (1994) that three tectonic events deformed the Variscan Fold Belt. They are:

1. The first deformational phase is expressed through subvertical folds with wide amplitude. This phase can be seen in all the terranes resulting in folds with a general NW-SE direction;

2. The second deformational phase is characterized by the occurrence of several overturned folds with vergence to the east resulting in asymmetric folds with a long normal limb and a narrow inverse limb. This type of structure is present mostly in the allochthonous terranes; and
3. The third deformational phase affected the three types of terranes with identical structures resulting in several folds with a general direction of NW-SE to NNW-SSE. This deformational phase acted on the other pre-existing structures in the Variscan massif resulting in the north of Portugal and Galiza by structures with NNW-SSE orientation, in the Central-North of Portugal with structures of NW-SE direction, and in Central Portugal with WNW-ESE direction.

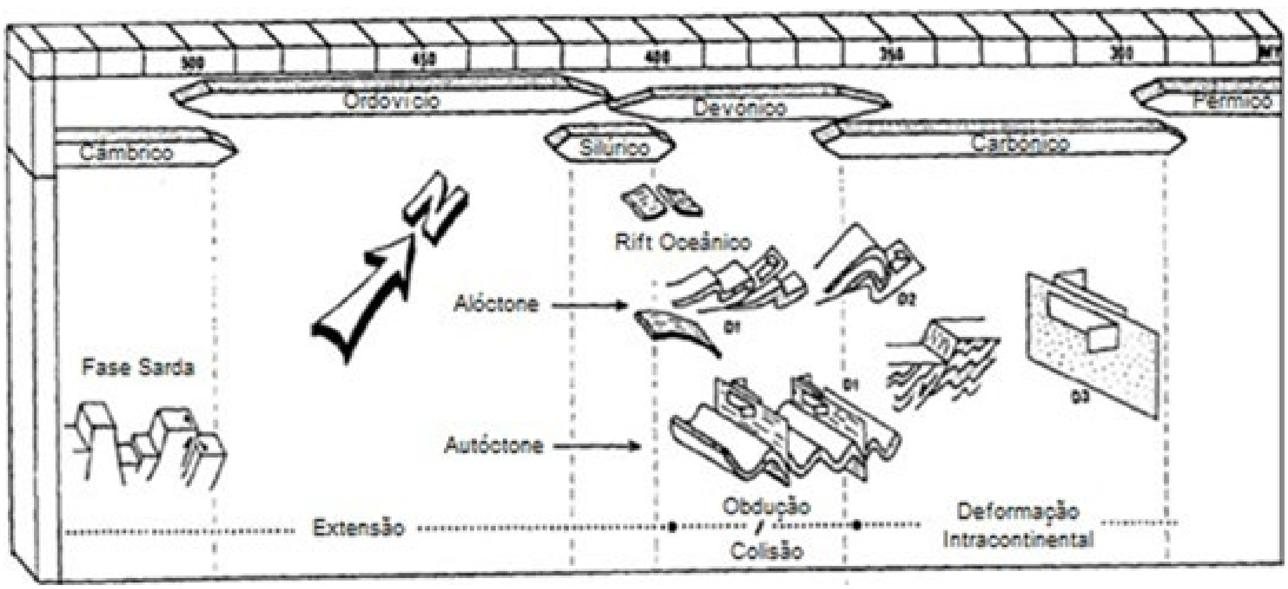


Figure 7.3: Deformational of the Variscan Massif (Dias, 1994)

In the third deformational phase granitoid rocks were generated during the installation of the allochthonous terranes with a thermal peak between 340 to 325 million years. During this period fluids from several origins acted like feeders to an important metallogenic system. The CIZ and GTMZ have a high heterogeneity of mineralization spatially related to Variscan granitoids and shear zones (Mateus & Noronha, 2010).

The tin and tungsten deposits of the northwestern Iberian Peninsula are associated with several types of granites and related rocks namely, aplite-pegmatites, skarns and hydrothermal quartz veins. The tungsten-bearing veins are related to several magmatic and hydrothermal processes and with an imperative relationship between granites and metasedimentary rocks. These types of mineralization are structurally-related parallel to the Variscan structures and genetically-related to the presence of Variscan granitoids.

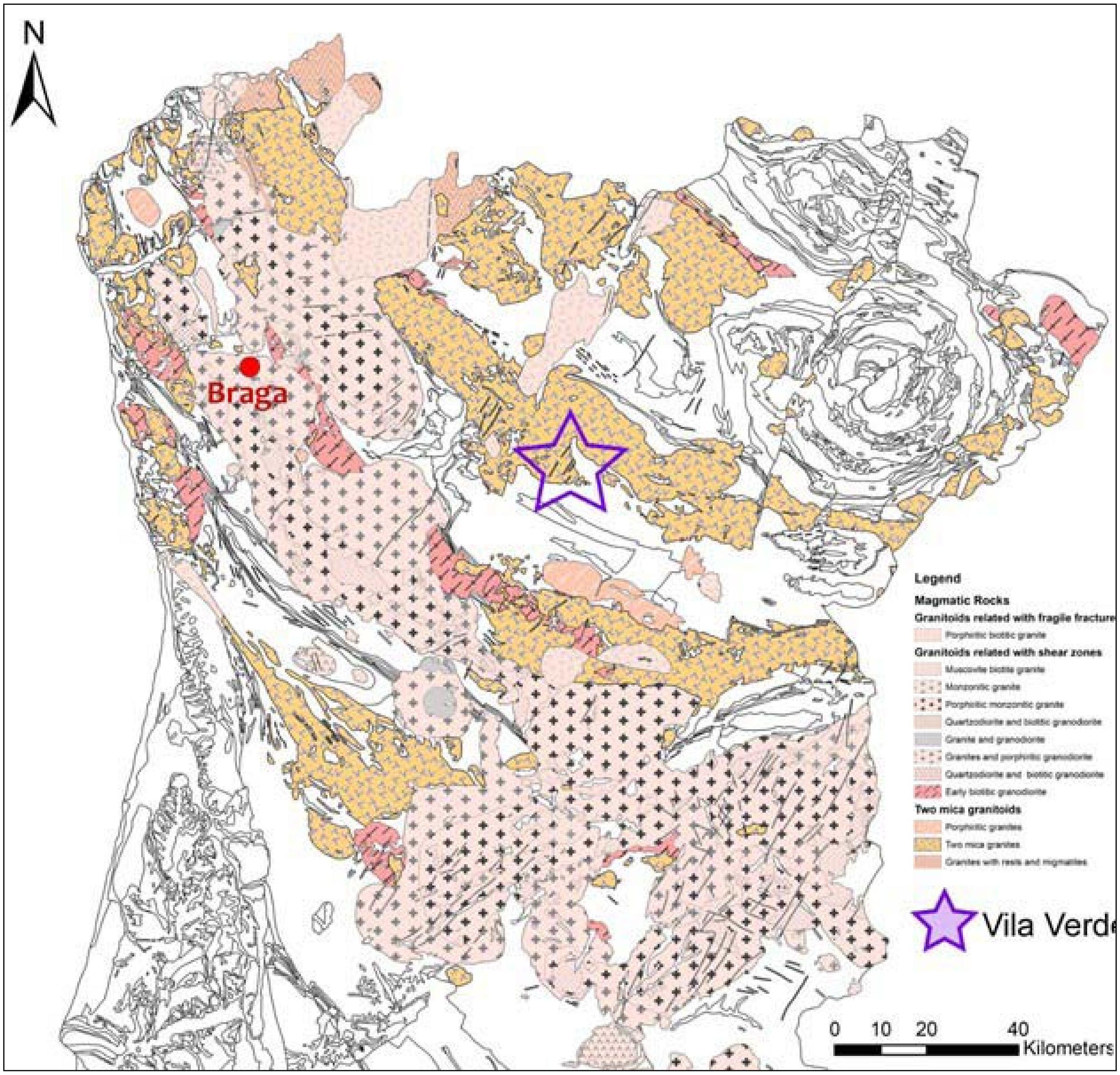


Figure 7.4: Regional Geology of Northern Portugal (Mateus & Noronha, 2010)

The Portuguese tungsten-tin hydrothermal deposits can be divided into three main types according to their paragenetic relationships: 1) tungsten-rich deposits such as Borralha containing wolframite, scheelite and molybdenite; 2) tin-rich stanniferous deposits such as Montesinho are related to greisens poor in sulphides, and 3) the tungsten-tin deposits such as Vale das Gatas and Panasqueira that host wolframite, cassiterite and some carbonates.

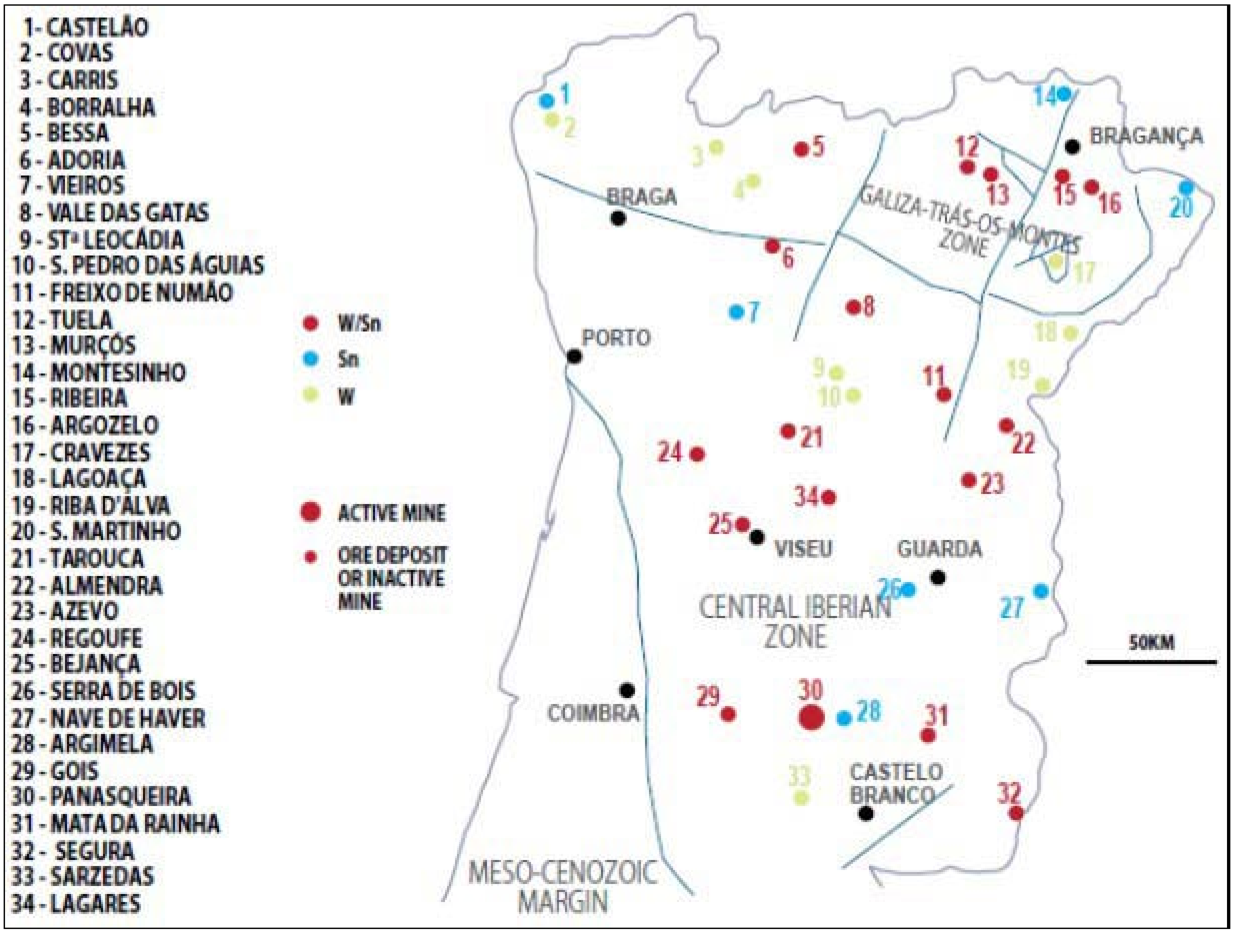


Figure 7.5: Northern Portugal Tungsten and Tin Deposits (Martins, 2012)

7.2 Property Geology

The following description of the geology of the Vila Verde project area is paraphrased from the recent geological mapping and report by Minerália (2020).

The Vila Verde project is situated within the central part of the northwest-southeast trending Mondim de Basto- Vila Real-Moncorvo antiform, part of the Central Iberian Zone of northern Portugal. The antiform is flanked to the northeast and southwest by the Douro Group formations belonging to the Cambrian-age Schist-Graywacke Complex. The Douro Group is comprised of two distinct formations: the Pinhão Formation characterized by a greenish intercalation of quartzite and phyllite forming a chloritic-phyllite metaquartzowacke, and the Desejosa Formation characterized at its base by the intercalation of phyllite and quartzite.

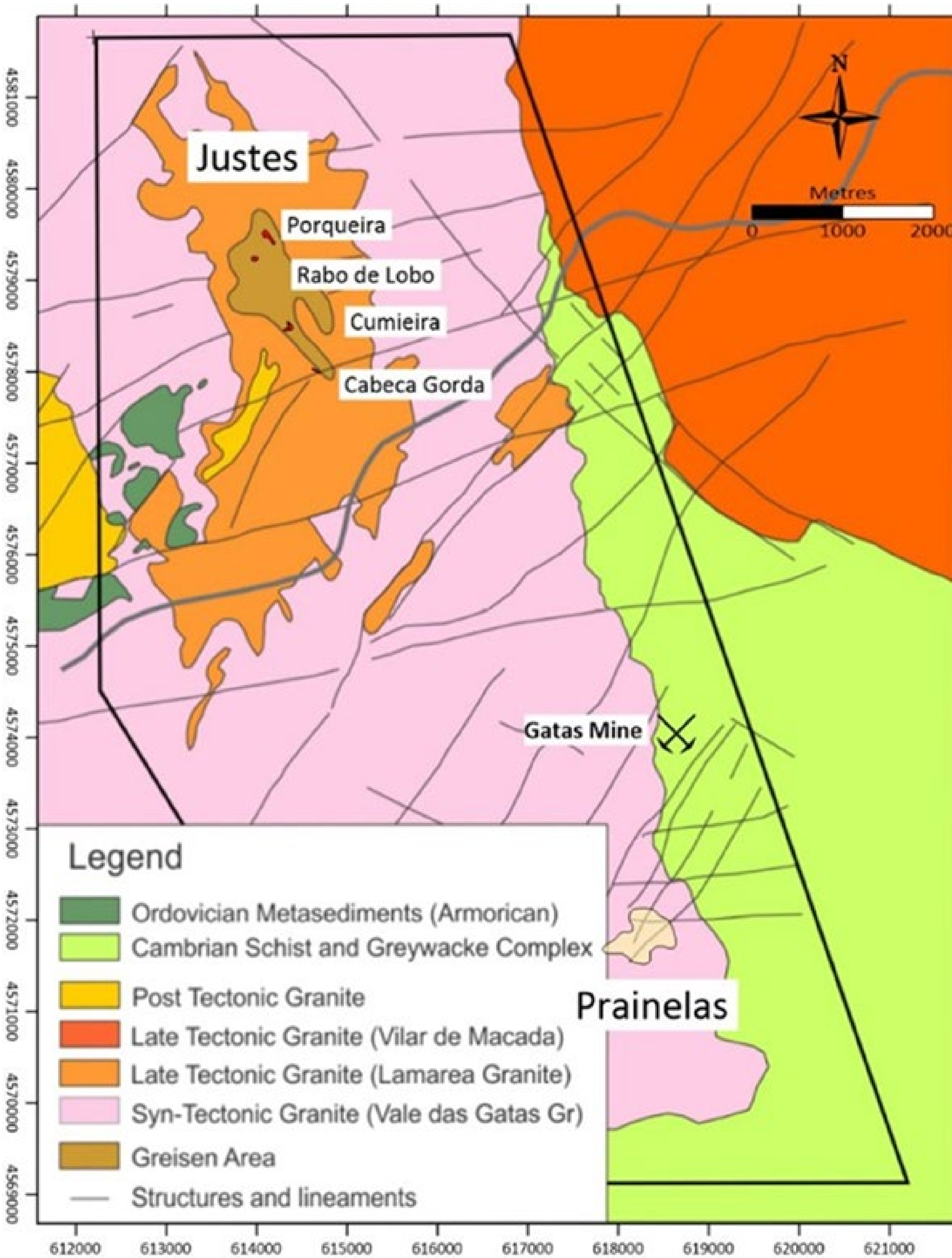


Figure 7.6: Plan of Vila Verde General Geology and Main Mineralized Zones (Minerália, 2020)

Most of the project area is underlain by a variety of granitic rocks that have been subdivided according to their temporal relationship with the last deformation phase. They are: syn-tectonic, late-tectonic and post-tectonic granitic rocks. According to Minerália (2020), brief descriptions of these granitic intrusives are as follows.

The syn-tectonic granitic intrusives include the Vale das Gatas, Sanfins do Douro and Favaios granites. The Vale das Gatas granite crops out on the east side of the old Vale das Gatas mine and is a medium grained porphyritic granite showing some deformation. The Sanfins do Douro granite is a two-mica, medium-grained, leucocratic granite with porphyritic textures of orientated potassic feldspar. The Favaios granite appears to be a very differentiated granite with some characteristics like a greisen. Most of the known tungsten-tin mineralization in the region are associated with it.

The late-tectonic granitic intrusions include those of Lamares and Vilar de Maçada. The Lamares granite is a fine- to medium-grained, muscovite granite with some tourmaline phenocrysts. The Vilar da Maçada granite is coarse- to medium-grained, porphyritic, muscovite-biotite granite.

The Águas Santas granite is post-tectonic intrusion of coarse- to medium-grained, leucocratic, two-mica granite with a porphyritic texture of potassic feldspar phenocrysts.

Figure 7.6 is a simplified geological plan of the project area showing the three main zones of mineralization and their underlying host rocks.

Photograph 7.1: Wolframite in Surface Exposure of the Min A Vein (Minerália, 2020)

7.3 Mineralization

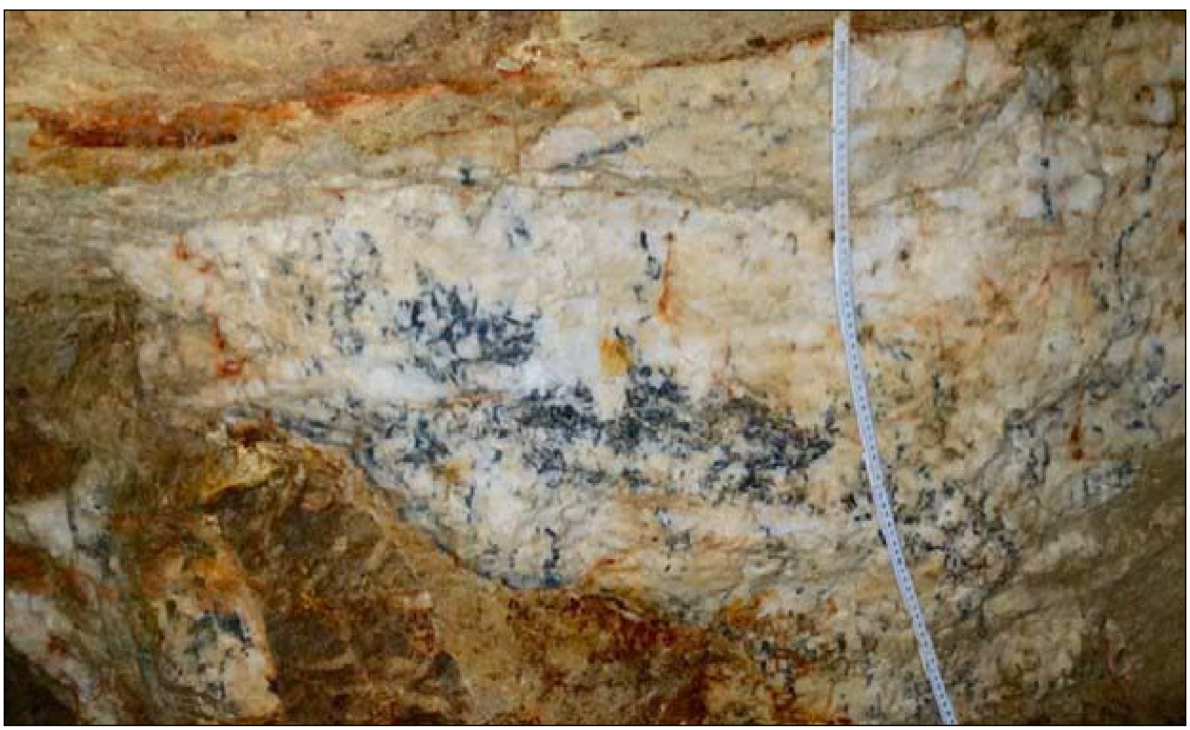
The tungsten-tin mineralization of the Vila Verde project occurs spatially-associated with the intrusive contact of syn-tectonic Vale das Gatas granite with the Cambrian-age metasedimentary country rocks. The mineralization occurs primarily as structurally-controlled veins, stockworks, and/ or greisens. The mineralization in southern Vale das Gatas and Prainelas zones occurs dominantly as vein- and stockwork-hosted while at the northern Justes zone the disseminated mineralization is dominantly greisen-hosted genetically-associated with a muscovite-tourmaline granite with lesser vein-hosted mineralization.

There are two main structural features controlling for the mineralized structures; the Vinheiros - Vale das Gatas-Saudel shear zone that is a WNW-ESE sinistral thrust fault and the NE-SW Prainelas-Delegada-Coelheira shear zone which has a dextral component. The mineralized veins are commonly between 1 cm and 1.5 m thick.

The Vale das Gatas deposit was affected by several types of hydrothermal alteration, such as greisenization, albitization, tourmalinization, sericitization and silicification. The paragenesis of this deposit has been described by Brink (1960):

- Cassiterite: the first to crystallize. Occurring as fractured crystals partially corrode by quartz and micas with wolframite as inclusions in the cassiterite;
- Wolframite: the most abundant mineralization occurs as elongated crystals near the vein selvage, as clusters associated with sulphides, or as disseminations in the quartz veins. The mineralization occurs commonly where veins are thinner and usually as huebnerite ($MnWO_4$);
- Scheelite: this mineral is abundant, usually as a wolframite replacement;
- Arsenopyrite: is one of the most abundant sulphide minerals often fracture-infilled with the younger sulphides and gangue;
- Pyrite: occurs in several generations, mostly resulting from hydrothermal decomposition of pyrrhotite. Some pyrite veins cut arsenopyrite crystals;
- Pyrrhotite: occurs as an exsolution of sphalerite and is altered by hydrothermal decomposition to pyrite or marcasite.;
- Chalcopyrite: occurs in several mineralizing phases occurring as intergrowths or as oriented exsolutions with sphalerite. Commonly occurs with pyrrhotite and stannite;
- Sphalerite: occurs as exsolutions of chalcopyrite, pyrrhotite, and stannite; and
- Stannite: appears rarely intersecting sphalerite and replacing cassiterite.

Photograph 7.2: Cassiterite in Vinheiros Vein (Minerália, 2020)



Photograph 7.3: Wolframite in Min A Vein (Minerália, 2020)

The following descriptions of the three main mineral zones are summarized from the unpublished technical report by Minerália (2020).

7.3.1 Vale das Gatas Zone

The Vale das Gatas mine was the primary producing mine within the project area. The tungsten-tin mineralization is spatially- and genetically-associated with a porphyritic medium- to coarse-grained granite that intrudes Cambrian-age metasedimentary country rocks. The granitic host has been preferentially fractured and these fractures have been infilled by quartz and aplite-pegmatite mineralized with wolframite, scheelite and cassiterite with minor fluorite and silver-bearing sulphides.

Most of the historical operation at the Vale das Gatas mine focused on the 'Min A', 'Mina B' and 'Rebolais' veins with an approximate strike length of 2.5 km that have been segmented into four blocks separated by north-northeasterly to south-southwesterly faults inclined -50° to -70° west-northwestward. (Figure 7.10). The segmented quartz veins varied in thickness from 0.1 to 2.5 m.

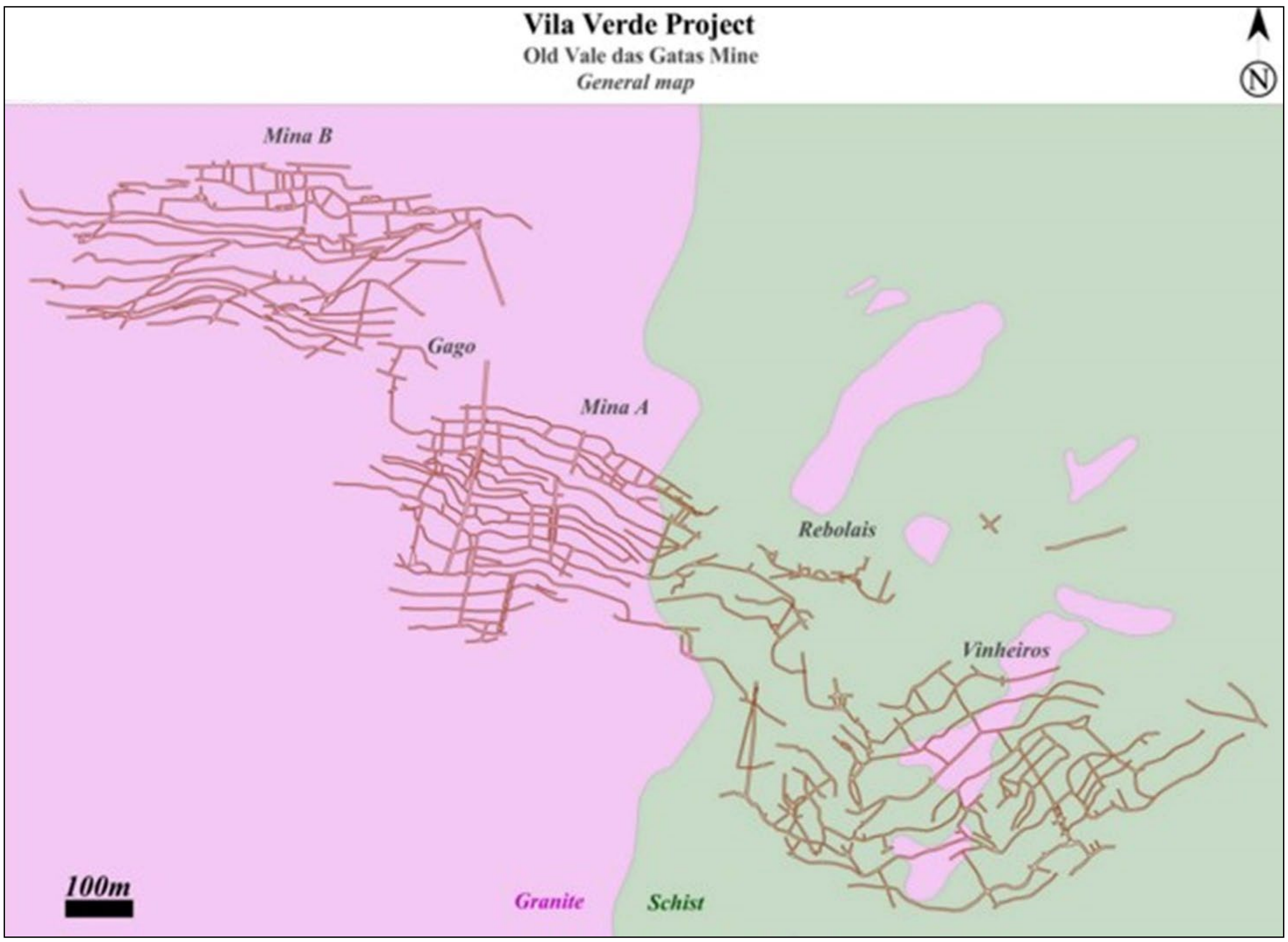


Figure 7.7: General Geology of the Vale das Gatas Mine (Minerália, 2020)

The most significant mineralized veins can be grouped according to their strike. The Vale das Gatas, Coalheira and Delgada veins have the same strike of 080º to 090º dipping -40º southward. East of the Vale das Gatas mine, the Vinheriros vein is hosted by metasedimentary rocks with an attitude of 060º dipping -40º southward. According to Minerália (2020), the average azimuth of all vein measurements from their surface mapping work was 098º/-27ºS with an average width of 118 cm. Most of the old underground workings are inaccessible, including the Mine B and Rebolais mines.

Photograph 7.4: Surface Exposure of the Min A Vein (Minerália, 2020)

Photograph 7.5: Pillar of the Wolframite-bearing Vinheiros Vein (Minerália, 2020)

7.3.2 Prainelas Zone

The Prainelas zone is situated 1 km southwest of the Vale das Gatas mine (see Figure 7.6). Recent mapping work by Minerália (2020) has identified more than 50 major structural features each containing numerous parallel veins that are hosted by the syn-tectonic granite. The veins commonly strike northwesterly and dipping -60° SW.

More than 800 old surface workings and adits have been reported within the Prainelas zone within 1 square km area. These old workings were excavated by illegal miners (aka 'pilha') recovering the decomposed bedrock overlying the mineralized veins.

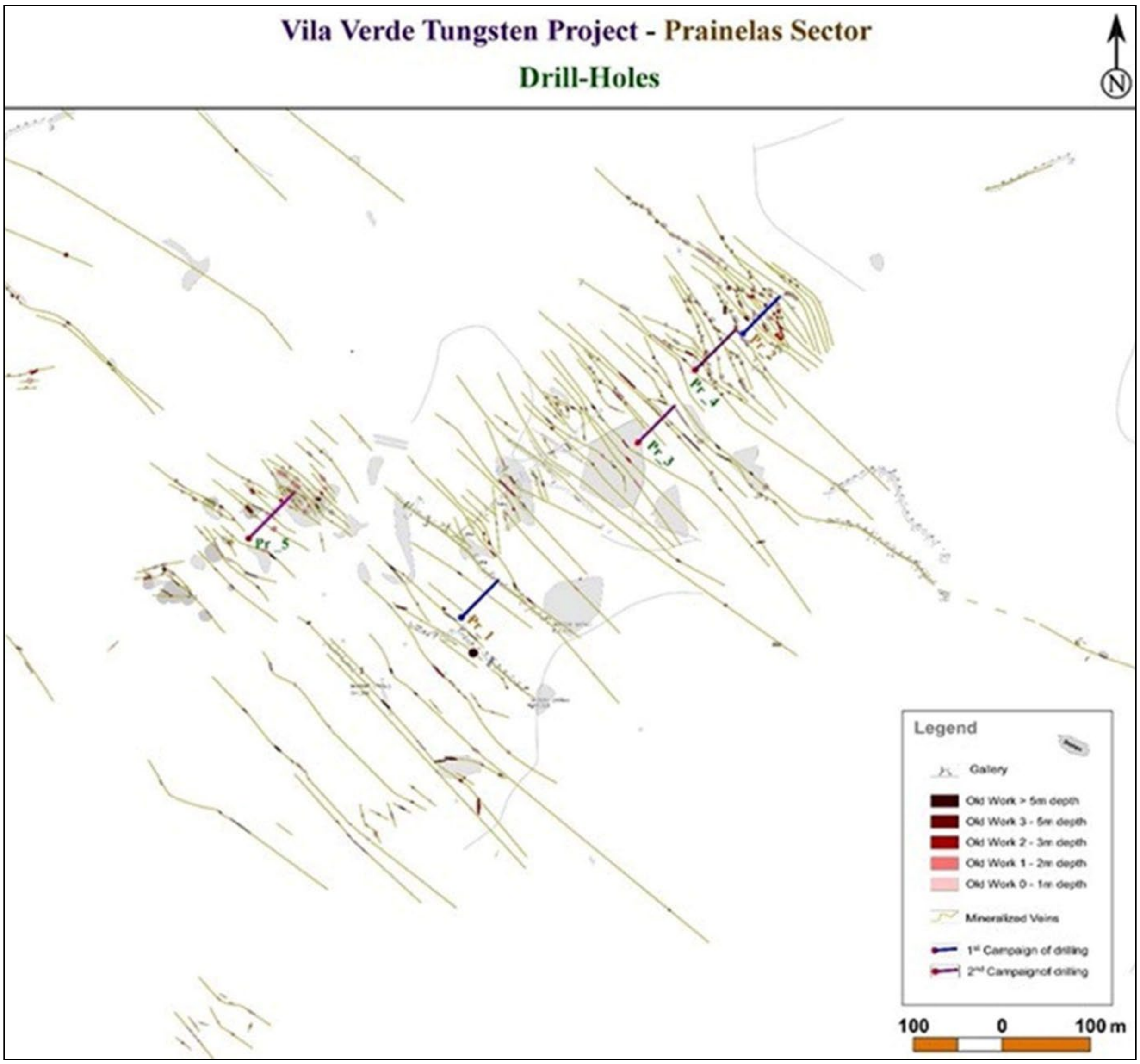


Figure 7.8: Plan of Prainelas Zone Vein Structures and Drill Holes (Minerália, 2020)

Photograph 7.6: Parallel Wolframite-bearing Veins at the Prainelas Zone (Minerália, 2020)

Photograph 7.7: Lens of Wolframite (blue-grey colour) in a Quartz Vein at the Prainelas Zone

7.3.3 Justes Zone

The third zone of mineralization within the project area is called the 'Justes'. It has several individual sub-zones within it, including, from north to south: Porqueira, Rabo de Lobo, Cumieira and Cabeça Gorda. (see Figure 7.6).

According to Minerália (2020), there is very little historical information on the work in this zone, despite numerous test pits and several abandoned larger open pits. Recent mapping by Minerália has identified an area more than 200 by 800 m that appears to have been the focus of much of the past interest targeting the decomposed and fresh bedrock. As a result, the whole area is covered with moved overburden and waste dumps from test pits with most of the workings being concentrated in the Cumieira, Porqueira and Cabeça Gorda areas.

The Justes zone is underlain by several varieties of Variscan Granite, including syn-tectonic, late tectonic and post-tectonic units. The more regional syn-tectonic Vale das Gatas granite has been intruded by younger equigranular muscovite granitic stocks resulting in greisenization of the older intrusion (see Figures 7.9 to 7.10). Geological mapping of the numerous test pits, dumps and bedrock in the deeper open pits identified various phases of greisenization of the older granitic country rock. Where there is a high degree of greisenization there are large areas of mineralized quartz stockworks. Microgranitic dykes occur peripheral and distant to the greisenized granitic host rocks.

Tungsten-tin mineralization occurs as disseminations within the greisenized granitic rocks and with quartz vein and stockworks within the granite, rhyolite, porphyry dykes, microgranite and various intrusive and tectonic breccias. There are also fine-grained, dark grey quartz veins with disseminated arsenopyrite.

Aside from the more abundant mineralization associated with the greisenized granitic rocks, there appear to be breccias of younger leucogranite with fragments of schist cemented with quartz. In the Cumieira area mapping identified a quartz vein stockwork hosted by a greisenized muscovite-tourmaline granite.

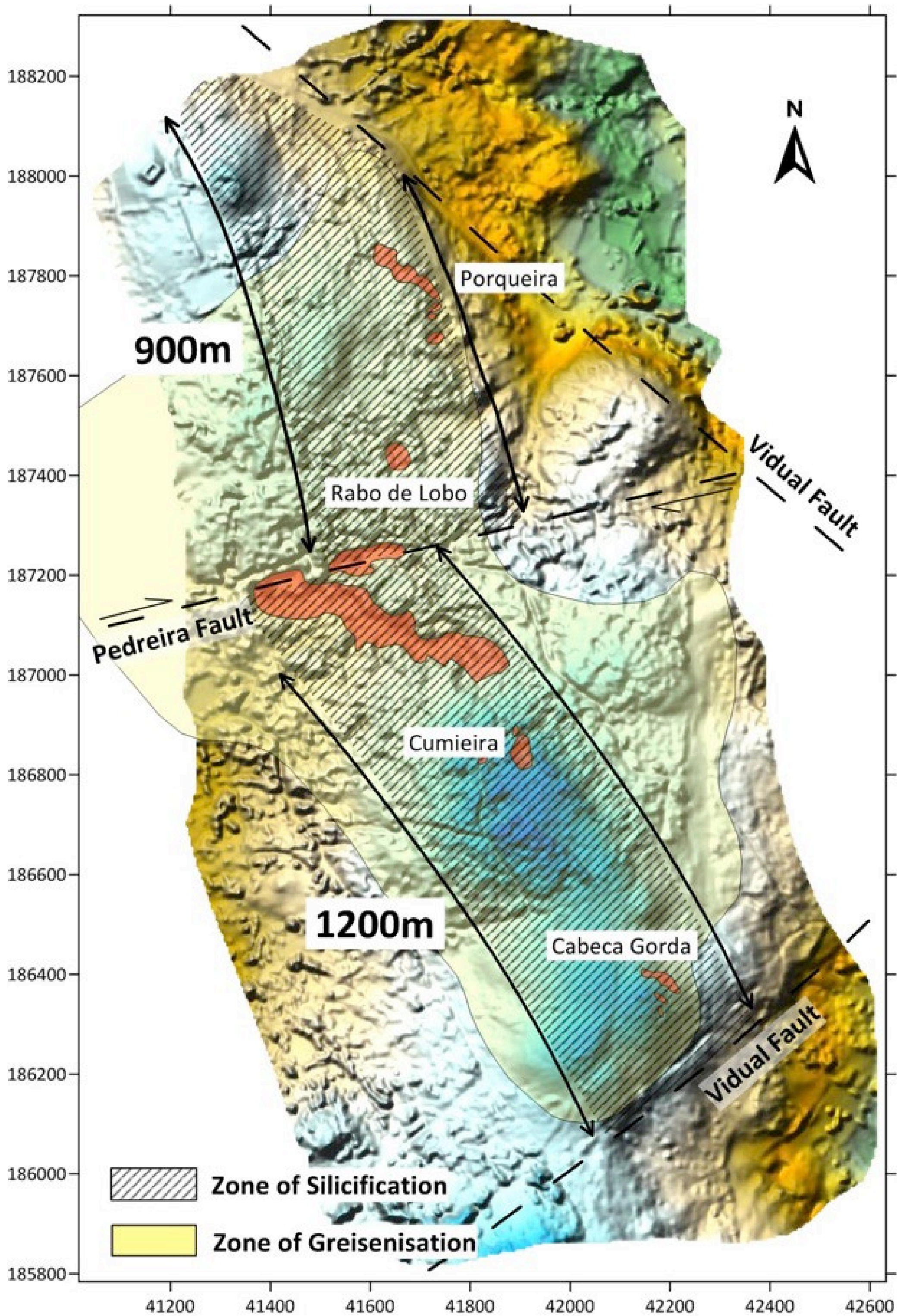


Figure 7.9: Geological and Alteration Zoning Map of the Justes Zone (Minerália, 2020)

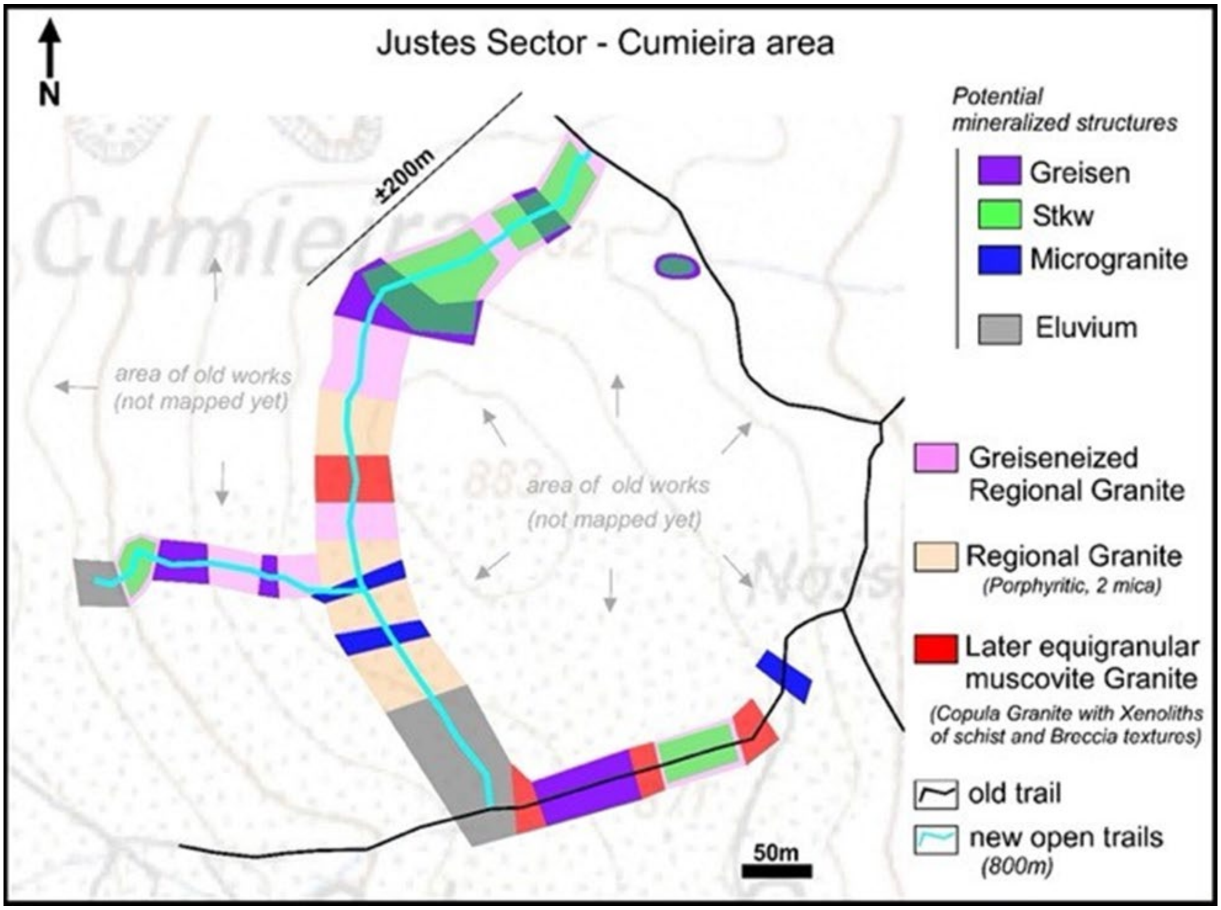


Figure 7.10: Preliminary Geological Map of the Cumieira Area (Minerália, 2020)

Photograph 7.8: Southeasterly View of the Cumieira Open Pit (Minerália, 2020)

Photograph 7.9: Quartz-Wolframite Stockwork in Greisenized Granite (Minerália, 2020)

Photograph 7.10: Greisenized Granite with Quartz-Wolframite Veinlets and Disseminations (Minerália, 2020)

8 DEPOSIT TYPES

The tungsten-tin and associated sulphide mineralization of the Vila Verde project occur spatially- and genetically-associated with fracture-filling veins, veinlets and vein stockworks hosted by variably-altered granitic intrusions some of which have been moderately to intensely greisenized.

The wolframite-cassiterite mineralization at the Vale das Gatas zone occurs associated with quite distinct fracture-infilling quartz and aplite-pegmatite veins hosted by syn-tectonic porphyritic medium- to coarse-grained granite near its contact with metasedimentary rocks. In contrast, the same mineralization at the Prainelas zone occurs as a large vein stockwork of numerous 1 to 10 cm wide veins, commonly striking northwesterly over a 1 sq km area. In the Justes zone the mineralization occurs as veinlets and vein stockworks hosted by both early and later granitic intrusions as quartz veinlets and disseminations in moderately to intensely greisenized granite.

It appears that these various modes of mineralization are commonly related to the intrusion of the earlier syn-tectonic Vale das Gatas granite by a variety of later granitic stocks that increased the permeability of the granitic hosts for coeval and younger hydrothermal fluids that weakly to intensely altered the host rocks from weak chloritization to intense greisens. The process of greisenization has been well described in papers by Lefebure and Jones (2020), Launay *et al*. (2018) and Reed (1986). The following text is summarized from the works of these authors.

Greisens appear to be restricted to intrusions which are emplaced high in the crust, generally at a depth between 0.5 and 5 km, as the hydrous fluid separation from granite to produce greisenization cannot occur deeper than about 5 km. The roof or upper aureole is mostly sealed shut to prevent most fluids escaping. This sealing is largely due to hornfelsing and silicification of the overlying rocks, and fracturing of these rocks typically forms greisen veins.

Greisenization commonly occurs in specialized (S-type) biotite and/or muscovite leucogranite with distinctive accessory mineral including topaz, fluorite, tourmaline and beryl. Greisenization is generally post-magmatic and associated with late fractionated melt. Tectonically, greisen granites are generally associated with the generation of S-type suites of granite in thick arc and back-arc fold belts where subducted sedimentary and felsic rocks are melted. Greisens are prospective for mineralization because the last fluids of granite crystallization tend to concentrate incompatible metals such as tin, tungsten, molybdenum and beryllium, and in places other metals such as tantalum, gold, silver, and copper

The greisenization process can vary from an incipient greisen with alteration minerals of muscovite +/- chlorite, tourmaline, and fluorite to moderate greisenization of granite altered to quartz-muscovite-topaz-fluorite +/- tourmaline where the original texture of the granites is retained. Intense greisenization of a granite has intense alteration to quartz-muscovite-topaz+/- fluorite +/- tourmaline where no original textures are preserved.

9 EXPLORATION

After the closure of the Vale das Gatas mine in 1986 all exploration ceased in the vicinity. Minerália acquired the Vila Verde project in 2014 and started to gather available historical data. Detailed geological mapping, surface and underground sampling, trenching and diamond drilling have followed since their acquisition.

9.1 Reconnaissance Geological Mapping

There were some historical regional maps and old underground mine plans available, so Minerália collected and digitized this data prior to starting their initial surface mapping and data validation. There were no maps or data for all the old illegal workings, so Minerália carried out a large program of bush clearing and trenching followed by geological mapping of as many of the exposed workings as possible plus any bedrock lithology. Some of the shallow adits were also accessed to validate the old geological mine maps. This work was carried out in addition to topographic surveys, grid preparation and geochemical sampling. The results of this work identified the Vale das Gatas, Prainelas and the Cumieira area of the Justes zone as being worthy of further detailed exploration.

9.2 Prainelas Zone - Underground Channel Sampling

Minerália initially decided to systematically survey, map and sample the Prainelas veins. Two types of sampling were undertaken, vein and channel sampling. The vein sampling consisted of 0.5 m-long samples approximately 10 cm deep across the width of each vein, including 5 cm of hanging wall and footwall. The channel samples were collected along sections of the exposed veins. Seven channel samples were collected in the Brasileira and Sta. Rita adits. In the Brasileira adit, 5 vein samples were collected (Br_01 – Br_05), and two vein samples were cut in the Sta. Rita adit (StR_03, StR_04). In addition, 11 m of channel sampling were cut on the St. Rita stockwork (StR_01, StR_02) (see Figure 9.1).

Photograph 9.1: Wolframite in Vein Sample Br_1 (Minerália, 2020)

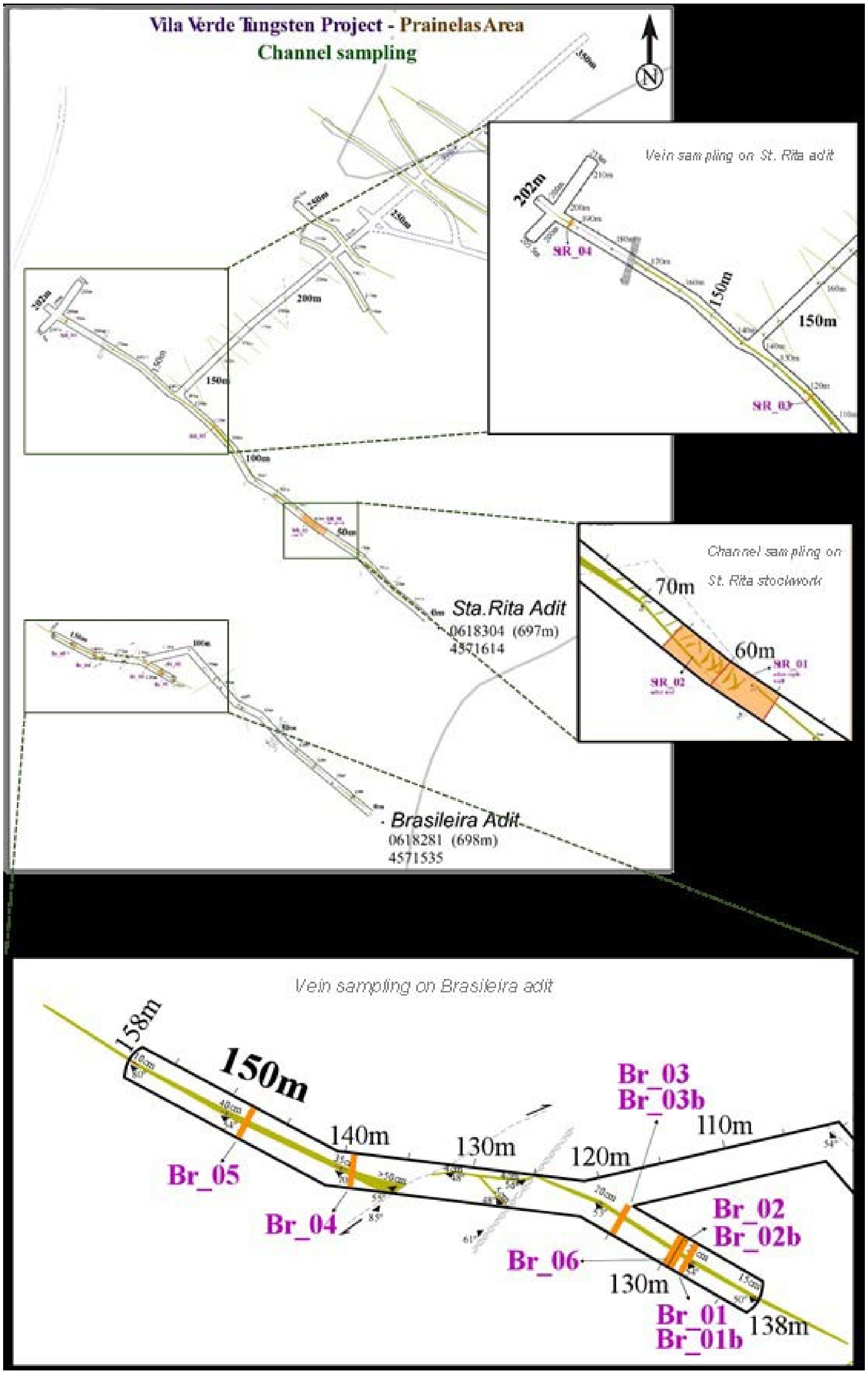


Figure 9.1: Plans of Prainelas Geological Mapping and Sampling (Minerália, 2020)

Photograph 9.2: Vein Sampling Cuts across Sample Br_01 (Minerália, 2020)

Photograph 9.3: Sampling Vein Br_01 (Minerália, 2020)

A second phase of sampling was conducted to only sample the vein, not including any wall rock dilution. Samples Br_01b, Br_02b, Br_03b and Br_06 were cut in the Brasileira mine. The results show that mineralization is nuggetty and confined to the vein and not the wall rock (see Table 9.1).

Brasileira Gallery

Sample	sample width (cm)	WO_3 (ppm)	Ag (ppm)
Br_01	25	7 734	36
Br_01b	15	23 907	-
Br_02	28	10 534	63
Br_02b	18	22 583	-
Br_03	25	15 139	88
Br_03b	15	22 393	-
Br_04	35	429	429
Br_05	50	5 333	35
Br_06	18	19 429	35

Santa Rita Gallery

Sample	sample width (cm)	WO_3 (ppm)	Ag (ppm)
StR_01	channel	15 328	17
StR_02	channel	25 610	57
StR_03	50	2 132	35
StR_04	25	1 451	8

Table 9.1: Comparison of Analytical Results between Channel and Vein Sampling in the Brasileira and Santa Rita Underground Workings (Minerália, 2020)

After Minerália mapped and sampled both the Prainelas and Vale das Gatas underground workings, they compared their respective veins and their vein orientations. Figure 9.2 shows the veining relationship between the Prainelas zone and the Vilheiros and Mina B areas of the Vale das Gatas mine.

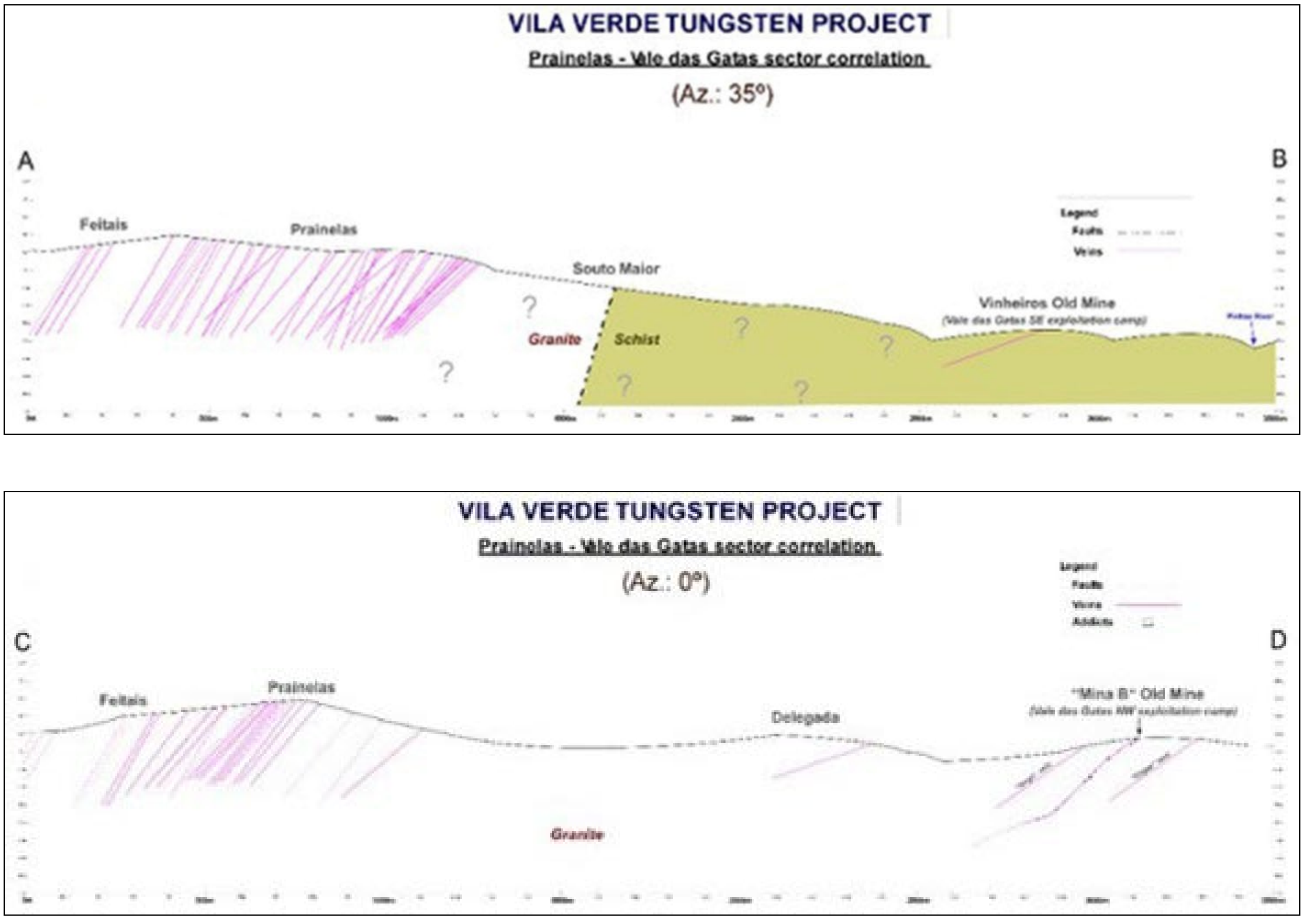


Figure 9.2: Geological Relationships of Lithology and Veining at the Prainelas and Vale des Gatas Zones (Minerália, 2020)

9.3 Prainelas Zone - Trenching and Channel Sampling

Surface trenching and channel sampling were carried out following the underground sampling. Trenches were excavated with a backhoe and then cleaned, surveyed and mapped. Channel samples were collected in 5-metre intervals using a hand-held rock saw to cut the channels and chisels to collect the intervening sample (see Figures 9.3 and 9.4).

Figure 9.3: View of the Prainelas Sampled Trenches (magenta) and Proposed Trenches (cyan) (Minerália, 2020)

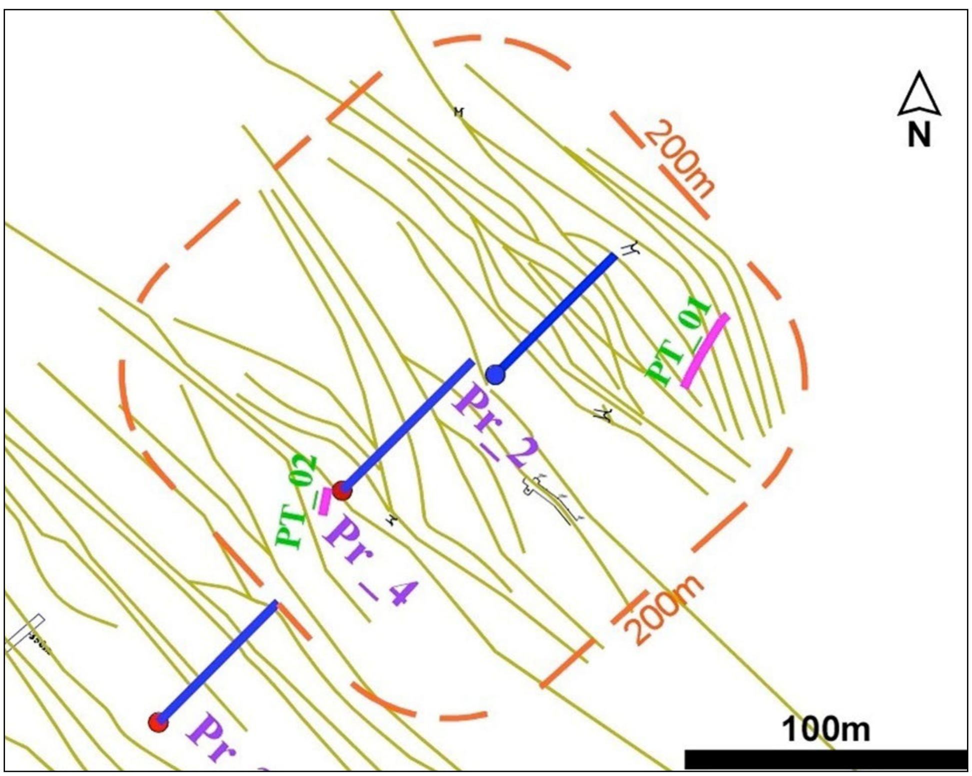


Figure 9.4: Detailed Plan of Vein Distribution, Trenches and Drill Holes in the Saibreira Area, Prainelas Zone (shown red in Figure 9.3) (Minerália, 2020)

Trench I.D.	Sample I.D.	From (m)	To (m)	interval (m)	W ppm	WO3 ppm
PT_01	PT_01/01	0	5	5	14 950	**18 853**
PT_01	PT_01/02	5	10	5	22	28
PT_01	PT_01/03	10	15	5	7	9
PT_01	PT_01/04	15	20	5	26	33
PT_01	PT_01/05	20	25	5	15	19
PT_01	PT_01/06	25	30	5	10	13
PT_01	*main interval*	0	30	30	2 505	**3 159**

Table 9.2: Assay Results for Prainelas Trench PT_01 (Minerália, 2020)

Trench I.D.	Sample I.D.	From (m)	To (m)	interval (m)	W ppm	WO3 ppm
PT_02	PT_02/01	0	5	5	12 550	**15 827**
PT_02	PT_02/02	5	10	5	14	18
PT_01	*main interval*	0	30	10	6 282	**7 922**

Table 9.3: Assay Results for Prainelas Trench PT_02 (Minerália, 2020)

The results of the Prainelas trenching and sampling show that Trench PT_01 returned a 30-metre interval grading 2.505 ppm W, and Trench PT_02 returned a 10-metre interval grading 6.282 ppm W, or 3.159 and 7.922 ppm WO_3 (calculated at 1.2611 X W ppm) respectively.

9.4 Justes Zone, Cumieira Area - Geological Mapping

The Cumieira area within the Justes Zone had been historically explored and mined with numerous surface test pits and a couple of much larger open pits. Prior to their mapping work Minerália cleared more than 800 m of old trails. This work revealed many of the old workings and showed that the Cumieira area is well covered by relatively thick overburden, decomposed bedrock and old test pit waste rock material.

In an old report there was documentation of 12 drill holes, totalling 1,373 m, that were completed by SPE in the 1980's. Minerália (2020) documented an historic plan and two drill hole cross sections from this work showing the hole locations and results (see Figures 9.5, 9.6 and 9.7).

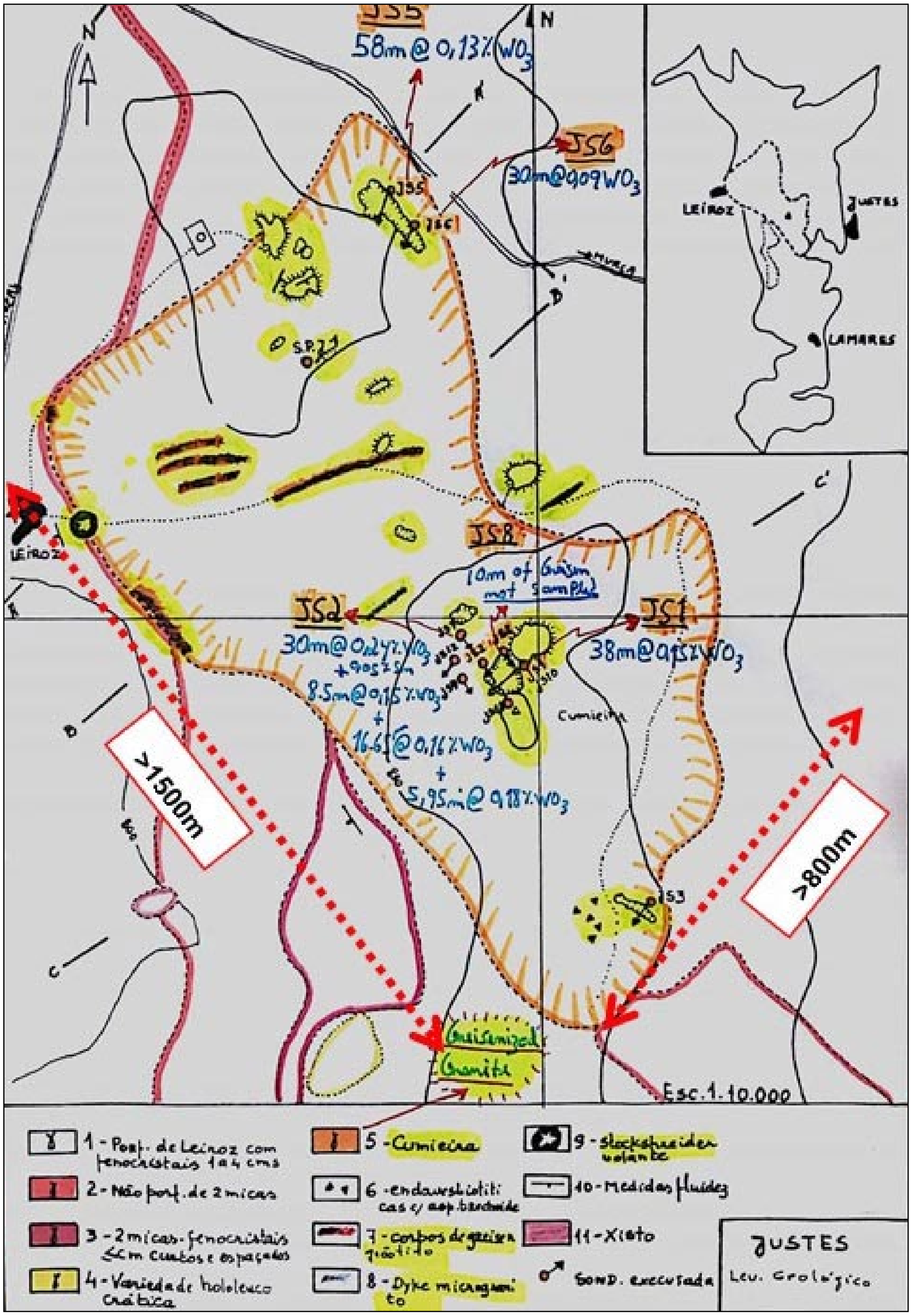


Figure 9.5: Old Plan of the Cumieira Area (Orange – Mineralized Granite, Yellow – Greisenized Granite) with Prospective Structures (Historic SPE Map, Minerália, 2020)

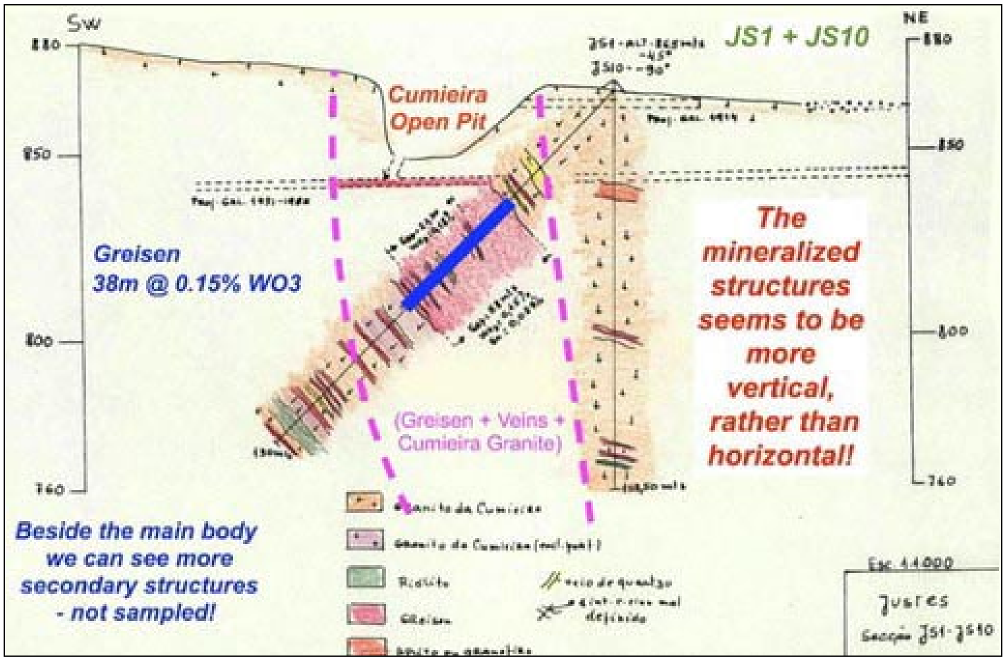


Figure 9.6: Historic SW-NE Vertical Cross-section of Drill Holes JS1 and JS10 (Minerália, 2020)

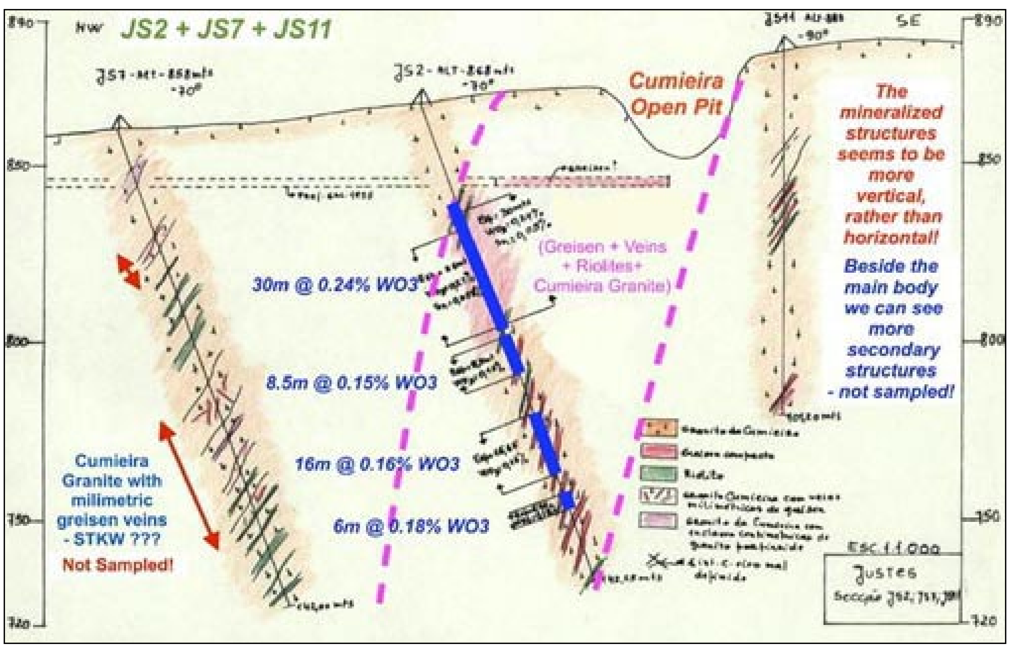


Figure 9.7: Historic NW-SE Vertical Cross-section of Drill Holes JS2, JS7 and JS11 (Minerália, 2020)

The historical data indicates the younger granitic intrusion is approximately ±1500 by 800 m. Furthermore, the area hosts numerous mineralized structures, not only related to greisens lenses but also by microgranites, stockworks and several veins.

The Cumieira greisenized granite was described as being tungsten-tin-lithium bearing. Minerália identified the presence of lepidolite and zinnwaldite in greisens, and there may be also the potential for bismuth and molybdenum mineralization. According to Minerália (2020), the old core assays only have some results for WO_3 and a few for tin.

The historic drill data appears to indicate that the Cumieira open pit is vertically above a large greisen alteration system. The mineralization was reported as being sub-horizontal lenses, but vertical cross-sections suggest that the mineralization is likely to occur as sub-vertical structures hosted by greisenized bodies with dimensions of 50 to 70 m wide. Together with this greisen system are also other mineralized areas with a similar alteration assemblage. Figure 9.8 is a proposed model of the greisen system.

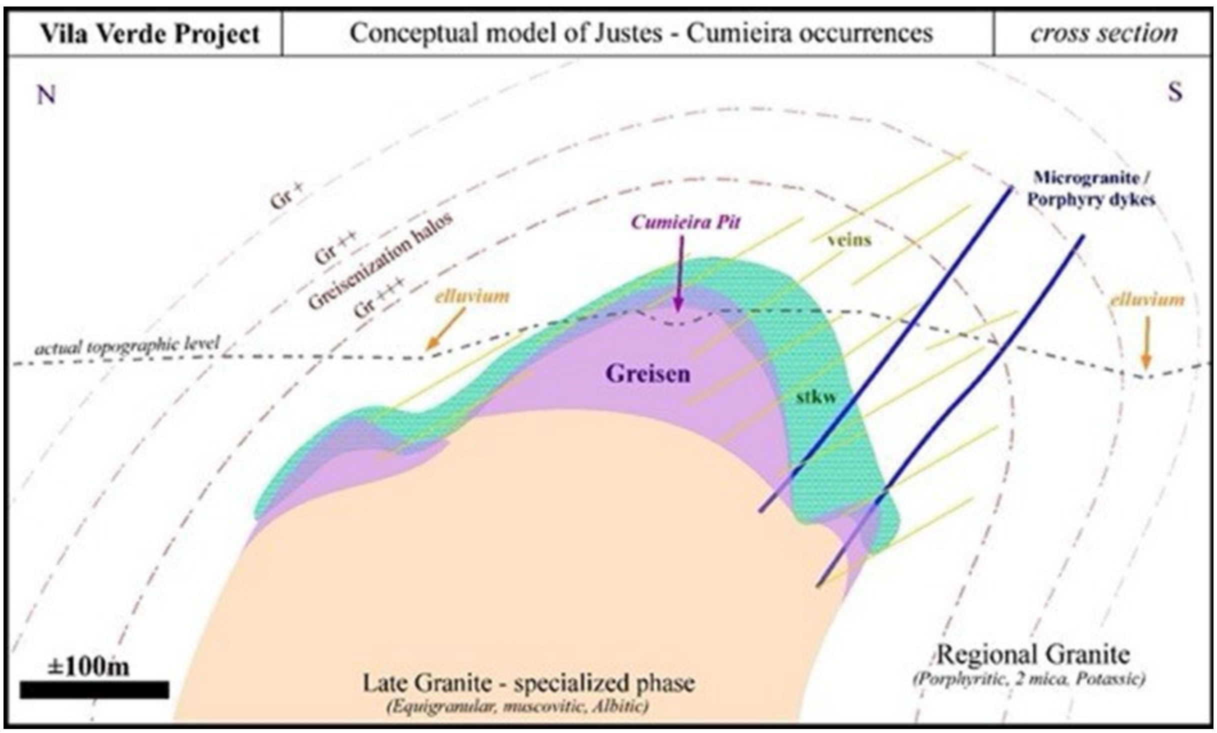


Figure 9.8: Conceptual Model of the Cumieira Greisen System (Minerália, 2020)

9.5 Justes Zone, Porqueira Area - Geological Mapping

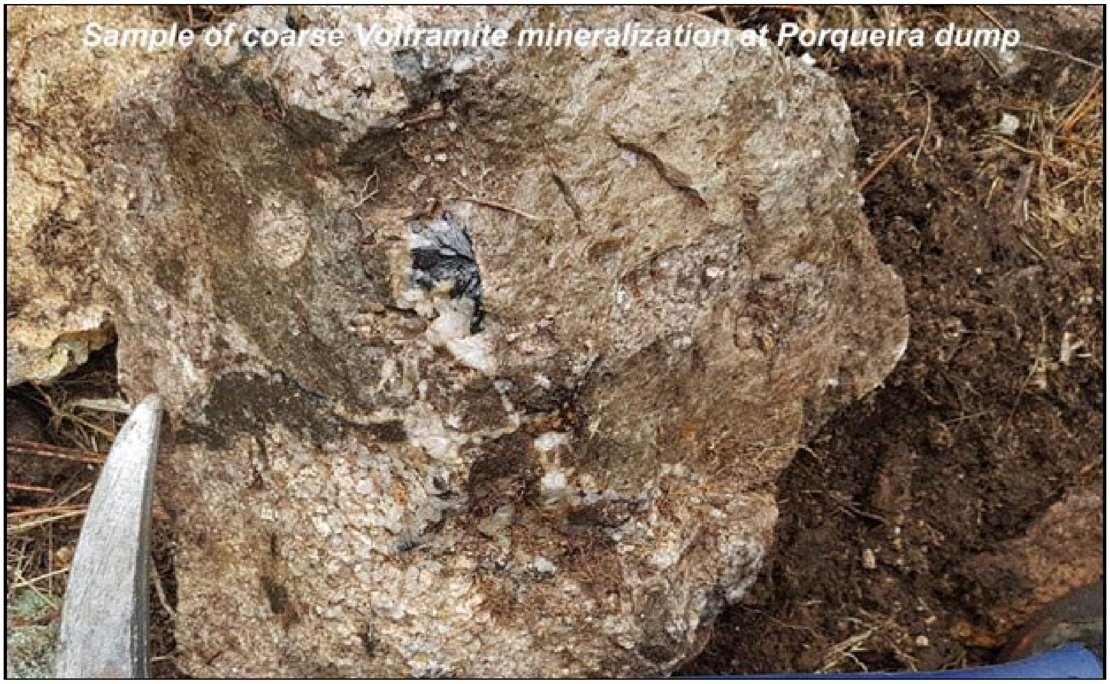
The Porqueira area is located ±1 km northwest of the Cumieira open pit. In this area there is an old open pit measuring about 200 m long by 20 to 50 m wide. There are numerous old workings and waste dumps surrounding the open pit.

Photograph 9.4: View Northwestward at the Porqueira Open Pit (Minerália, 2020)

Photograph 9.5: View Southeastward at the Porqueira Open Pit (Minerália, 2020)

Drill holes JS5 and JS6 that were completed in the 1980's within the Porqueira open pit revealed a lack of quartz vein-hosted mineralization suggesting that the mineralization occurs as disseminations in the granite.

Photograph 9.6: Wolframite Dissemination in Altered Granite, Porqueira Open Pit (Minerália, 2020)



Photograph 9.7: Wolframite in Altered Granite, Porqueira Waste Dump (Minerália, 2020)

Photograph 9.8: Coarse Wolframite at Porqueira Waste Dump (Minerália, 2020)

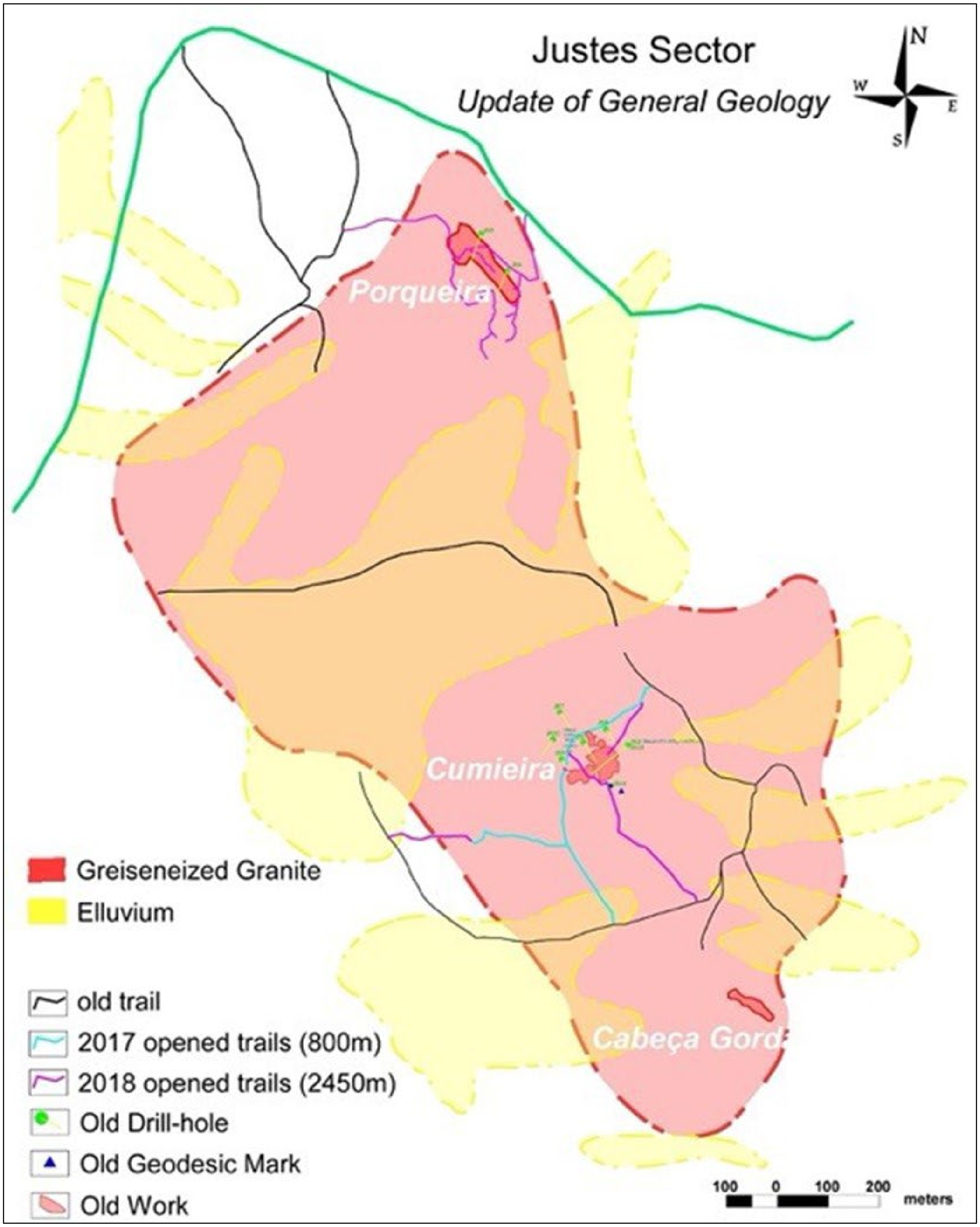


Figure 9.9: Exploration Target Areas within the Justes Zone (Minerália, 2020)

9.6 Justes Zone, Cumieira Area – Bulk Sampling

In June 2024, qualified geologists of Minerália collected 300 kg of rock samples from the Cumieira area of the Justes zone. These hand samples were collected from large fragments of tailings and eluvial gravel where wolframite mineralization was observed. The following photographs are of some of the collected samples.

Photograph 9.9: Mineralized Waste Rock from Cumieira Showing (after Minepro et al, 2024)

According to Minepro et al (2024), "*These samples, containing wolframite, were collected with the goal of being metallurgically processed to simulate the predicted performance of an eventual pilot plant regarding the quality of concentrate of WO3. Wolframite is characterized by its high density and magnetic properties, so gravimetric concentration and magnetic separation are theoretically the most appropriate and effective processes for enhancing the yield and purity of the final concentrate.*

Since the samples were too coarse for effective processing using these methods, they were initially subjected to crushing. It is important to mention that this trial was conducted without any proper and formal mineralogical study or grade per size distribution, so the liberation might not be the optimal or pulverization of wolframite might occur too."

10 DRILLING

The historic drilling by SPE and BRGM included eight drill holes, totalling 814.55 m, in the Justes zone. The recent drilling campaigns by Minerália in 2015 and 2016 included five holes totalling 647.10 m testing the Prainelas zone and four holes, totalling 640.95 m, in 2018 testing the Justes zone for a total meterage of 1,288.05 m of mostly HQ-size diamond drilling. Thus, a total of 17 holes, totalling 2,102.60 m, have now tested the Vila Verde project area.

Period	Company	Drill Hole	Sector	Total Length (m)
2015	Minerália	Pr1	Prainelas	115.35
2015	Minerália	Pr2	Prainelas	120.35
2015	Minerália	Pr3	Prainelas	131.00
2016	Minerália	Pr4	Prainelas	134.10
2016	Minerália	Pr5	Prainelas	146.30
		Sub Total	**Prainelas**	647.10
2018	Minerália	Jc1	Justes	170.00
2018	Minerália	Jc2	Justes	145.75
2018	Minerália	Jp1	Justes	167.00
2018	Minerália	Jp2	Justes	158.20
1982	SPE / BRGM	JS1	Justes	130.00
1982	SPE / BRGM	JS2	Justes	142.15
1982	SPE / BRGM	JS3	Justes	64.40
1982	SPE / BRGM	JS5	Justes	75.00
1982	SPE / BRGM	JS6	Justes	60.45
1982	SPE / BRGM	JS7	Justes	142.00
1983	SPE / BRGM	JS8	Justes	106.25
1983	SPE / BRGM	JS12	Justes	94.30
		Sub Total	**Justes**	1455.50
		Total	**Vila Verde Project**	2102.60

Table 10.1: Summary of Diamond Drilling on the Vila Verde Project (Minerália, 2020)

10.1 Prainelas Zone Drilling

The diamond drilling of the Prainelas Zone in 2015 and 2016 focused on testing the exploration potential of its multiple parallel veining system. A total of 650.0 m of drilling was completed over the two-year period.

According to Minerália (2020), drill hole Pr1 was sited to test the vein structure that is exposed in the Maria Rosa underground workings, and three other adjacent structures. Drill holes Pr2, Pr3 and Pr4 were sited to test the extensive parallel vein system in the vicinity of their earlier trenching and an area of the highest concentration of old surface test pits (see Figures 9.3 and 9.4).

The results of the Prainelas drilling are reported by Minerália (2020) as follows.

- DDH Pr2 – intersected 12 m grading 1,939 ppm WO_3 from drilling length 36.0 to 48.0 m; including 5 m grading 4,102 ppm WO_3 from drilling length 36.0 to 41.0 m; and
- DDH Pr4 – intersected 5 m grading 1,045 ppm SnO_2 and 49.2 ppm Ag from drilling length 104.0 to 109.0 m. A younger granitic copula was intersected in this hole hosting significant tin and silver values. This intercept was beneath the wolframite-bearing vein intersected by DDH Pr2 suggesting that there is the potential for a possible larger porphyry tungsten-tin-silver target in the immediate vicinity.

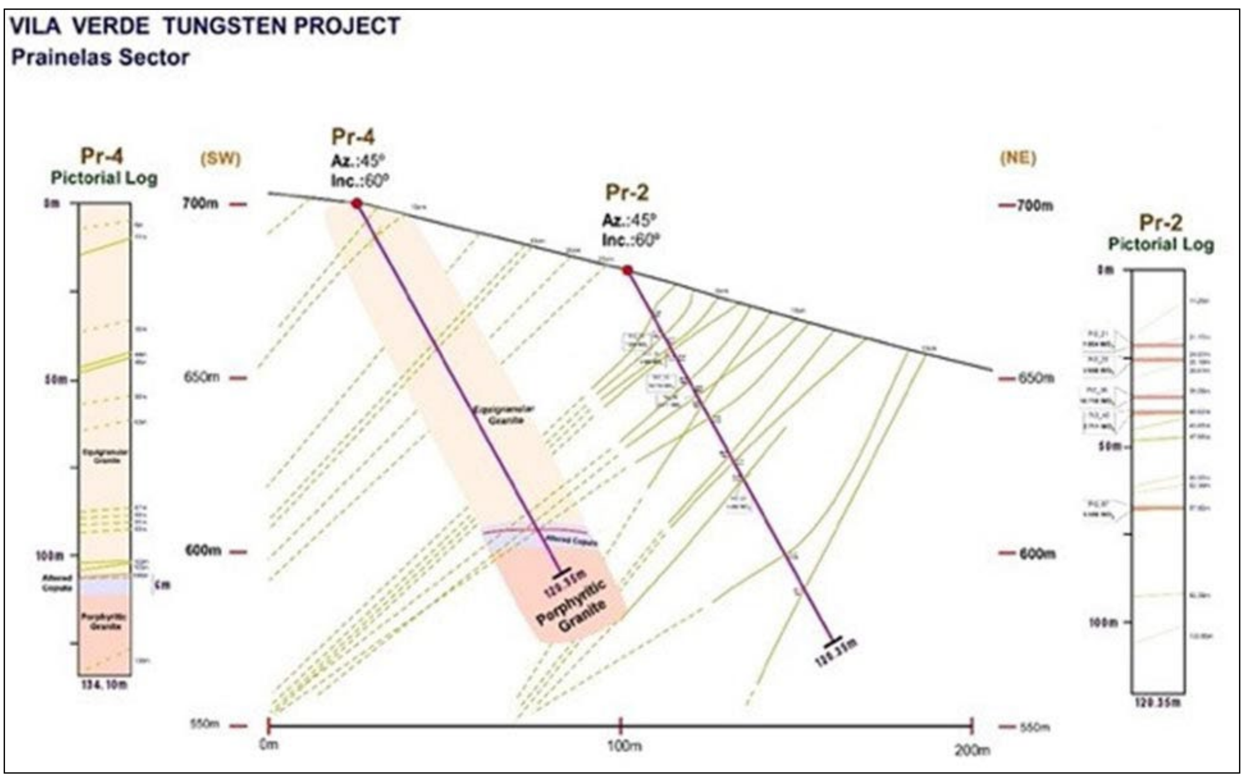


Figure 10.1: Cross-section of DDH Pr2 and Pr4 facing Northwestward (Minerália, 2020)

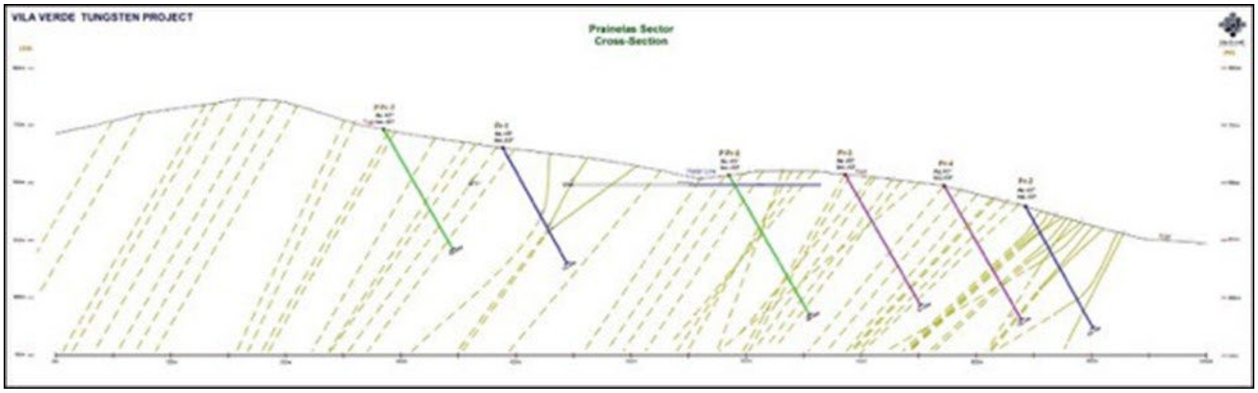


Figure 10.2: Cross-section of Prainelas Drilling facing Northwestward (Minerália, 2020)

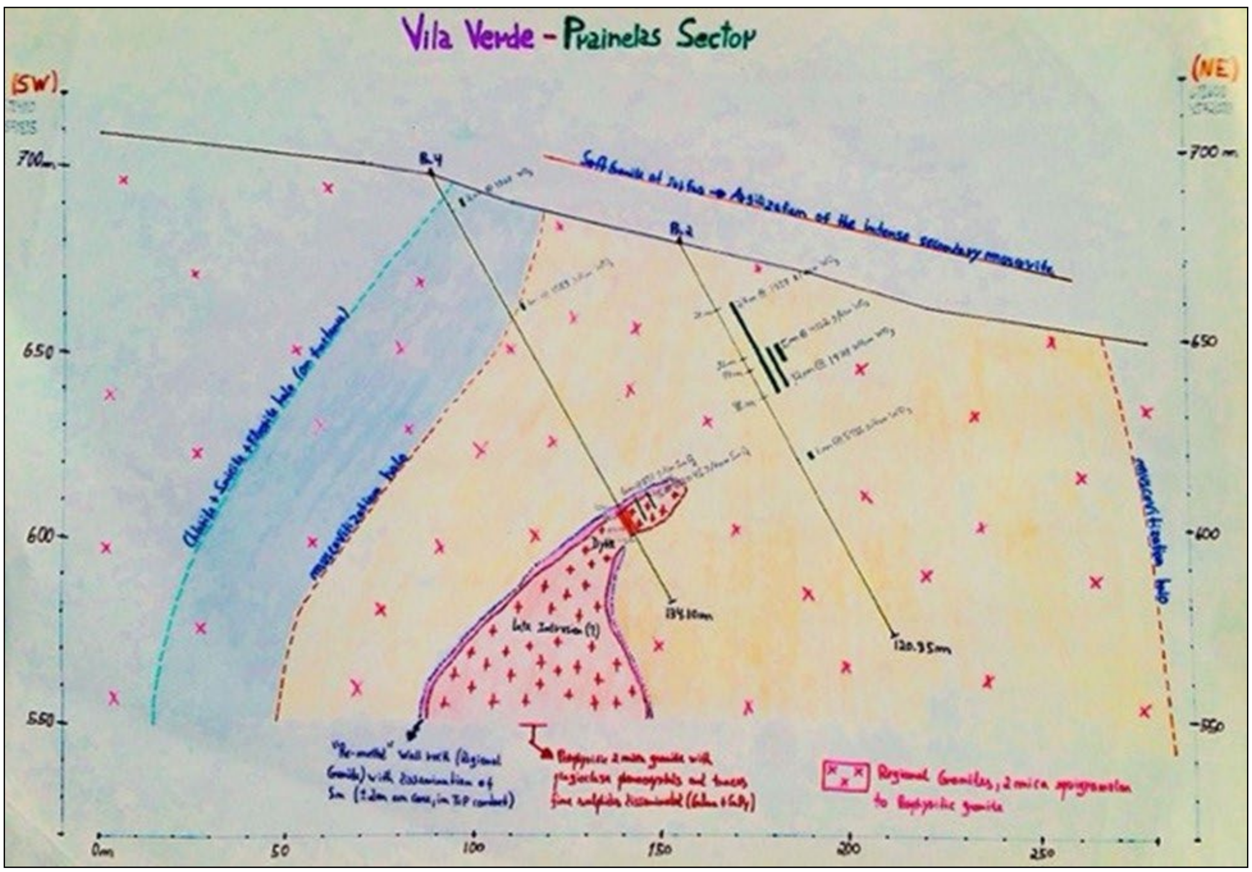
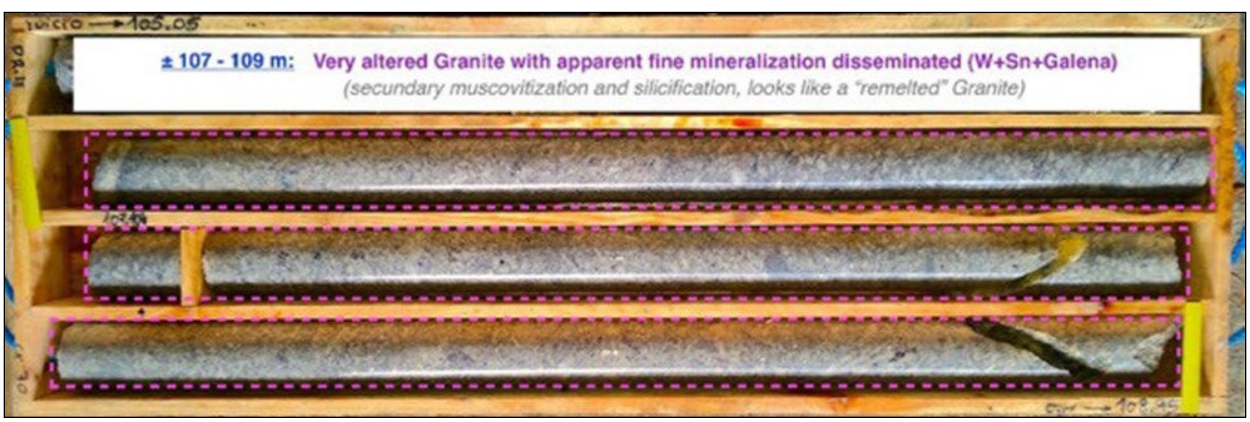


Figure 10.3: Cross-section of Historic Drilling and Geologic Interpretation (Minerália, 2020)

Photograph 10.1: DDH Pr2 Cores with Veinlets and Disseminations of Wolframite (Minerália, 2020)



Photograph 10.2: DDH Pr4 Core with Wolframite, Cassiterite and Galena Disseminations (Minerália, 2020)

10.2 Justes Zone Drilling

In 2018 Minerália tested the Cumieira and Porqueira areas of the Justes Zone with four diamond drill holes totalling 640.95 m. Two drill holes were collared by the old Cumieira open pit, designated Jc1 and Jc2 and two near the open pit in the Porqueira area, designated Jp1 and Jp2.

10.2.1 Cumieira Area Drilling

The two drill holes directed at the Cumieira open pit were intended to test the mineralization hosted by greisenized granite beneath the open pit. Drill hole Jc1 was collared northeast of the pit with a southwesterly orientation, and drill hole Jc2 was collared northwest of the pit with a southeasterly orientation (see Figure 10.4). The 1980's drill holes completed by SPE are designated JS-series.

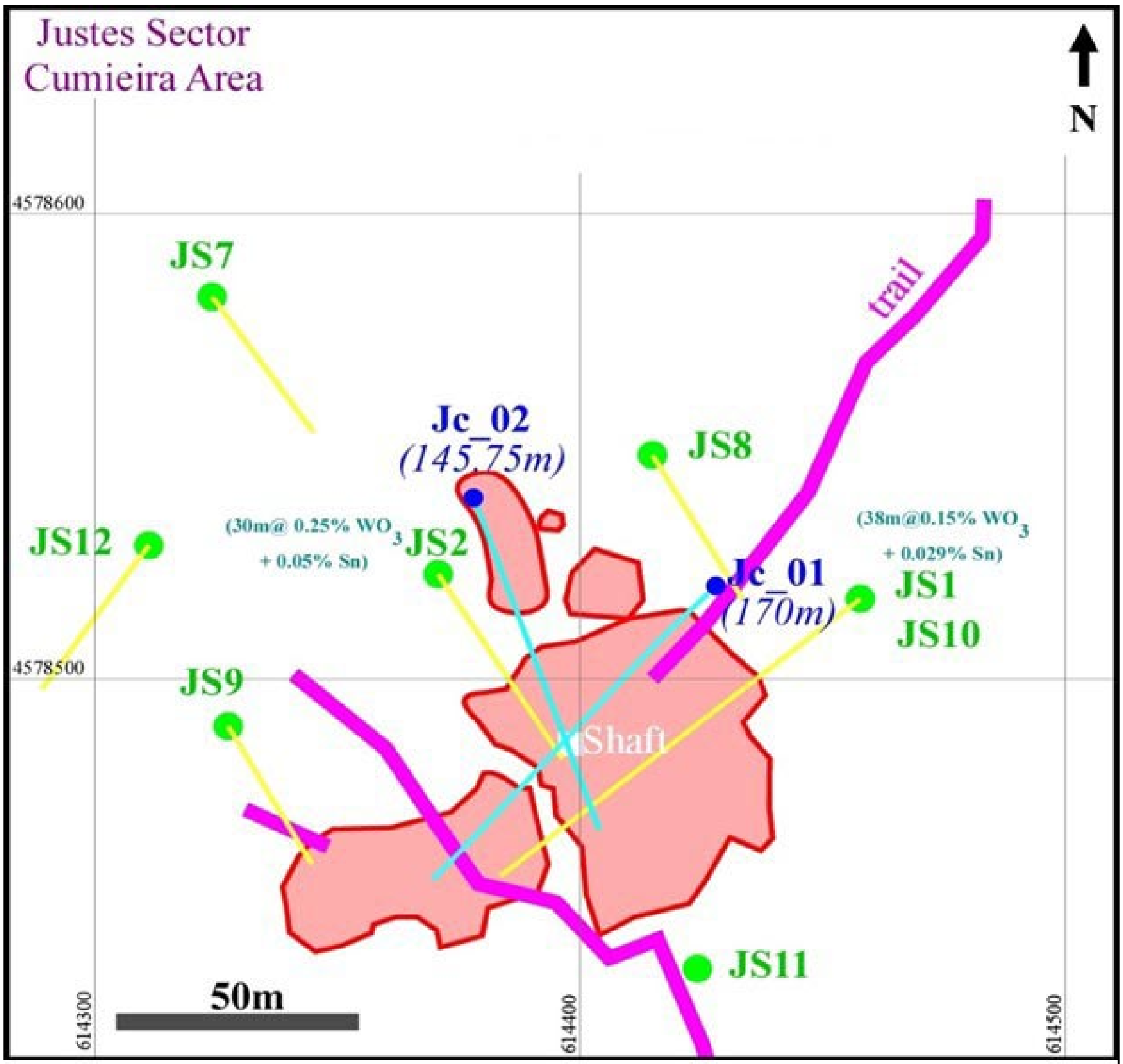
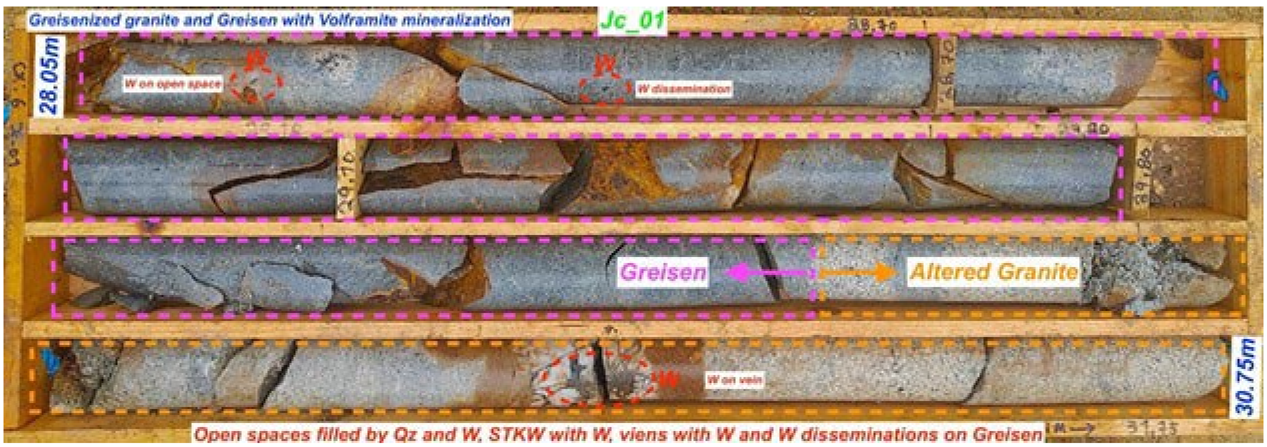


Figure 10.4: Diamond Drilling Plan of Cumieira Area (Minerália, 2020)

Minerália (2020) reported that drill hole Jc_1 intersected:

- 57 m of tungsten-tin mineralization grading 885 ppm WO_3 and 367 ppm Sn from drilling length 31.0 to 88.0 m, including 11 m grading 452 ppm WO_3 from drilling length 31.0 to 42.0 m; and
- 24 m of tungsten-tin mineralization grading 1,286 ppm WO_3, and 484 ppm Sn from drilling length 74.0 to 98.0 m, including: 5 m grading 3,926 ppm WO_3 from drilling length 83.0 to 88.0 m.

This drill hole intersected a variety of lithologies including variably altered or greisenized granite, rhyolite, dacite and microgranite. The mineralization occurs with quartz veins, as void infillings and disseminations hosted by the greisenized granite.



Photograph 10.3: Various Types of Wolframite Mineralization intersected by Drill Hole Jc_1 (Minerália, 2020)

Drill hole Jc_2 intersected similar lithologies and mineralization as that in drill hole Jc_1. Minerália (2020) reported this drill hole intersected 44 m of mineralization grading 1,242 ppm WO_3 and 375 ppm Sn from drilling length 19.0 to 63.0 m, including 18 m grading 2,555 ppm WO_3 from drilling length 24.0 to 42.0 m.

10.2.2 Porqueira Area Drilling

Two drill holes, Jp_01 and Jp_02 were sited northeast of an old illegal open pit to test for its tungsten-tin mineralization. These holes were oriented in a south-southeasterly direction between and beside two earlier drill holes completed in the 1980's by SPE, namely JS5 and JS6 (see Figure 10.5). The results of drill hole Jp_01 were reported by Minerália (2020) as:

- 42 m of mineralization grading @ 1,054 ppm WO_3 and 198 ppm Sn ppm from drilling length 7.0 to 49.0 m, including 5 m grading 3,503 ppm WO_3 and 420 ppm Sn from drilling length 44.0 to 49.0 m; and

- 17 m grading 1,918 ppm WO_3 and 146 ppm Sn from drilling length 147.0 to 164.0 m, including 8 m grading 3,099 ppm WO_3 and 251 ppm Sn from drilling length 153.0 to 161.0 m.

Most of the wolframite mineralization in this hole occurs is disseminations in a greisenized granite or with fracture-filling quartz veins.

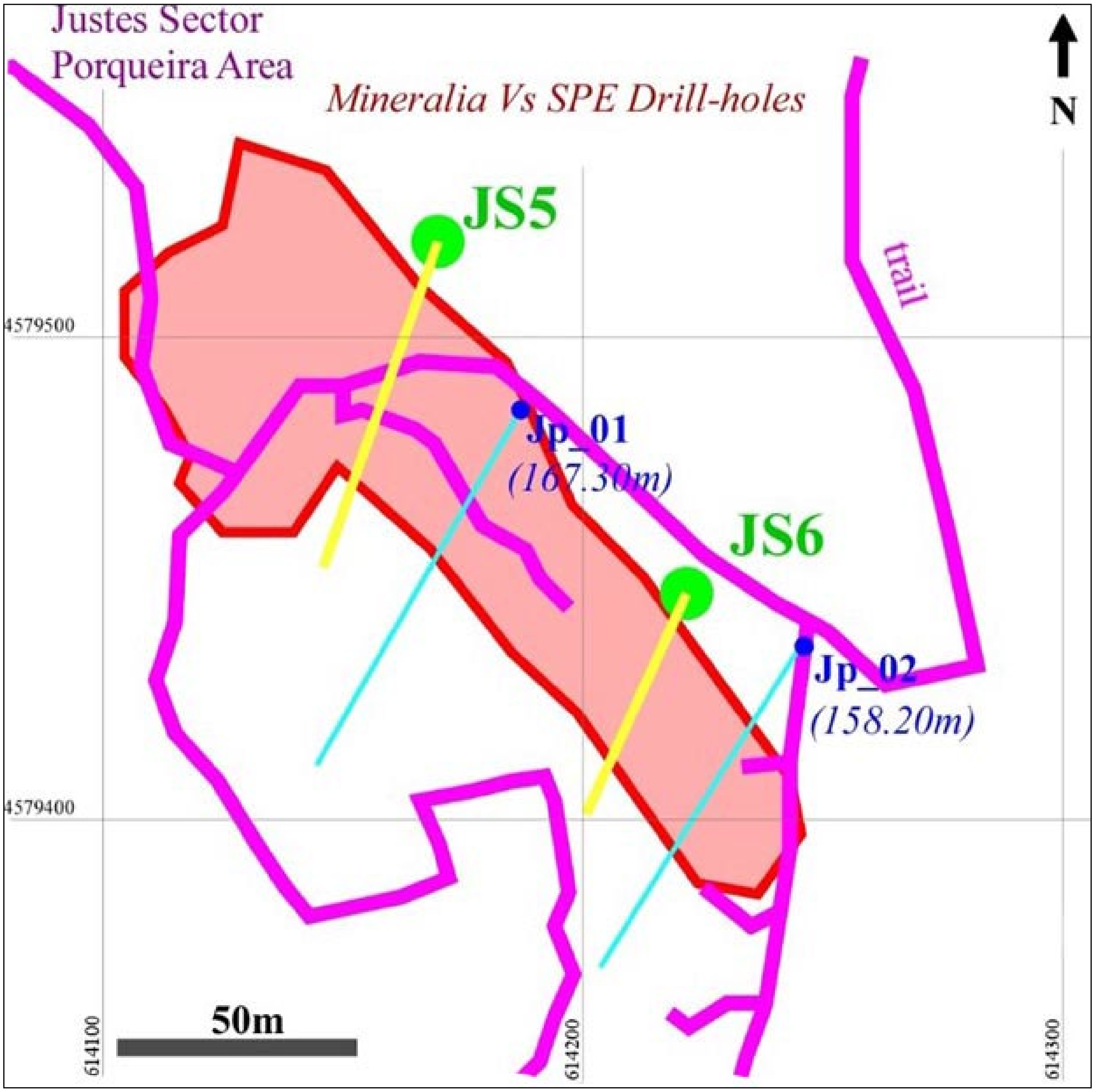
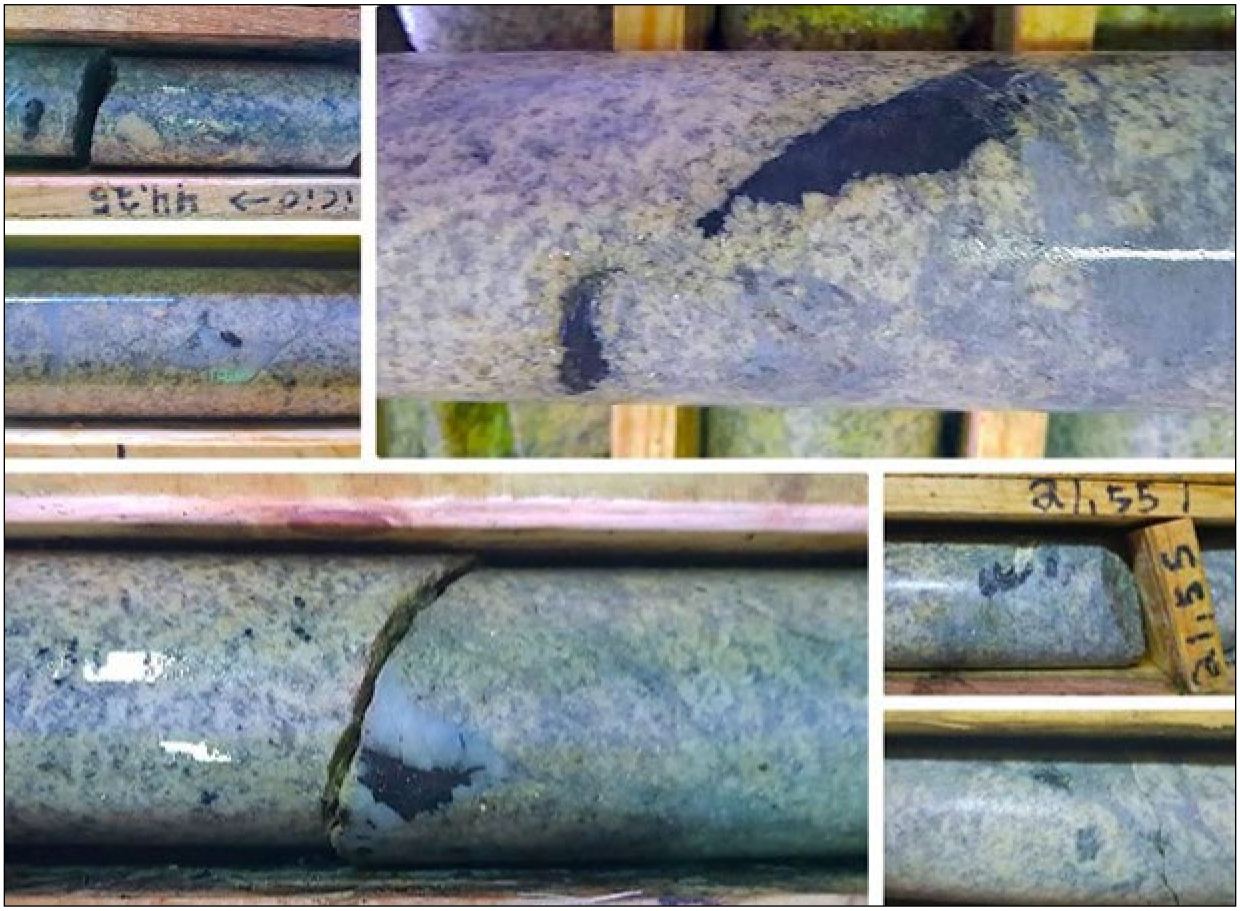


Figure 10.5: Diamond Drilling Plan of Porqueira Area (Minerália, 2020)



Photograph 10.4: Various Types of Wolframite Mineralization intersected by Drill Hole Jp_01 (Minerália, 2020)

It is the opinion of the author that Minerália's drilling procedures and core handling are well within industry standards and CIM guidelines. Minerália (2020) reported that the core recoveries within the zone of weathered bedrock averaged approximately 75% versus +95% in fresh bedrock. Drill core sample intervals were restricted to similar lithological and/or mineralization boundaries. Furthermore, Minerália reported no drilling, sampling or recovery factors that could result in sampling bias or otherwise materially impact the accuracy and reliability of the assay results.

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

11.1 Sample Preparation

11.1.1 Historic Sample Preparation

The pre-2015 sample preparations, analytical procedures and security measures are not documented. The following discussion of sample preparation and handling during Minerália's 2015 to 2018 exploration programs is paraphrased from the Sample Preparation section in the 2020 Minerália report and their in-house sampling document called "Minerália, Lda. – Diamond Drilling and Reverse Circulation Standard Operation Procedures".

"*The typical channel sample length is 5.0 m. The samples are placed in new plastic bags along with their respective sample tags. The samples are then catalogued and placed in sealed pails for shipping. The sample shipment forms are prepared on site with one copy inserted into one shipping bag and one copy kept for reference. The samples are transported on a regular basis by a Minerália personnel to the assay laboratory.*

Drill core is collected from the drill rig by Minerália personnel, under the supervision of the Minerália project manager. The drillers use a black marker to label the core boxes and note the depth of the drill hole on wooden blocks within the core boxes. Markers are placed in the core boxes clearly indicating the drilling depth at the end of each drill run. When possible, a digital photograph is taken of the mineralized and host rock core while in the field. The drill core is then transported to the logging/storage facility located on a private property where Minerália personnel had their field offices.

The core boxes are stored in a secure and restricted area during core processing. The drill core is geotechnically logged and digitally photographed. Descriptions of the drill core are documented on paper logs and later transcribed by Minerália personnel into a matrix spreadsheet.

Drill core samples are usually collected at 1.0-metre intervals while respecting any lithologic contacts, and sample assay tags were inserted into the core box at the beginning of the sample interval. High- and low-grade tungsten standards and blank material were inserted approximately every batch of 20 samples. Geological logging protocols record lithology, structures, alteration, mineralization, and oxidation in descriptive columns. Each step of drill core processing is inspected by the Minerália person responsible to ensure integrity. Rock and drill core samples are securely bagged, and securely shipped or delivered directly to a nearby assay laboratory. After core processing is completed, the core is stored. Once the assaying is finalized and when core security was deemed by Minerália to be no longer necessary, the boxes are no longer sealed."

All Minerália's channel and drill core samples were prepared for analyses by ALS preparatory facilities in Seville, Spain before being sent to their sister laboratory in Loughrea, Ireland for analyses. The remaining sample pulps and sample rejects were returned to Minerália.

11.1.2 Recent Sample Preparation

The diamond drill core from the Vila Verde 2015, 2016 and 2018 drilling is stored in a secure concrete block building at the site of the old Vale das Gatas mine townsite. The author selected the cores from six drill hole intervals for verification sampling, including four widely-spaced drill holes that tested the Cumieira and Porqueira areas in the Justes zone plus one drill hole that tested the Prainelas zone.

Two drilling length intervals were selected from drill hole JC_01 (76.0-77.0 and 159.0-160.0 m) and two intervals were selected from drill hole JC_02 (25-26.0 and 38.0-39.0 m), both drill holes tested the very prospective Cumieira area. The drilling length intervals from drill holes JP_01 (159-160 m) and JP_02 (92.0-93.0) were selected to verify drilling results in the Porqueira area. Lastly, one drilling length interval from 106.0 to 107.0 in diamond drill hole PR_4 was selected for verification of the Prainelas zone drilling. See Figure 7.6 and Section 10 for the locations of these drill holes.

Photograph 11.1: Interior of Vila Verde Core Storage Building

The stored one-half split drill core from each of the selected intervals was cut length-wise using a rock table saw, and individually described, bagged, labelled and placed in woven-poly shipping bags. The shipping bags were then thoroughly secured and direct shipped to the ALS preparatory facilities in Sevilla, Spain where the samples were prepared for analyses.

Photograph 11.2: Verification Sample JC_01_76 of Quarter-Cut Drill Core

The ALS laboratories in Seville, Spain and Loughrea Co., Ireland are not affiliated with the author or other party involved with the Vila Verde project. The ALS laboratory is among several laboratories that regularly participate in the PTP- MAL (Proficiency Testing Program for Mineral Analysis Laboratories.

11.2 Sample Analyses and Assays

11.2.1 Historic Sample Analyses and Assays

At ALS Global preparatory facilities in Seville, Spain the samples were prepared by crushing each to +70% of the material passing a 2 mm screen, split to 250 g, and pulverized under hardened steel to 85% passing a 75 µm screen. ALS Seville then direct shipped the prepared sample to their assay laboratory Dublin Road, Loughrea Co., Ireland for ICP analyses.

Minerália analysed all their drill core samples using two procedures. The first procedure, ME-MS81, used a Lithium Borate fusion and mass spectrometry to analyse the samples for: Ba, Ce, Cr, Cs, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Nb, Nd, Pr, Rb, Sm, Sn, Sr, Ta, Tb, Th, Tm, U, V, W, Y, Yb, and Zr. If the values of tungsten were greater than 10,000 ppm then a second procedure (E-MS85) of Mass spectrometry was used. Select samples from the earlier Prainelas drilling in 2016 were also spot-checked for tungsten using XRF (X-Ray Fluorescence Spectroscopy) instrumentation providing results in the range of 10 to 5,000 ppm.

11.2.2 Recent Sample Analyses and Assays

The author's seven drill core samples plus one sample of standard material were properly bagged and securely delivered directly to the ALS Global laboratory in Seville, Spain where the samples were crushed, pulverized and a sample pulp of each was split for analysis. The seven sample pulps, plus the standard material QA/QC sample, were then shipped directly to the ALS Global assay laboratory for multi-element analyses.

Two procedures were used to analyse the sample pulps. The first procedure (ALS Code ME-4AACD81) analysed for base metals using a 4-acid digestion and provided results for: Ag, As, Cd Co, Cu, Li, Mo, Ni, Pb, Sc, Tl and Zn. The second procedure (ME-MS8S) used a Lithium Borate Fusion and Mass Spectrometry to analyses for: Ba, Ce, Cr, Cs, Dy, Er, Ga, Gd, Hf, Ho, La, Lu, Nb, Nd, Pr, Rb, Sc, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tm, U, V, W, Y, Yb and Zr.

11.3 Sample Security

Minerália (2022) reports that all their analytical and assay results were received directly from ALS, Ireland as emails followed by signed assay certificates delivered by courier. It is the author's opinion that Minerália personnel exercised appropriate care and attention handling, preparing and securely shipping their channel and drill core samples. Furthermore, their assessment procedures of the analytical and assay results are adequate to ensure the credibility of the analytical data.

The author's seven drill core verification samples were securely bagged and direct shipped to ALS Global laboratory in Seville, Spain according to Industry-standard procedures to ensure that the analytical results are reliable.

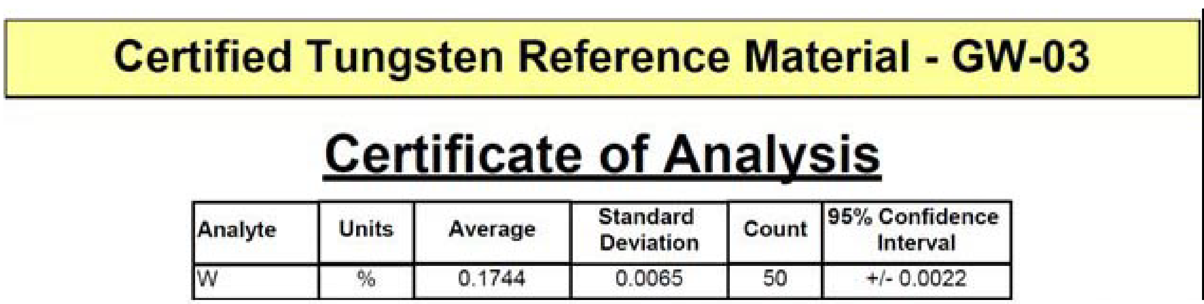
12 DATA VERIFICATION

12.1 Historical Data Verification

It was not possible to gain safe access to the underground workings for sampling during Minerália's initial property examination. However, there was no doubt that considerable underground mining had occurred in the past based upon the large tailings and waste dumps.

Minerália personnel verified the historical data with site visits to the various project areas and by validating a resource database. They did not collect any verification samples during site visits since the mineralization was easily seen in drill cores and could be correlated with the reported assay grades. In addition, a detailed verification of the historical SPE/BRGM drill holes in the Justes Zone was conducted and the data was found to be trustworthy.

Minerália continually monitored the results of their QA/QC samples. Any certified reference material returning values varying more than three standard deviations was considered a failure and the assay batch was re-assayed; as were any blank material samples returning values three times above detection limit. All standards and blanks were obtained from Geostats Pty Ltd., an Australian reference material provider. See Figure 12.1 for a plot of their Standard Reference Material (GW-03) results over several assay batches.



Certified Tungsten Reference Material - GW-03

Certificate of Analysis

Analyte	Units	Average	Standard Deviation	Count	95% Confidence Interval
W	%	0.1744	0.0065	50	+/- 0.0022

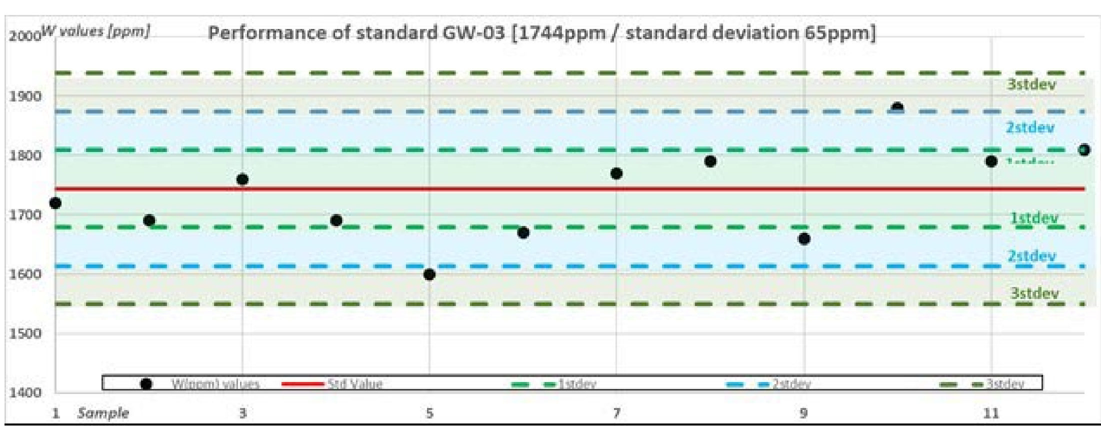


Figure 12.1: Minerália's Standard Material Sample Results over Several Assay Batches (Minerália, 2020)

Global Laboratories also maintained their own QA/QC protocols by routinely conducting pulp duplicate analyses. In addition, Minerália maintained their own internal QA/QC protocols by inserting reference standards and blanks, plus core duplicates into the sample batches on a systematic basis.

12.2 Independent Verification Sampling

12.2.1 Verification Sampling and Analytical Procedures

The author verified and photographed the location of various historical workings at the northern Justes, central Vale das Gatas and southern Prainelas during his property examination. He also examined most of the available records, maps and data pertaining the Vila Verde project.

Given that the Vila Verde mineralization is known to occur over a +7 km strike length in at least six separate zones and that much of the surficial exposures have been covered by test pit waste dumps and tailings, the author selected drill core samples from seven different intervals from five widely-spaced drill holes that tested three areas within the Vila Verde project. The stored drill core for the seven selected intervals was quartered using a rock table saw, described, bagged and securely delivered to ALS Global preparatory facilities in Seville, Spain. There they were prepared by crushing each sample to +70% of the material passing a 2 mm screen, split to 250 g, and pulverized under hardened steel to 85% passing a 75 µm screen. ALS in Seville then sent the prepared sample to their assay laboratory in Dublin Road, Loughrea, Co., for ICP and mass spectrometry analyses.

As stated previously, two procedures were used to analyse the drill core reject sample pulps. The first procedure (ALS Code ME-4AACD81) analysed for base metals using a 4-acid digestion and provided results for: Ag, As, Cd Co, Cu, Li, Mo, Ni, Pb, Sc, Tl and Zn. The second procedure (ME-MS8S) used a Lithium Borate Fusion and Mass Spectrometry to analyses for: Ba, Ce, Cr, Cs, Dy, Er, Ga, Gd, Hf, Ho, La, Lu, Nb, Nd, Pr, Rb, Sc, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tm, U, V, W, Y, Yb and Zr.

12.2.2 Verification Sampling Results

The results of the verification sampling demonstrate the ‘nuggety’ distribution of the mineralization, and the need for complete multi-element analyses of all samples. A comparison between Minerália’s reported tungsten values and those same drilling intervals from the author’s verification samples show a wide variance between the original half-core samples and later quarter-core verification samples using the same analytical procedures. These differences can be easily explained by the extreme ‘nuggety’ distribution of the mineralization as fine-grained disseminations and/or that associated with fracture-filling quartz stockwork veining. The tungsten analytical results for these verification samples have been tabulated in Table 12.1, a table of the most significant analytical results have been tabulated as Table 12.2. The author received the Certificate of Analysis and QC Certificate for the verification samples, a copy of each these certificates accompanies this report as Figure 12.3.

Sample No.	DDH No.	From (m)	To (m)	Interval (m)	Geological Log Entry
JC_02_25	JC_02	25.0	26.0	1.0	Greisenized granite w/ f.g. diss'd Wo.
JC_02_38	JC_02	38.0	39.0	1.0	Greisenized granite w/ f.g.-m.g. diss'd Wo.
JC_01_76	JC_01	76.0	77.0	1.0	Greisenized granite w/ Qz stockwork + f.g. Wo.
JP_01_159	JP_01	159.0	160.0	1.0	Greisenized granite w/ Qz stockwork + f.g. Wo.
JP_02_92	JP_02	92.0	93.0	1.0	Greisenized granite w/ tourmaline + diss'd Cp &Ap.
PR_4_106	PR_4	106.0	107.0	1.0	Two-mica granite w/ f.g, Wo and Cp, Ga in Qz vns.

Sample	DDH	From	To	Mineralia Samples			Verification Samples	
No.	No.	(m)	(m)	W (ppm) (MS8S)	WO3 (ppm) (Wx1.2616)	Sn (ppm) (MS8S)	W (ppm) (ME-MS8S)	WO3 (ppm) (Wx1.2616)
JC_02_25	JC_02	25	26	43	54	82	525	662
JC_02_38	JC_02	38	39	877	1,106	289	791	998
JC_01_76	JC_01	76	77	2,190	2,763	1145	349	440
JP_01_159	JP_01	159	160	2,010	2,536	55	1,275	1,609
JP_02_92	JP_02	92	93	2,800	3,532	69	503	635
PR_4_106	PR_4	106	107	18	23	978	20	25
VV_1 Std	Certified W Reference Std GW-03			1,744			1,605	2,025

Notes:

Cp	*Chalcopyrite*	*Gl*	*Galena*	*f.g.*	*fine grain*
Sc	*Scheelite*	*Qz*	*Quartz*	*m.g.*	*medium grain*
Wo	*Wolframite*	*Ap*	*Arsenopyite*	*c.g.*	*coarse grain*

Table 12.1: Comparison Table of the Tungsten Values reported by Minerália versus the Verification Drill Core Samples

There is a significant difference between the two tungsten analyses of the Certified W Reference Standard GW-03. According to Minerália (2021), their QA/QC procedures showed their inserted standard samples were largely compliant with the GW-03 standard; only two of twelve batches returned a standard analysis more than 2 standard deviation difference. One explanation of the difference with the standard sample from verification sample batch might be that the GW-03 standard in a small brown envelope had been shelved since 2018 and was not completely re-homogenized at the laboratory prior to its analysis which resulted in a lower tungsten analysis. However, the ALS internal quality control procedures and QA/QC results indicate that the analytical results from the seven verification samples are credible and reliable.

There are three noteworthy results from the verification sampling. The first being the high tin value (2,730 ppm Sn) returned from sample JC_02_25. The drill logs do not report any significant cassiterite mineralization, just some fine-grained wolframite disseminations in the greisenized granite host. This sample also returned 520 ppm arsenic which may indicate that some of the identified fine-grained disseminations noted in the logs are both cassiterite and arsenopyrite.

Sample No.	From (m)	To (m)	Interval (m)	W ppm	Sn ppm	Ag ppm	Cu ppm	Pb ppm	Zn ppm	Mo ppm	As ppm	Ba ppm
JC_02_25	25.0	26.0	1.0	525	2,730	1	93	18	94	6	520	96
JC_02_38	38.0	39.0	1.0	791	180	1	310	9	139	11	241	64
JC_01_76	76.0	77.0	1.0	349	298	1	324	44	1,010	8	708	53
JP_01_159	159.0	160.0	1.0	1,275	56	<0.5	20	66	189	4	198	86
JP_02_92	92.0	93.0	1.0	503	69	<0.5	48	27	469	3	582	83
PR_4_106	106.0	107.0	1.0	20	939	>100	239	1,480	1,275	<1	3,570	264
VV_1 Standard				1,605	18	<0.5	12	17	85	16	166	36

Table 12.2: Pertinent Analytical Results from the Verification Samples

Both verification samples JC_01_76 and PR_4_106 returned high zinc values, 1,010 and 1,275 respectively. The latter sample, PR_4_106 also had anomalously high silver, lead and arsenic values which indicate that the base metals observed and reported in the logs were both galena and arsenopyrite. It is unfortunate that the high silver value (> 100 ppm Ag) returned for verification sample PR_4_106 was not subsequently fire assayed when the over-limit analytical result was detected.

The verification sample results show that multi-element analyses of all channel and drill core samples are important for the detection of, not only the tungsten and tin values, but also the associated mineralogy including chalcopyrite, galena, sphalerite and arsenopyrite. In addition, the silver values, likely associated with the galena mineralization, may be important when considering the future economic potential of the project. However, there must be considerably more exploration, including diamond and reverse circulation drilling, bulk sampling and detailed metallurgical studies to determine the economic potential of both the tungsten, tin and associated elements.

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Page: 1
Total # Pages: 2 (A - C)
Plus Appendix Pages
Finalized Date: 18-APR-2023
This copy reported on 2-MAY-2023
Account: MINOREX

CERTIFICATE SV23095087

Project: P23-06
P.O. No.: SV23-0418
This report is for 7 samples of 1/2 Core submitted to our lab in Seville, Spain on 5-APR-2023.

The following have access to data associated with this certificate:

VITOR AREZES	JOAO BARROS	J. DOUGLAS BLANCHFLOWER

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
LOG-22	Sample login - Rcd w/o BarCode
CRU-31	Fine crushing - 70% <2mm
SPL-22Y	Split Sample - Boyd Rotary Splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-24	Pulp Login - Rcd w/o Barcode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-MS81	Lithium Borate Fusion ICP-MS	ICP-MS
ME-4ACD81	Base Metals by 4-acid dig.	ICP-AES

This is the Final Report and supersedes any preliminary report with this certificate number.Results apply to samples as submitted.All pages of this report have been checked and approved for release.
***** See Appendix Page for comments regarding this certificate *****

Signature: Andrey Tairov, Technical Manager, Ireland

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Project: P23-06

CERTIFICATE OF ANALYSIS SV23095087

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS81 Ba ppm 0.5	ME-MS81 Ce ppm 0.1	ME-MS81 Cr ppm 5	ME-MS81 Cs ppm 0.01	ME-MS81 Dy ppm 0.05	ME-MS81 Er ppm 0.03	ME-MS81 Eu ppm 0.02	ME-MS81 Ga ppm 0.1	ME-MS81 Gd ppm 0.05	ME-MS81 Hf ppm 0.05	ME-MS81 Ho ppm 0.01	ME-MS81 La ppm 0.1	ME-MS81 Lu ppm 0.01	ME-MS81 Nb ppm 0.05
JC_02_25		1.92	95.6	10.0	25	51.2	1.60	0.74	0.20	34.2	1.24	1.23	0.26	4.6	0.09	18.35
JC_02_38		1.48	64.1	10.8	108	43.3	1.42	0.70	0.14	27.3	1.28	1.16	0.25	4.8	0.10	19.50
JC_01_76		1.78	52.5	20.5	11	20.2	1.46	0.67	0.15	36.0	1.84	1.56	0.30	8.6	0.11	14.90
JP_01_159		1.78	85.9	12.0	85	43.8	1.47	0.61	0.16	22.8	1.28	1.44	0.23	5.5	0.10	17.10
JP_02_92		1.86	83.3	11.9	15	46.8	1.44	0.65	0.20	23.4	1.25	1.26	0.26	5.3	0.08	14.40
PR_4_106		1.98	264	74.1	79	25.0	2.16	0.97	0.69	35.8	3.99	3.81	0.31	32.8	0.13	9.40
VV_1 Standard		0.02	36.2	5.8	2590	322	1.38	0.86	0.25	7.8	1.10	0.56	0.27	2.4	0.15	3.52

***** See Appendix Page for comments regarding this certificate *****

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CERTIFICATE OF ANALYSIS SV23095087

Sample Description	Method	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81
	Analyte	Nd	Pr	Rb	Sc	Sm	Sn	Sr	Ta	Tb	Th	Ti	Tm	U	V	W
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
	LOD	0.1	0.02	0.2	0.5	0.03	0.5	0.1	0.1	0.01	0.05	0.01	0.01	0.05	5	0.5
JC_02_25		4.7	1.25	585	4.8	1.22	2730	16.6	5.2	0.27	2.46	0.05	0.12	14.75	<5	525
JC_02_38		4.6	1.28	437	4.7	1.08	179.5	13.8	4.6	0.22	2.52	0.05	0.12	16.85	<5	791
JC_01_76		10.4	2.79	438	5.2	2.57	298	6.8	2.3	0.29	7.58	0.06	0.12	23.9	<5	349
JP_01_159		5.3	1.46	473	5.3	1.26	56.4	28.0	4.0	0.23	2.95	0.05	0.10	15.95	<5	1275
JP_02_92		5.1	1.43	509	4.8	1.35	69.1	29.6	3.6	0.22	2.93	0.05	0.10	18.00	<5	503
PR_4_106		34.4	9.47	684	5.1	6.84	939	45.5	1.5	0.37	27.9	0.20	0.11	14.60	18	20.0
VV_1 Standard		3.7	0.83	521	35.6	0.89	18.4	23.7	1.1	0.19	0.58	0.15	0.13	0.31	141	1605

***** See Appendix Page for comments regarding this certificate *****

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Project: P23-06

CERTIFICATE OF ANALYSIS SV23095087

Sample Description	Method / Analyte / Units / LOD	ME-MS81 Y ppm 0.1	ME-MS81 Yb ppm 0.03	ME-MS81 Zr ppm 1	ME-4ACD81 Ag ppm 0.5	ME-4ACD81 As ppm 5	ME-4ACD81 Cd ppm 0.5	ME-4ACD81 Co ppm 1	ME-4ACD81 Cu ppm 1	ME-4ACD81 Li ppm 10	ME-4ACD81 Mo ppm 1	ME-4ACD81 Ni ppm 1	ME-4ACD81 Pb ppm 2	ME-4ACD81 Sc ppm 1	ME-4ACD81 Tl ppm 10	ME-4ACD81 Zn ppm 2
JC_02_25		9.1	0.66	31	0.5	520	<0.5	1	93	320	6	2	18	3	<10	94
JC_02_38		8.5	0.65	31	0.5	241	1.2	3	310	290	11	4	9	3	<10	139
JC_01_76		9.1	0.72	47	1.1	708	11.6	2	324	300	8	2	44	2	<10	1010
JP_01_159		7.8	0.63	37	<0.5	198	0.8	1	20	410	4	3	66	2	<10	189
JP_02_92		8.2	0.72	34	<0.5	582	5.6	2	48	400	3	<1	27	3	<10	469
PR_4_106		10.1	0.80	130	>100	3570	15.0	2	239	140	<1	5	1480	3	<10	1275
VV_1 Standard		9.4	1.06	15	<0.5	166	0.5	57	12	360	16	233	17	35	10	85

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CERTIFICATE OF ANALYSIS SV23095087

CERTIFICATE COMMENTS

ACCREDITATION COMMENTS

The methods immediately below this line are ISO 17025:2017 Accredited. INAB Registration No: 173T

Applies to Method: ME-MS81

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO.173T

LABORATORY ADDRESSES

Processed at ALS Seville located at Poligono Parque Plata, Calle Camino Mozarabe naves 13 y 15, Camas (Sevilla), Spain.

Applies to Method: CRU-31, CRU-QC, LOG-22, LOG-24, PUL-31, PUL-QC, SPL-22Y, WEI-21

Processed at ALS Loughrea located at Dublin Road, Loughrea, Co. Galway, Ireland.

Applies to Method: ME-4ACD81, ME-MS81

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QC CERTIFICATE SV23095087

Project: P23-06

P.O. No.: SV23-0418

This report is for 7 samples of 1/2 Core submitted to our lab in Seville, Spain on 5-APR-2023.

The following have access to data associated with this certificate:

VITOR AREZES	JOAO BARROS	J. DOUGLAS BLANCHFLOWER

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
CRU-QC	Crushing QC Test
PUL-QC	Pulverizing QC Test
LOG-22	Sample login – Rcd w/o BarCode
CRU-31	Fine crushing – 70% <2mm
SPL-22Y	Split Sample – Boyd Rotary Splitter
PUL-31	Pulverize up to 250g 85% <75 um
LOG-24	Pulp Login – Rcd w/o Barcode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-MS81	Lithium Borate Fusion ICP-MS	ICP-MS
ME-4ACD81	Base Metals by 4-acid dig.	ICP-AES

This is the Final Report and supersedes any preliminary report with this certificate number.Results apply to samples as submitted.All pages of this report have been checked and approved for release.

***** See Appendix Page for comments regarding this certificate *****

Signature:

Andrey Tairov, Technical Manager, Ireland

ALS Laboratory Group, SL

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Project: P23-06

QC CERTIFICATE OF ANALYSIS SV23095087

Sample Description / Method / Analyte / Units / LOD	ME-MS81 Ba ppm 0.5	ME-MS81 Ce ppm 0.1	ME-MS81 Cr ppm 5	ME-MS81 Cs ppm 0.01	ME-MS81 Dy ppm 0.05	ME-MS81 Er ppm 0.03	ME-MS81 Eu ppm 0.02	ME-MS81 Ga ppm 0.1	ME-MS81 Gd ppm 0.05	ME-MS81 Hf ppm 0.05	ME-MS81 Ho ppm 0.01	ME-MS81 La ppm 0.1	ME-MS81 Lu ppm 0.01	ME-MS81 Nb ppm 0.05	ME-MS81 Nd ppm 0.1
STANDARDS															
AMIS0343															
Target Range - Lower Bound															
Upper Bound															
OREAS 102a	343	580	30	3.16	17.00	11.05	3.62	19.9	19.20	9.81	3.56	323	1.62	33.7	180.0
Target Range - Lower Bound	300	528	19	2.78	16.25	9.96	3.48	19.8	18.75	8.32	3.19	291	1.52	29.3	162.0
Upper Bound	368	646	42	3.42	19.95	12.25	4.30	24.5	23.0	10.30	3.93	355	1.88	35.9	198.0
OREAS 602b															
Target Range - Lower Bound															
Upper Bound															
REE-1	101.5	4000	282	1.03	856	719	23.4	49.0	446	484	208	1720	94.4	>2500	1485
Target Range - Lower Bound	89.6	3560	244	0.95	762	631	21.1	49.8	390	431	187.0	1495	83.2	3640	1310
Upper Bound	110.5	4360	310	1.19	932	771	25.9	61.0	476	527	229	1825	101.5	>2500	1600
BLANKS															
BLANK															
Target Range - Lower Bound															
Upper Bound															
BLANK	0.8	<0.1	<5	<0.01	<0.05	<0.03	<0.02	<0.1	0.05	<0.05	0.01	<0.1	<0.01	<0.05	<0.1
Target Range - Lower Bound	<0.5	<0.1	<5	<0.01	<0.05	<0.03	<0.02	<0.1	<0.05	<0.05	<0.01	<0.1	<0.01	<0.05	<0.1
Upper Bound	1.0	0.2	10	0.02	0.10	0.06	0.04	0.2	0.10	0.10	0.02	0.2	0.02	0.10	0.2
DUPLICATES															
BO9 109															
DUP															
Target Range - Lower Bound															
Upper Bound															
BO9 167	217	27.5	47	18.50	1.54	0.86	0.36	22.0	1.68	2.63	0.27	13.8	0.12	15.25	11.4
DUP	230	27.4	48	18.25	1.54	0.87	0.43	22.2	1.79	2.87	0.26	13.6	0.14	15.60	11.2
Target Range - Lower Bound	212	26.0	40	17.45	1.41	0.79	0.36	20.9	1.60	2.56	0.24	12.9	0.11	14.60	10.6
Upper Bound	235	28.9	55	19.30	1.67	0.94	0.43	23.3	1.87	2.94	0.29	14.5	0.15	16.25	12.0

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Sample Description (Method / Analyte / Units / LOD)	ME-MS81 Pr ppm 0.02	ME-MS81 Rb ppm 0.2	ME-MS81 Sc ppm 0.5	ME-MS81 Sm ppm 0.03	ME-MS81 Sn ppm 0.5	ME-MS81 Sr ppm 0.1	ME-MS81 Ta ppm 0.1	ME-MS81 Tb ppm 0.01	ME-MS81 Th ppm 0.05	ME-MS81 Ti % 0.01	ME-MS81 Tm ppm 0.01	ME-MS81 U ppm 0.05	ME-MS81 V ppm 5	ME-MS81 W ppm 0.5	ME-MS81 Y ppm 0.1
STANDARDS															
AMIS0343															
Target Range - Lower Bound															
Upper Bound															
OREAS 102a	57.9	261	8.1	24.2	7.3	40.8	2.5	2.84	37.0	0.17	1.55	647	35	12.1	102.0
Target Range - Lower Bound	52.2	231		22.2	5.7	37.0	2.0	2.74	35.6	0.14	1.47	596	23	7.3	94.4
Upper Bound	63.8	282		27.2	8.4	45.4	2.6	3.37	43.6	0.20	1.81	728	47	10.2	115.5
OREAS 602b															
Target Range - Lower Bound															
Upper Bound															
REE-1	457	1035	<0.5	381	522	137.5	226	106.5	749	0.39	106.0	140.0	8	8.6	5920
Target Range - Lower Bound	391	942		343	448	116.0	208	95.6	666	0.34	95.4	123.5	<5	8.5	4930
Upper Bound	479	1150		419	548	142.0	254	117.0	814	0.43	116.5	151.0	20	11.5	6030
BLANKS															
BLANK															
Target Range - Lower Bound															
Upper Bound															
BLANK	0.02	<0.2	<0.5	0.06	<0.5	0.1	<0.1	<0.01	<0.05	<0.01	0.02	<0.05	<5	0.6	<0.1
Target Range - Lower Bound	<0.02	<0.2		<0.03	<0.5	<0.1	<0.1	<0.01	<0.05	<0.01	<0.01	<0.05	<5	<0.5	<0.1
Upper Bound	0.04	0.4		0.06	1.0	0.2	0.2	0.02	0.10	0.02	0.02	0.10	10	1.0	0.2
DUPLICATES															
BO9 109															
DUP															
Target Range - Lower Bound															
Upper Bound															
BO9 167	2.92	279	6.2	2.14	68.7	36.0	6.4	0.24	6.33	0.10	0.12	11.60	19	823	7.8
DUP	3.27	276	5.1	2.03	72.2	36.1	6.6	0.24	6.45	0.10	0.12	12.40	19	809	8.7
Target Range - Lower Bound	2.92	263	4.9	1.95	66.4	34.1	6.1	0.22	6.02	0.09	0.10	11.35	13	775	7.7
Upper Bound	3.27	292	6.4	2.22	74.5	38.0	6.9	0.26	6.76	0.12	0.14	12.65	25	857	8.8

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QC CERTIFICATE OF ANALYSIS SV23095087

Sample Description / Method	ME-MS81	ME-MS81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81
Analyte	Yb	Zr	Ag	As	Cd	Co	Cu	Li	Mo	Ni	Pb	Sc	Tl	Zn
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
LOD	0.03	1	0.5	5	0.5	1	1	10	1	1	2	1	10	2
STANDARDS														
AMIS0343			<0.5	18	<0.5	3	52	7010	3	13	6	<1	30	80
Target Range - Lower Bound			<0.5	<5	<0.5	<1	47	6300	<1	11	<2	<1	<10	70
Upper Bound			1.1	24	1.0	5	56	7730	6	17	10	2	50	90
OREAS 102a	10.45	367												
Target Range - Lower Bound	9.78	311												
Upper Bound	12.00	383												
OREAS 602b			>100	873	4.9	5	4930	20	7	15	495	3	<10	761
Target Range - Lower Bound			106.5	782	3.6	3	4610	<10	5	11	442	<1	<10	686
Upper Bound			100.0	966	6.1	7	5310	40	10	17	544	6	20	842
REE-1	678	>10000												
Target Range - Lower Bound	610	17200												
Upper Bound	746	>10000												
BLANKS														
BLANK			<0.5	<5	<0.5	<1	1	<10	<1	<1	<2	<1	<10	3
Target Range - Lower Bound			<0.5	<5	<0.5	<1	<1		<1	<1	<2			<2
Upper Bound			1.0	10	1.0	2	2		2	2	4			4
BLANK	<0.03	<1												
Target Range - Lower Bound	<0.03	<1												
Upper Bound	0.06	2												
DUPLICATES														
BO9 109			1.2	5	2.1	10	404	140	4	18	12	6	<10	179
DUP			1.3	5	2.2	10	384	130	4	19	10	6	<10	170
Target Range - Lower Bound			0.7	<5	1.5	9	379	120	3	17	8	5	<10	164
Upper Bound			1.8	10	2.8	12	409	150	5	20	14	7	20	185
BO9 167	0.83	93												
DUP	0.88	100												
Target Range - Lower Bound	0.78	91												
Upper Bound	0.93	102												

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QC CERTIFICATE OF ANALYSIS SV23095087

Sample Description	Method / Analyte / Units / LOD	ME-MS81 Ba ppm 0.5	ME-MS81 Ce ppm 0.1	ME-MS81 Cr ppm 5	ME-MS81 Cs ppm 0.01	ME-MS81 Dy ppm 0.05	ME-MS81 Er ppm 0.03	ME-MS81 Eu ppm 0.02	ME-MS81 Ga ppm 0.1	ME-MS81 Gd ppm 0.05	ME-MS81 Hf ppm 0.05	ME-MS81 Ho ppm 0.01	ME-MS81 La ppm 0.1	ME-MS81 Lu ppm 0.01	ME-MS81 Nb ppm 0.05	ME-MS81 Nd ppm 0.1
DUPLICATES																
JP_01_159		85.9	12.0	85	43.8	1.47	0.61	0.16	22.8	1.28	1.44	0.23	5.5	0.10	17.10	5.3
DUP		90.9	11.2	89	42.8	1.25	0.68	0.18	23.6	1.38	1.27	0.23	5.5	0.09	16.90	5.1
Target Range - Lower Bound		83.5	10.9	78	41.1	1.24	0.58	0.14	21.9	1.21	1.24	0.21	5.1	0.08	16.10	4.8
Upper Bound		93.3	12.3	96	45.5	1.48	0.71	0.20	24.5	1.45	1.47	0.25	5.9	0.11	17.90	5.6

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QC CERTIFICATE OF ANALYSIS SV23095087

Sample Description	Method Analyte Units LOD	ME-MS81 Pr ppm 0.02	ME-MS81 Rb ppm 0.2	ME-MS81 Sc ppm 0.5	ME-MS81 Sm ppm 0.03	ME-MS81 Sn ppm 0.5	ME-MS81 Sr ppm 0.1	ME-MS81 Ta ppm 0.1	ME-MS81 Tb ppm 0.01	ME-MS81 Th ppm 0.05	ME-MS81 Ti % 0.01	ME-MS81 Tm ppm 0.01	ME-MS81 U ppm 0.05	ME-MS81 V ppm 5	ME-MS81 W ppm 0.5	ME-MS81 Y ppm 0.1
								DUPLICATES								
JP_01_159		1.46	473	5.3	1.26	56.4	28.0	4.0	0.23	2.95	0.05	0.10	15.95	<5	1275	7.8
DUP		1.46	477	4.9	1.28	54.4	27.2	3.9	0.24	2.91	0.05	0.13	16.80	<5	1260	7.7
Target Range - Lower Bound		1.37	451	4.3	1.18	52.1	26.1	3.7	0.21	2.73	0.04	0.10	15.50	<5	1205	7.3
Upper Bound		1.55	499	5.9	1.36	58.7	29.1	4.2	0.26	3.13	0.06	0.13	17.25	10	1330	8.2

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Sample Description	Method	ME-MS81	ME-MS81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81	ME-4ACD81
	Analyte	Yb	Zr	Ag	As	Cd	Co	Cu	Li	Mo	Ni	Pb	Sc	Tl	Zn
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
	LOD	0.03	1	0.5	5	0.5	1	1	10	1	1	2	1	10	2
DUPLICATES															
JP_01_159		0.63	37												
DUP		0.69	33												
Target Range - Lower Bound		0.60	32												
Upper Bound		0.72	38												

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Project: P23-06

QC CERTIFICATE OF ANALYSIS SV23095087

CERTIFICATE COMMENTS

ACCREDITATION COMMENTS

Applies to Method: The methods immediately below this line are ISO 17025:2017 Accredited. INAB Registration No: 173T
ME-MS81

LABORATORY ADDRESSES

Processed at ALS Seville located at Poligono Parque Plata, Calle Camino Mozarabe naves 13 y 15, Camas (Sevilla), Spain.

Applies to Method:

CRU-31	CRU-QC	LOG-22	LOG-24
PUL-31	PUL-QC	SPL-22Y	WEI-21

Processed at ALS Loughrea located at Dublin Road, Loughrea, Co. Galway, Ireland.

Applies to Method: ME-4ACD81 ME-MS81

Figure 12.2: ALS Certificate of Analysis and Quality Control Certificate for Verification Sample Analyses

13 MINERAL PROCESSING and METALLURGICAL TESTING

13.1 2024 Preliminary Metallurgical Study

The composite 300 kg metallurgical sample that was collected in June 2024 was delivered directly to the ALS processing laboratory in Seville, Spain where it was crushed down to 1 mm. ALS used a jaw crusher to reduce all particles to less than 2 mm. For further size reduction, ALS used a pulveriser to achieve particles smaller than 1 mm. Despite these procedures, Minepro *et al* reported that several particles remained coarser than 1 mm. Non-optimal test material was recovered, labelled and stored in plastic bags.

The processed material was then shipped directly Minepro's pilot plant facility in Almeria, Spain for gravimetric concentration processing. It was the main goal of this test work to try to mimic a potential pilot plant scenario in terms of concentrate specifications and not necessarily recovery. Initially, a finer feed than the usual traditional tungsten operations at 2 – 2.5 mm to avoid too much volume of mixed concentrates of non-fully liberated particles, was used at the beneficiation cleaning stage.

A shaker table processing wet rock material of 20 to 25% solids were fed on to the table with high-density particles moving to the opposite end of the deck (transversal side), while the less dense particles were carried by the water to the longitudinal side. This process produced: a concentrate of high-density particles, a middlings mixture of high- and low-density particles, and tailings of low-density particles. The wolframite particles would be recovered as concentrate, together with other high-density minerals contained as cassiterite (SnO_2) sulphides or iron oxides. The quartz and mica particles, the coarse clay particles together with the non fully liberated particles would be recovered in the middlings and mainly the fine clay particles would be recovered in the tailings.

According to Minepro (2024), "All products, except the tailings, were collected separately, sampled and finally sent to ALS for detailed chemical analysis." The 'middlings' were subjected to a second gravimetric concentration step to get a higher wolframite recovery for the downstream processes. This was conducted in the metallurgical laboratory of the School of Mines in Oviedo, Spain. In this laboratory, various metallurgical tests can be conducted on a small scale or even at a pilot level. The results of this work show an improvement in recovered WO_3 grade: although particle classification occurs based on size rather than density. The detailed analyses are reported as follows (Minepro *et al*, 2024).

Product	WO_3	Fe_2O_3	SiO_2	Al_2O_3	CaO	K_2O	Sn	Cu	As	U	Th	Cd
	(%)	(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
Middlings 1	0.008	1.8	79.1	11.95	0.1	4.6	116	54	201	12	11	<0.5
Middlings 2	>1	4.1	78.8	8.25	0.2	2.9	327	224	335	19	10	<0.5

Table 13.1: Middlings Analyses from Gravimetric Concentration (Minepro *et al*, 2024)

The cleaning of the shaking table wolframite pre-concentrate was carried out by magnetic separation. Several techniques were used at the School of Mines in Oviedo, Spain including:

- Low intensity magnetic separation under dry conditions (LHIMS).
- High intensity magnetic separation under dry conditions (DHIMS).
- Medium intensity magnetic separation under wet conditions (WMIMS).
- High intensity magnetic separation under wet conditions (WHIMS).

According to Minepro *et al* (2024), "*The first test (Rougher LHIMS) was done on a rotating ferrite magnet, equipped with a vibrating feeder, both with adjustable speeds. At the lower part of the magnet, the magnetic and non-magnetic particles are collected separately. The result of this test was poor, so products were recombined.*"

The second test (Rougher DHIMS) was done with a magnetic separator consisting of a neodymium magnetic drum in contact with a belt, a particle deionizer, and a feed hopper, all of which have adjustable speeds. At the lower part of the drum, needles are adjusted to control the inclination at which the three separated products are collected. The results of this second test were poor and the products were recombined (Minepro *et al*, 2024)

The two wet magnetic separation tests were carried out at different intensities in the same magnetic separator. According to Minepro *et al* (2024), "*The feed is prepared as a homogeneous slurry at 20% in solids, to feed the equipment. The slurry passes through magnetic balls housed inside the separator, which become magnetized when the magnetic field is activated. The balls retain the magnetic material present in the slurry, while the non-magnetic material passes through them.*

The magnetic material is collected separately, and the non-magnetic material is recirculated back into the magnetic separator to capture magnetic particles that may have been carried along with the non-magnetic material in the first pass.

This process was initially conducted at high intensity. However, the results were not optimal because most of the materials showed magnetic susceptibility at that intensity, resulting in a very low percentage of material being classified as non-magnetic.

When doing the process at medium intensity, the results were totally different since a high number of particles with light colour were classified as non-magnetic (potentially cassiterite, clays, etc.) and darker particles (mainly wolframite, Fe oxides and sulphides) were recovered as magnetic

The high proportion of particles classified as non-magnetic and the difference in colour with the magnetic ones, indicated that the rougher WO_3 concentration was effective using that technique. Then, the products were submitted to ALS for chemical analysis to see the WO_3 grade achieved in the final rougher magnetic product."

Product	WO_3	Fe_2O_3	SiO_2	Al_2O_3	CaO	K_2O	Sn	Cu	As	U	Th	Cd
	(%)	(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
WMIMS (rougher) Magnetic	37,30	29,10	13,75	6,21	0.94	1.78	3195	1575	2325	140	139	4.7
WMIMS (rougher) Non- Magnetic	0.496	6.55	54.9	18	3.3	5.87	9920	560	1170	45.3	77	0.8

Table 13.2: Analyses of WMIMS Rougher Wet Separations (Minepro et al, 2024)

"The analytical results indicated that the pre-concentrate already had very reasonable grade, being the main impurities apparently upgradable (Fe_2O_3, SiO_2, Al_2O_3) and showing that wolframite was potentially not fully liberated. Consequently, the decision was made to regrind the concentrate and reprocess it using again the magnetic separator at medium intensity (WMIMS) and fine-tuned gravitic beneficiation on an automated pan (aka super pan), now in the university in Porto, Portugal, but that was originally acquired from old Vale das Gatas mine (historical W-Sn mine at Vila Verde project) and that was used precisely to clean pre-concentrates.

The pre-concentrate was reground in a laboratory-scale ball mill for 5 minutes to reduce the size of the particles and thereby liberate the impurities from the wolframite. Finally, the reground pre-concentrate was subjected to a new stage of WMIMS under the same process following by a gravitic cleaning on the automated super pan. The non-magnetic and magnetic products were submitted to ALS for analysis

The different products were investigated with a hand XRF (Oxford Xmet 7500). Below follows the average content of the main elements from the multiple XRF shots at the final concentrate tailings. Please be aware that XRF is not a fully certified quantitative assay, and differences might happen (both higher and lower grades)."

Product (PXRF)	WO_3	Fe_2O_3	SiO_2	Al_2O_3	CaO	K_2O	Sn	Cu	As	U	Th	Cd
	(%)	(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
WMIMS & Gravitic (cleaner) conc	66.4	27.9	3.2	0	0.22	0.18	2209	905	781	Nd	Nd	135
WMIMS & Gravitic (cleaner) tailings	27.2	62.26	3.2	0	0.51	1.19	1577	3537	5784	Nd	Nd	0

Nd- non detected (bellow XRF detection limit – we'll have to wait for the final ICP assays)

Product (ICP-MS)	WO_3	Fe_2O_3	SiO_2	Al_2O_3	CaO	K_2O	Sn	Cu	As	U	Th	Cd
	(%)	(%)	(%)	(%)	(%)	(%)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)	(ppm)
WMIMS & Gravitic (cleaner) conc	62.5	23.6	1.66	0.8	0.15	0.15	1960	730	1140	50	410	3
WMIMS & Gravitic (cleaner) tailings	8.11	20.5	35.4	13.1	3.49	3.99	3850	1790	2790	150	310	5

Table 13.3: Comparison of WMIMS and Gravimetric PXXRF vs ICP-MS Analyses of final Concentrate and Tailings (Minepro et al, 2024)

In conclusion, Minepro *et al* (2024) reported the following from the preliminary metallurgical test work.

- "The test work was completed successfully as it was demonstrated that the wolframite from Justes deposit is recoverable at saleable grade.
- The mineralization should be processed by combining gravimetric concentration and magnetic separation techniques to enhance WO_3 grades and recoveries both in rougher and cleaning stages.
- The main impurities to deal with will be Fe_2O_3, SiO_2, Al_2O_3, Sn and sulphides. Other important impurities as Cu, As, Th and U do not appear to be deported in significative quantities in the final WO_3 concentrates.
- The test work was conducted after suboptimal crushing and without chemical or mineralogical data for each processing stage, so on a proper test work and on plant perspective all the achieved values should improve. Further test works should be crushed into a larger feed but more homogenous (the ALS crush was not well calibrated) followed to further re-grind on a beneficiation cleaning stage.
- It is recommendable to complete a metallurgical test work program with a representative sample, including a detailed characterization of the ore, WO_3 pre-concentration tests, grinding calibration, gravimetric concentration and magnetic separation tests and detailed analysis of concentrates and tailings.
- Even being on a very early stage, the results show that upon further test work it will be able to do a more suitable grinding calibration and multiple cleaning stages of the middlings in order to simulate an initial sense of feed grade and recovery.
- The apparent amount of iron oxides at the concentrate show that the WO_3 concentrate grade might being upgradable.
- With proper detailed developments it is believed that this 62.5% WO_3 initial concentrate can be beneficiated into a premium very high-grade concentrate with very low or non-penalties product."

On July 7, 2024 the writer examined various sample sites from which the Minerália field crew collected the composited 300 kg-sample.

It is the writer's opinion that the Minerália geological crew collected wolframite-bearing samples from multiple existing waste dumps and eluvial material as stated, and that they shipped and supervised the preliminary metallurgical test work in an appropriate and professional manner.

The processing, analyses and subsequent cleaning of the concentrate samples for preliminary metallurgical test work was undertaken by qualified professionals employed by ALS and Minepro et al. It is the writer's opinion that the test work was carried out in a creditable and professional manner.

Photograph 13.1: Various Collection Sites for 2024 Composite Metallurgical Sample

14 MINERAL RESOURCE ESTIMATES

The Project has no defined mineral resources or reserves which have been proven to have potential economic viability supported by a preliminary economic assessment (PEA), prefeasibility study or feasibility study. As a result, the Project is not classified as an 'Advanced Project' and this chapter therefore does not fall within the scope of this Technical Report.

15 MINERAL RESERVE ESTIMATES

The Project has no defined mineral resources or reserves which have been proven to have potential economic viability supported by a preliminary economic assessment (PEA), prefeasibility study or feasibility study. As a result, the Project is not classified as an 'Advanced Project' and this chapter therefore does not fall within the scope of this Technical Report.

16 MINING METHODS

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an 'Advanced Project' and this chapter therefore does not fall within the scope of this Technical Report.

17 RECOVERY METHODS

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an 'Advanced Project' and this chapter therefore does not fall within the scope of this Technical Report.

18 PROJECT INFRASTRUCTURE

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an 'Advanced Project' and this chapter therefore does not fall within the scope of this Technical Report.

19 MARKET STUDIES and CONTRACTS

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an 'Advanced Project' and this chapter therefore does not fall within the scope of this Technical Report.

20 ENVIRONMENTAL STUDIES, PERMITTING and SOCIAL or COMMUNITY IMPACT

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an ‘Advanced Project’ and this chapter therefore does not fall within the scope of this Technical Report.

21 CAPITAL and OPERATING COSTS

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an ‘Advanced Project’ and this chapter therefore does not fall within the scope of this Technical Report.

22 ECONOMIC ANALYSIS

The Project has no defined mineral reserves or mineral resources which have been proven to have potential economic viability supported by a PEA, prefeasibility study or feasibility study. As a result, the Project is not classified as an ‘Advanced Project’ and this chapter therefore does not fall within the scope of this Technical Report.

23 ADJACENT PROPERTIES

There are no adjacent properties in respect of the Project within the meaning of NI 43-101.

24 OTHER RELEVANT DATA and INFORMATION

There is no other additional information necessary to make this Technical Report understandable and not misleading.

25 INTERPRETATION and CONCLUSIONS

The Vale das Gatas mine is situated centrally within the large Vila Verde project area. It was once ranked as the third largest tungsten producer in Portugal. This project has at least six known tungsten-tin mineral occurrences over a strike distance of more than 7 km. These occurrences have received only minimal exploration since underground mining ceased at Vale das Gatas.

The northern portion of the Vila Verde project area is dominantly underlain by a series of Mesozoic-age granitic stocks that have intruded the Central Iberian Zone occupying the central area of the NW-SE Mondim de Basto- Vila Real-Moncorvo antiform. This antiform is flanked to the northeast and southwest by the Douro Group formations belonging to the Cambrian-age Schist-Graywacke Complex, comprising intercalated metasedimentary quartzite and phyllite. The granitic rocks have been subdivided according to their temporal relationship with the last deformation phase. They are: syn-tectonic, late-tectonic and post-tectonic granitic rocks, that are commonly two-mica, porphyritic and tourmaline-bearing granite.

The tungsten-tin occurrences in the northern portion of the project area are dominantly hosted by the fine- to medium-grained, muscovite and tourmaline, late tectonic Lararea Granite that has been greisenized to varying intensities. The central Vale das Gatas and southern Prainelas tungsten-tin occurrences are situated along a regional contact between the medium- grained, porphyritic, syn-tectonic granite of the Vale das Gatas Group and the Cambrian-age metasedimentary rocks of the Schist and Greywacke Complex. The tungsten-tin mineralization is hosted by multiple vein stockworks with quartz-wolframite-cassiterite and associated base metals in the Prainelas zone, narrow to quite wide and distinct quartz-wolframite-cassiterite (+/- associated base metals) quartz veins at the Vale das Gatas mine, and finally mostly disseminated wolframite-cassiterite (+/- associated base metals) with lesser stockwork quartz vein-hosted mineralization at the Justes zone.

The local structural setting is dominated by northeasterly striking faults and fractures. There are NE-SW trending fault structures that seems to subdivide the project area diagonally in half. At the Vale das Gatas deposit and nearby occurrences, the common structural attitude is NE-SW with most of the mineralization reportedly associated with 080° to 090°/-40° S fracturing. At the Prainelas zone, one km to southwest, there are multiple, sheeted and mineralized quartz veinlets striking 054°/-60° SW. To the northwest surrounding the Justes zone, the major fault and fracture systems reportedly trend ENE-WSW with local dextral movement.

Alteration facies vary in location and intensity throughout the project area, mainly related to several periods of hydrothermal fluid activity associated with the various granitic intrusions. Alteration facies include: greisenization, albitization, tourmalinization, sericitization and silicification. The paragenesis of the Vale das Gatas deposit also varies with the various hydrothermal events from firstly cassiterite, then wolframite, scheelite, arsenopyrite, pyrite, pyrrhotite, chalcopyrite, sphalerite, stannite, to lastly galena.

Since their 2014 property acquisition Minerália has carried out verification of historical data, detailed geological mapping, grab and channel rock sampling, trenching and diamond drilling. This work was carried out on all three major zones but mainly focused on the Prainelas and Justes zones. Five diamond drill holes were completed in 2015 and 2016 on the Prainelas zone, and in 2018 four diamond drill holes tested the Justes zone. These three drilling campaigns were in addition to the previous drilling of the Justes zone by the SPE.BRGM joint venture. In total, seventeen drill holes have been completed on the Vila Verde project totalling 2,120.60 m. The results of this recent exploration have demonstrated the excellent exploration potentials of the stockwork vein-hosted mineralization at the Prainelas zone and especially the greisen-hosted disseminated mineralization at the Justes zones.

It is the author's opinion that Minerália personnel exercised appropriate care and attention sampling, handling, preparing, and securely shipping their channel and drill core samples. Furthermore, their assessment procedures of the analytical and assay results are adequate to ensure the credibility of the analytical data. The author's seven drill core verification samples were appropriately collected, handled and securely shipped for analyses to ALS Global laboratory in Seville, Spain according to Industry-standard protocols to ensure that the analytical results are reliable.

The results of the verification sampling illustrate the extreme 'nuggety' distribution of the mineralization when comparing Minerália's original one-half drill core samples with the author's later one-quarter drill core verification samples of the same drilling length intervals and using the same analytical procedures. It is apparent from the results that larger diameter diamond drilling and/or reverse circulation drilling would be required to assess the localized mineralization. Furthermore, the sample results show that multi-element analyses of all channel and drill core samples are important for the detection of, not only the tungsten and tin values, but also the associated base metal mineralogy and associated silver values.

In June 2024, qualified geologists of Minerália collected 300 kg of rock samples from the Cumieira sub-zone at the Justes zone on the Via Verde property. These hand samples were collected from large fragments of tailings and eluvial gravel where wolframite mineralization was observed. These samples were collected with the goal of being metallurgically processed to simulate the predicted performance of an eventual pilot plant regarding the quality of concentrate of wolframite.

The results of the preliminary metallurgical test work show that the wolframite from Justes deposit is recoverable at saleable grade, and that the mineralization should be processed by combining gravimetric concentration and magnetic separation techniques to enhance WO_3 grades and recoveries both in rougher and cleaning stages. The main impurities are iron oxide, silica, tin and sulphides. Other important impurities as Cu, As, Th and U do not appear to be deported in significative quantities in the final WO3 concentrates

The results show that on a further test work it will be able to do a more suitable grinding calibration and multiple cleaning stages of the middlings in order to simulate an initial sense of feed grade and recovery. The apparent amount of iron oxides at the concentrate show that the WO_3 concentrate grade might be upgradable, and that with further testing the 62.5% WO3 initial concentrate can be beneficiated into a premium very high-grade concentrate with very low or non-penalties product.

It is the author's opinion that the Vila Verde property has excellent exploration potential and may have good economic potential pending future detailed exploration. Such work should include both diamond and RC drilling, bulk sampling and metallurgical testing. Given the near-term financial and work commitments of the Company with the associated Borralha project it is recommended that a comprehensive exploration program to be carried out later in 2024.

25.1 Project Risk and Opportunities

Most mineral exploration and development projects have risks that could affect their exploration and/or economic potentials. Many of these risks are based on a lack of detailed knowledge that can be mitigated with more sampling, testing, design and engineering. These risks have been tabulated in the following Table 25.1.

Area	Risk Description and Potential Impact	Mitigation Approach
Geology and Mineral Resource	Tungsten grades could vary widely due to the 'nugget' effect of the wolframite distribution in the deposit.	Closely-spaced fill-in drilling will increase the definition of the tungsten grade distribution.
	The geometry of the deposit could be different due to local faulting and too widely-spaced drilling data.	Collect structural data from infill drilling and continue updating the structural and mineralization models.
Geotechnical and Hydrology	Geotechnical characteristics of the host and country rocks vary from those used in the conceptual models.	Conduct further investigations into the rock mechanics and geotechnical features.
Site Infrastructure	Lack of sufficient infrastructure data for future mine planning.	Investigate mine and waste sites early and prepare mine, power, water and and waste plans.
Waste and Water Management	Higher concentrations of non-regulated and untreated contaiminants that may require treatment.	Conduct continuous water sampling and analyses of both wastesites and water drainages.
Environmental Permitting and Social License	Project is not accepted by the local communities, and/or NGO's.	Keep regular communications and consultations with stakeholders.

Table 25.1: Potential Risks to Future Exploration Work

External risks are, to a certain extent, beyond the control of the project proponents and are much more difficult to anticipate and mitigate; although, in many instances, some risk reduction can be achieved. External risks include: the political situation in the project region, metal prices, exchange rates, community and special interest groups' opposition and government legislation. These external risks are generally applicable to all mineral development projects.

There are also significant opportunities that could improve the economics, timing, and/or permitting approval potential of the project. The major opportunities that have been identified at this time are increased resources and grades as result of large-diameter drilling and improvements in core and grade recoveries with bulk sampling and metallurgical test works. These and several other opportunities have been tabulated in accompanying Table 25.2, excluding those typical to all such projects such as positive changes in metal prices, exchange rates, etc.

Area	Opportunity Explained	Benefit
Geology and Mineral Resource	Cumeiera and Prainelas zones are largely unexplored along strike and to depth.	Potential to increase both tonnages and grades for resource estimation.
	Reducing the drill hole spacing with infill drilling.	Will increase confidence in the distribution of the mineralization and better understand the geometry of the deposit.
Rock Mechanics	May provide data for a revision of mine planning and optimizing mining process.	Increased productivity and cost benefits. Reduced dilution estimate.
Geochemistry	Continual water monitoring and sampling of perennal drainages to and from waste and mine sites.	Required for future permitting and mine planning.
Bulk Sampling and Met Testing	Bulk sampling and metallurgical studies needed to optimize gravity, magnetic and/or colorimetric processing.	Higher tungsten recoveries and operational cost optimization.
Pilot Plant Infrastructure	Temporary on-site pilot plant to process Cumeiera waste material.	Potential to optimize processing and sell concentrate to finance project.
Waste and Water Management	Waste rock can be sold for road bed material.	Reduce exploration and infrastructure expenses.

Table 25.2: Potential Opportunities for Future Exploration Work

26 RECOMMENDATIONS

The following exploration work is recommended to further assess the exploration and economic potential of the property. This recommended exploration work should be scheduled so as not to conflict with the Company's financial requirements and exploration efforts on the associated Borralha project.

- Collect, compile and digitize all available historical data, maps and plans for the Vale das Gatas, Justes and Prainelas zones. This digitized data should form the basis of an exploration database for later drill planning and bulk sampling;
- Excavator trenching and channel sampling across and at intervals along the stockwork veining at the Prainelas and Cumieira zones. The trenches should be thoroughly mapped, surveyed and sampled to identify sites for later drill testing;
- The Justes zone followed by the Prainelas zone should be drill tested with both PQ-size diamond and reverse circulation drilling. Large-diameter drilling is necessary to better determine the 'nuggety' tungsten-tin grade distribution and maximize core/cuttings recoveries in loose and/or decomposed bedrock. The diamond drilling should initially test the structural settings, boundaries and depths of the Cumieira and Prainelas mineralization, and the reverse circulation drilling should be used to optimize the drill hole spacing within each deposit. The goal of this combined drilling campaign would be to obtain sufficient data to prepare a compliant mineral resource estimate for each deposit;
- A detailed metallurgical study of the diamond and RC drill samples for: modal mineralogy, mineralogical distribution, size distribution and liberation characteristics, plus mineral deportment studies for both weathered and fresh mineralized material. The study should determine the optimal process to treat and obtain the highest recoveries of tungsten, tin and associated metals. This study should investigate gravitational with perhaps a combination of several flotation stages with later magnetic and/or colorimetric separations to treat both the oxidized and fresh mineralized material;
- Sites should be identified for loose, surficial and mineralized waste material collection within the Cumieira area. There is an existing gravel pit within the Cumieira area with rock crushing equipment, on-site power, a waste permitted dump and large water-filled pond. The Company should consider leasing the mobile pilot plant and equipment at the gravel pit and process the mineralized test pit waste dumps scattered throughout the Cumieira area. The plant would use a simple gravitational and/or float recovery system to recover and concentrate the tungsten-tin minerals. Such an operation would both test the areal distribution of the mineralization and provide bulk sample handling and processing data; and
- Prepare compliant, maiden mineral resource estimates for the Cumieira and Prainelas mineralization.

26.1 Proposed Exploration Programs

The proposed Phase I exploration work should include:

- Compiling and digitizing all available exploration data into an exploration database;
- Prepare and submit documents for permitting approval
- Trench and channel sample the Cumieira area of the Justes zone and the Prainelas zone;
- Initiate hydrological, floral and fauna and baseline environmental studies; and
- Conduct regular community meetings and governmental communications.

Cost Estimate of Recommended Phase I Exploration Program

Item	Description	Units	Cost/Unit (€)	Total (€)
Digitize historical records and prepare exploration database				25,000
Exploration				
Backhoe trenches		200	100	20,000
Channel sampling				10,000
Sample analysis		500	40	20,000
Hydrological & Flora/Fauna Studies				
Monthly water sampling for organic and inorganic contents				15,000
Water analyses, assessing and reporting				5,000
Community and Government Meetings and Communications				20,000
Minerália Fees and expenses				
Project, management and administration fees and expenses				23,000
Contingency (~7%)				9,660
Currency Conversion (EUR 1 = CAD $1.53)			**EUR (€)**	**147,660**
Estimated Cost of Exploration Work (rounded)			**CAD $**	**226,000**

Table 26.1: Estimated Cost of the Recommended Phase I Exploration Work

Pending the results of the Phase I exploration work, the following Phase II exploration work is proposed.

- Prepare and submit permitting documents to DGEG for approval;
- Continue hydrological and baseline environmental studies;

- Continue community and government meetings and communications;
- Conduct HQ-size Diamond Drilling to test the structural settings, limits and depths of the Cumieira and Prainelas mineralization;
- Conduct RC Drilling to optimize the drill hole spacing within each deposit;
- Carry out detailed metallurgical studies on the weathered and fresh mineralized material;
- Conduct preliminary mine planning for possible mining method, infrastructure sites, and:
- Lease pilot plant equipment and conduct bulk sampling.

Cost Estimate of Recommended Phase II Exploration Program

Item	Description	Units	Cost/Unit (€)	Total (€)
Detailed In-fill Reverse Circulation Drilling				
Prepare and submit permit documents				5,000
Fill-in reverse circulation drilling on Cumieira		5,000 m	160.50/m 'all in'	802,500
Metallurgical studies				100,000
Preliminary mine plan				50,000
QA/QC Validation and Mineral Resources Estimate				
Validation of channel and drilling results				5,000
Mineral Resource Estimates for Cumieira and Prainelas				20,000
Hyrdological and Flora and Fuana Studies				15,000
Water analyses, assessing and reporting				5,000
Community and government communication				20,000
Minerália Fees and Expenses				
Project, management, and administration fees				368,000
Contingency (~7%)				97,335
			EUR	**1,487,835**
Currency Conversion (EUR 1 = CAD $1.53)				
Estimated Cost of Study (rounded)			**CAD $**	**2,279,000**

Table 26.2: Estimated Cost of the Recommended Phase II Exploration Work

Thus, the combined total of the proposed Phase I and II exploration work is estimated at **EUR 1,635495 or CAD $2,505,000**.

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