PROJECT 220101

Independent Technical Report – Mineral Resource Update on the Pedra Branca PGE Project, Ceará State, Brazil

Client: ValOre Metals Corp.,

Effective Date: March 08, 2022
Release Date: May 08, 2022

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IMPORTANT NOTICE

Date and Signature Page

This report, entitled “Independent Technical Report –Mineral Resource Update on the Pedra Branca PGE Project, Ceará State, Brazil” having an effective date of March 08, 2022, was prepared on behalf of ValOre Metals Corp. By Fabio Valerio, Porfírio Cabaleiro Rodriguez, Christopher Kaye, and signed:

Dated at Belo Horizonte, Brazil, this May 08, 2022

<signed & sealed in the original>

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1 Summary

1.1 Introduction

GE21 has been commissioned by ValOre Metals Corp (“ValOre”) to prepare a Mineral Resource Estimative for the Pedra Branca Platinum Group Elements (“PGE”) Project in Ceará, Brazil, in accordance with the directives of CIM National Instrument 43-101 (NI 43-101).

The principal Qualified Person with respect to the objectives of this report is Fábio Valério Câmara Xavier. Fábio Valério Câmara Xavier was responsible for developing the project's geological interpretations and modelling, in addition to activities related to QAQC procedures and the Mineral Resource Estimate. Mr. Xavier, a geologist, is also a member of the Australian Institute of Geoscientists and has more than 19 years experience in working with mining projects.

The effective date for the resource estimate, "Effective Date" of March 08, 2022, is based on the date of relevant metallurgical test work data (lock cycle test results).

1.2 Project Location

The Pedra Branca project is located in the northeast region of Brazil in Ceará State, approximately 310 km south of the capital Fortaleza (Figure 1-1).

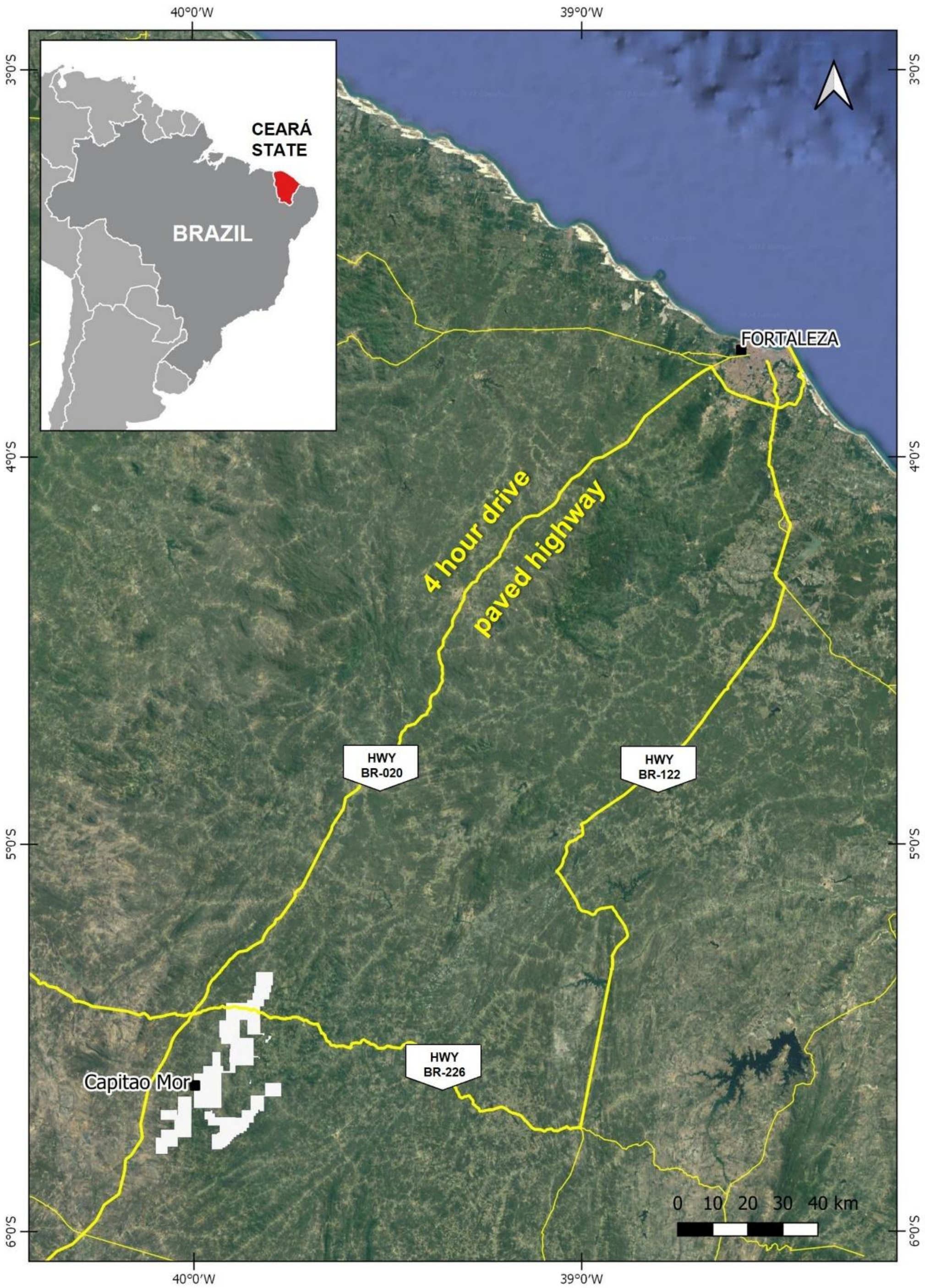


Figure 1-1: Pedra Branca Project Location Map (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

1.3 Mineral Rights for Pedra Branca Project

The mineral rights to the Pedra Branca project are held under a series of Exploration Licences in the name of a Brazilian holding company, Pedra Branca do Brasil Mineração Ltda. ("PBBM"). On May 24, 2019, ValOre entered in an agreement with Jangada Mines PLC ("Jangada") to purchase

100% interest in their holdings of PBBM (ValOre press release, May 28, 2019, and updated ValOre press release, July 16, 2019).

Under the agreement, ValOre has agreed to the following considerations to Jangada:

- Issuance and allotment of a total of 25,000,000 ValOre common shares ("Consideration Shares"), with 22,000,000 of those being issued on the date of closing of the Acquisition and the remaining 3,000,000 issued over 3 years according to terms agreed between ValOre and Jangada; and
- Cash payments to Jangada in the aggregate of C$3,000,000, as follows:
  - Exclusivity payments totalling C$250,000 (paid);
  - C$750,000 payable on closing of the Acquisition;
  - C$1,000,000 on, or before, three (3) months after the closing of the Acquisition; and
  - C$1,000,000 on, or before, six (6) months after the closing of the Acquisition.

There is a net smelter returns royalty (“NSR”) agreement, and subsequent royalty transfer agreement, appertaining to the project under which the owner ultimately grants and agrees to pay a 1% NSR royalty to Silverstream SEZC in the event that the owner (or any successor or assignor) of the project brings the underlying properties or any portion thereof into commercial production.

A total of 51 Exploration Licences held over an area of some 55,819 hectares (“ha”). Of these, final exploration reports have been submitted for three licenses (one at Curiú, two at Esbarro) with the intention of advancing to development. Brazilian mining law offers a provision for title holders to submit final exploration reports and subsequently apply for a postponement of development. In normal circumstances, the title holder is required to start the process of development within 6 months of submission of the final report. The postponement is granted for 3 years at a time and has been granted for each of the aforementioned 3 licences. This allows the title holder to maintain ownership and good standing of a licence, and enables the alignment of further technical studies, fundraising, or more favorable market conditions (i.e. metal prices).

The legal status of the mineral tenure, ownership of the project area and underlying property agreements or permits has not been independently verified by the QPs. Rodrigo Simões Lessa of FFA carried out a verification of the information on mineral claims and environmental licences. FFA is a law firm specialized in mineral and a legal opinion. The authors have not independently verified ownership or mineral title.

A summary of the details of the licences is provided in Table 1-1 and a map of the exploration tenements is included in Figure 1-2.

Table 1-1 Summary of Exploration Licences Encompassing the Pedra Branca Project.

#	PROCESS	TITLE HOLDER	AREA (ha)	PHASE	ISSUE DATE	EXPIRY DATE
1	800.138/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,159	Exploration License Extended	2018-01-17	2022-07-20
2	800.139/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2018-01-17	2022-07-20
3	800.373/2013	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	999	Exploration License Extended	2019-10-01	2024-03-28
4	800.374/2013	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	580	Exploration License Extended	2019-10-01	2024-03-28
5	800.375/2013	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	976	Exploration License Extended	2019-10-01	2024-03-28
6	800.124/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-09-12	2024-03-14
7	800.126/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-10-01	2024-03-28
8	800.133/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-09-12	2024-03-14
9	800.137/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-09-12	2024-03-14
10	800.140/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,569	Exploration License Extended	2019-10-01	2024-03-28
11	800.236/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,196	Exploration License Extended	2019-09-12	2024-03-14
12	800.410/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	999	Exploration License Extended	2019-10-01	2024-03-28
13	800.411/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
14	800.412/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
15	800.413/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
16	800.415/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
17	800.515/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,146	Exploration License Extended	2019-09-12	2024-03-14
18	800.698/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	483	Exploration License Extended	2019-09-12	2024-03-14
19	800.700/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
20	800.705/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
21	800.706/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	746	Exploration License Extended	2019-09-12	2024-03-14
22	800.707/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
23	800.712/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
24	800.713/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
25	800.714/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
26	800.715/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
27	800.152/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-08-22	2024-02-13
28	800.159/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-08-22	2024-02-13
29	800.495/2016	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2020-03-06	2024-09-01
30	800.095/1999	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Final Report Presented	2019-03-07	2022-09-10
31	800.096/1999	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Final Report Presented	2019-03-07	2022-09-10
32	800.097/1999	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Final Report Presented	2019-03-07	2022-09-10
33	800.002/2018	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	960	Exploration License	2019-03-14	2023-09-14
34	800.060/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	97.07	Exploration License	2019-08-29	2024-02-21
35	800.061/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	567.81	Exploration License	2019-08-29	2024-02-21
36	800.062/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	66.18	Exploration License	2019-08-29	2024-02-21
37	800.063/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	188.96	Exploration License	2019-08-29	2024-02-21
38	800.064/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	207.9	Exploration License	2019-08-29	2024-02-21
39	800.218/2020	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,046	Exploration License	2021-01-27	2024-09-25
39	800.557/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,805	Exploration License	2022-02-08	2025-02-01
40	800.558/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,884	Exploration License	2022-02-08	2025-02-01
42	800.559/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,928	Exploration License	2022-02-08	2025-02-01
43	800.560/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,525	Exploration License	2022-02-08	2025-02-01
44	800.561/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
44	800.565/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
45	800.566/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,738	Exploration License	2022-02-08	2025-02-01
46	800.567/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	989	Exploration License	2022-02-08	2025-02-01
47	800.574/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
48	800.575/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
49	800.576/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,135	Exploration License	2022-02-08	2025-02-01
51	800.636/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	868	Exploration License	2021-12-17	2024-12-01

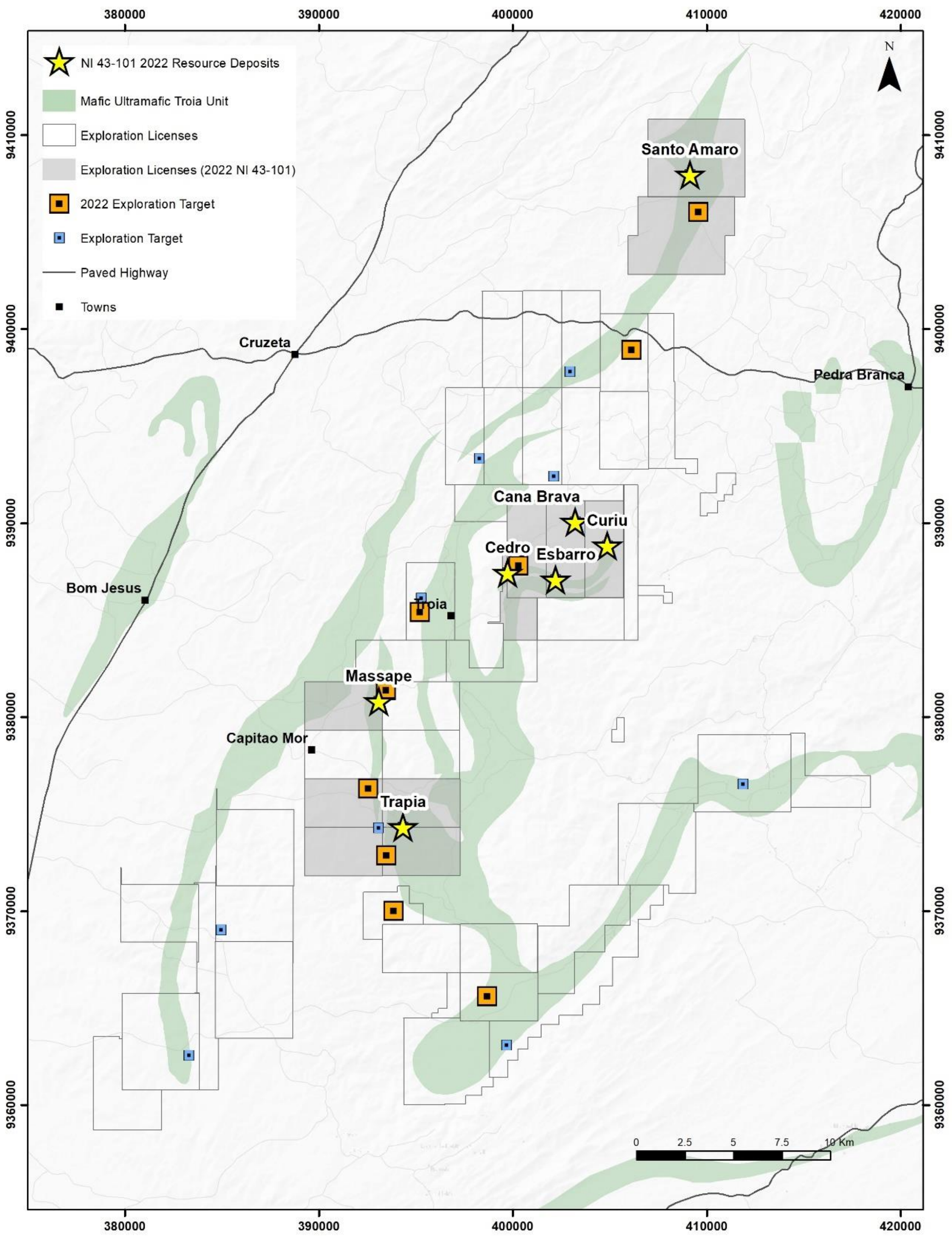


Figure 1-2 Location of Pedra Branca Exploration Licences (February 16, 2022). (Source: Thiago Diniz, P.Geo – ValOre).

1.4 History

The Pedra Branca complex was discovered in the 1960's by local government geologists who were exploring the area for its chromite potential, and by 1969, 5 holes were drilled into the Esbarro Deposit ("Esbarro").

The project then sat idle until 1985, when South African-based Gencor and Rio Tinto identified chromite-associated platinum-palladium mineralization. Targeting separate areas on the ultramafic belt, the companies completed airborne magnetic and radiometric surveys, as well as mapping, soil sampling and trenching. The work resulted in the discovery of 10-15 showings of chromitite and copper-nickel soil geochemical anomalies. Rio Tinto focused on the most northerly chromite occurrence (at that time), Esbarro, and drilled a total of 42 drill holes over an 800 m strike length, with 13 of the holes intersecting the chromite horizon. Meanwhile, Gencor targeted the central and southern portions of the ultramafic belt carrying out trenching and drilling 8 holes into the Trapiá 1 and Trapiá 2 showings. Both Rio Tinto and Gencor ceased exploration following a slump in platinum and palladium prices.

As the price of platinum and palladium started to increase in the late 1990s, Altoro Gold (since merged with Denver-based Solitario Resources), acquired the project and commenced drilling in 1999.

In January 2003, Anglo American Platinum ("Amplats") signed a joint venture agreement with Solitario Resources ("Solitario") and carried out significant exploration programs for the next 11 years, ultimately securing a majority ownership in 2011.

Jangada acquired the project from Amplats in 2015, and advanced various facets of Pedra Branca until ValOre's 2019 acquisition.

Solitario and Amplats advanced the project through several exploration programs, including:

- Extensive drilling on the main deposits bringing (30,000 m drilled by 2014);
- Resource estimate and scoping study in 2005;
- Drill core based metallurgical test work in 2005 and 2006;
- Ground geophysics, target generation and drilling 2007 to 2012;
- Resampling of all historic 1999 to 2004 drill core in 2011 to 2012;
- Mineral resource estimate in 2012;
- Regional scale airborne geophysics 2013;
- Additional metallurgy test work in 2013;
- Geophysics target regeneration and exploration drilling in 2014.

Extensive work throughout the history of the Pedra Branca has produced a number of advanced stage targets with significant PGE mineralization throughout the district, demonstrating metal occurrence in the regional geological system and district-scale exploration potential.

Jangada integrated all the available information validated by Amplats and carried out their own validation program, which included exploration drilling at the Massapê target and metallurgical drilling at Esbarro deposit.

The exploration database consists of data resulting from field mapping, remote sensing, geological mapping, soil sampling programs, ground and airborne geophysics, diamond drilling, topographic surveys, chemical analysis, and petrography.

1.5 Geology, Mineralization and Deposit Style

1.5.1 Regional Geology

The Pedra Branca PGE project is situated in the Borborema Structural Province, in Ceará State, Brazil, 310 km from the city of Fortaleza. The Borborema Province is a region of great structural complexity, characterized by the superposition of distinct deformational, metamorphic, and magmatic events. Its final structural configuration is subsequent to the transcurrent collisional and post-collisional stages of the Brasiliano/Pan-African Orogeny (ca. 625–510 Ma), which resulted from the convergence of the Amazonian, West African/Sao Luis and San Francisco-Congo Cratons during the assembly of West Gondwanaland (Santos 1996, Santos et al. 2000, Brito Neves et al. 2000, Oliveira et al. 2010, Caxito et al. 2014b, 2014d, 2016, Basto et al. 2019, in Caxito et al. 2020).

The Borborema Province comprises several distinct tectono-stratigraphic domains separated by regional, hundreds of kilometre long shear zones (Almeida et al. 1976, Brito Neves 1983, Santos and Brito Neves 1984, Jardim de Sá et al. 1992, Santos et al. 2000, Brito Neves et al. 2000 in Caxito et al. 2020).

The main shear zones subdivide the Borborema Province into three major tectonic zones or sub-provinces: the northern, transversal, and southern zones, which are further subdivided into internal domains (Almeida et al. 1976, Brito Neves 1983, Santos and Brito Neves 1984, Jardim de Sá et al. 1992, Santos et al. 2000, Brito Neves et al. 2000, in Caxito et al. 2020).

The main structures that divide these domains are the NE-trending Transbrasiliano Shear Zone (locally called Sobral-Pedro II) at the northwest corner of the province and the major east-west trending Patos and Pernambuco Shear Zones that separate the transversal zone from the other domains to the north and south.

The northern Borborema Province is subdivided into the Médio Coreaú (“MC”), Ceará Central (“CC”), Orós-Jaguaribeano, Seridó, and Rio Grande do Norte (“RGN”) domains. The Cruzeta

Complex, which hosts the PGE-bearing Tróia Mafic-Ultramafic Complex of the Pedra Branca project is located in the CC domain of the northern Borborema zone, within the Tróia-Pedra Branca Massif (Figure 1-3).

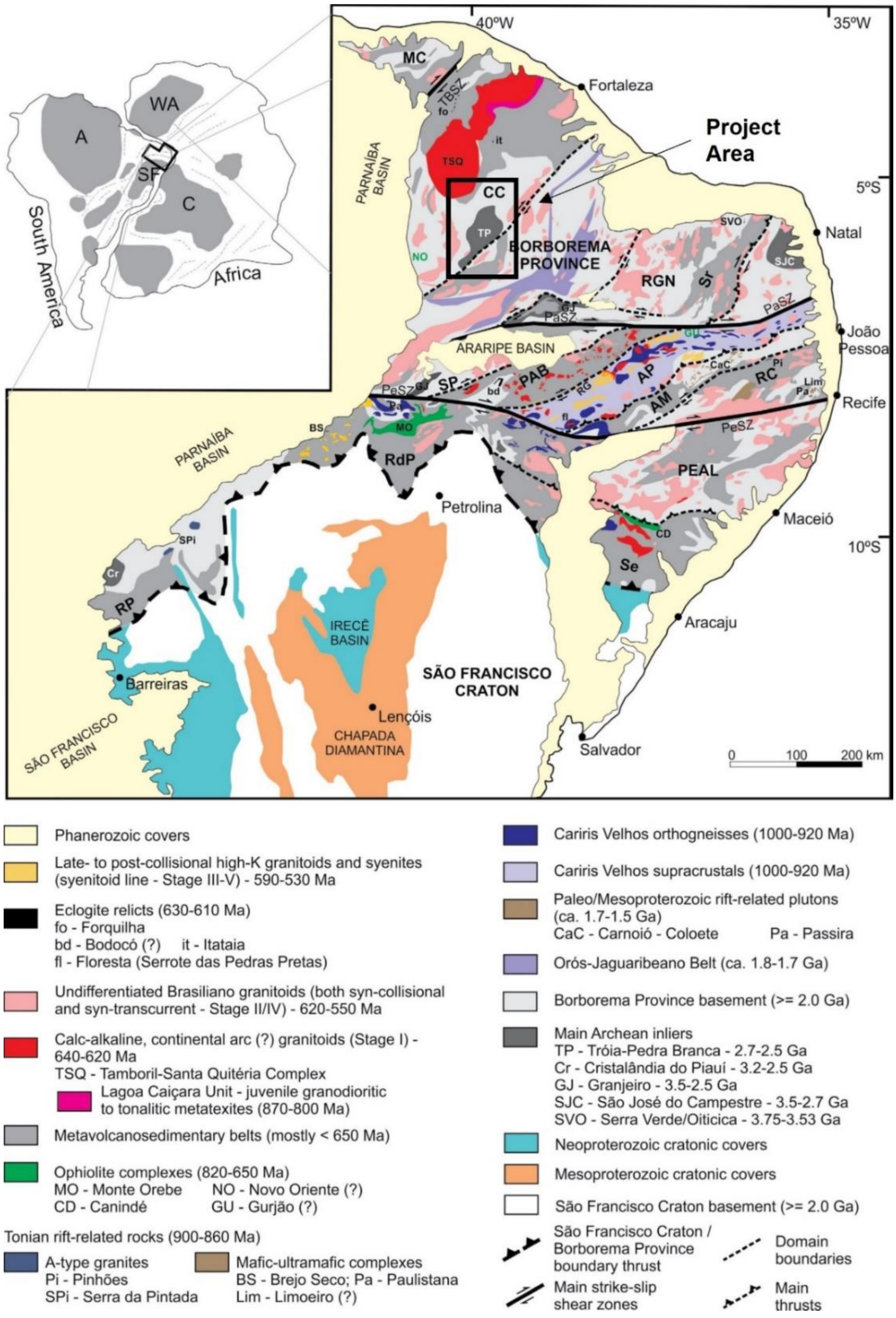


Figure 1-3 Simplified Geological Features of the Borborema Province. Domains and Subdomains: "RP" - Rio Preto, "RdP" – Riacho do Pontal, "Se" - Sergipano, "PEAL" - Pernambuco–Alagoas, "RC" - Rio Capibaribe, "AM" - Alto Moxotó, "AP" - Alto Pajeú, "RG" - Riacho Gravatá, "PAB" - Piancó-Alto Brígida, "SP" – São Pedro, "MC' - Medio Coreaú, "CC" - Ceará Central, "RGN" - Rio Grande do Norte, "Sr" - Seridó. "PeSZ" - Pernambuco Shear Zone; "PaSZ" - Patos Shear Zone; "TBSZ" - Transbrasiliano Shear Zone (Modified from Caxito et al. 2020).

1.5.2 Local Geology

The Pedra Branca Pd-Pt-Au deposits are hosted within the mafic to ultramafic rocks of the Tróia Massif, collectively termed the Tróia Unit (Oliveira and Cavalcante et al. 1993 in Costa et al. 2021). The Tróia Unit occurs for over 80 km along trend from north-northeast to south-southwest in the central part of the Tróia Massif (Figure 1-4) and are the most extensive occurrence of mafic to ultramafic rocks in the Borborema Province (Costa et al. 2021).

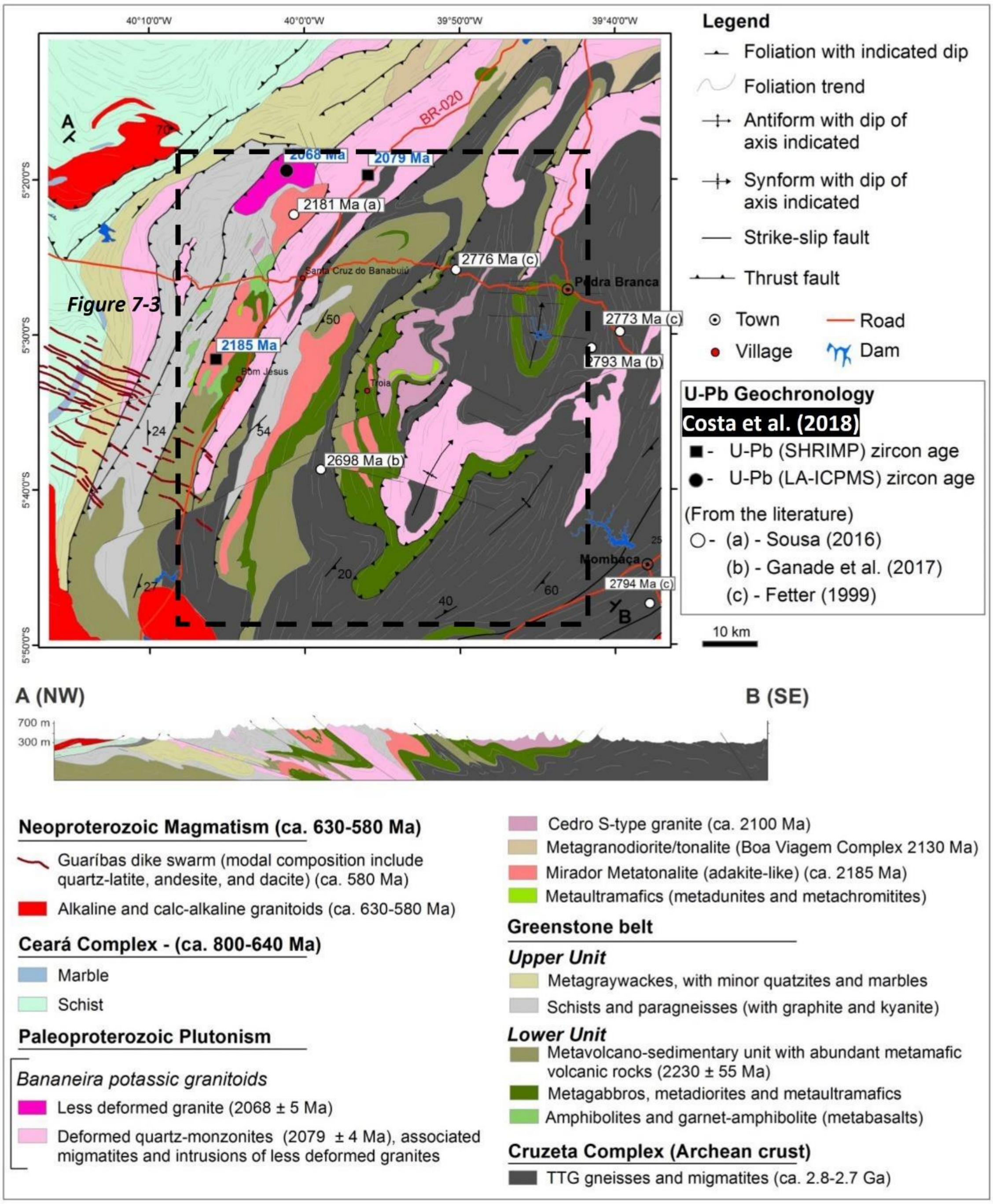


Figure 1-4: Geological Map and Cross Section of the Tróia Massif Region with Location for U–Pb Zircon Ages of Costa et al. (2018) and Previous Studies. Modified from Costa et al. (2018).

In the Pedra Branca project region, the Tróia Unit consists of a succession of metadunites, metaperidotites, and serpentinites, in addition to metamafic lithotypes, such as hornblendites, metagabbros and metadiorites. PGE mineralization is largely restricted to metachromitites, and chromite-bearing metaperidotites, metadunites and serpentinites.

1.5.3 Mineralization

PGE and gold mineralization at Pedra Branca is predominantly associated with areas of chromite enrichment in the ultramafic package of the Tróia Unit, with localized base metal sulfides ("BMS") which correlate directly with Cu, Ni, S and Au.

Chromite mineralization occur as two main types in all seven 43-101 deposit areas:

- Disseminated chromite mineralization – characterized by fine-grained chromite within the olivine cumulate groundmass, in association with chlorite-serpentine, as typically represented in the Trapiá deposit (Figure 1-5);
- Massive metachromitites – characterized by generally homogeneous reef-like horizons, containing 30 to 60% chromite crystals (euhedral octahedral grains from 0.3 mm to 1 mm), hosted in a gray to light green groundmass of chlorite, tremolite and serpentine. This type of mineralization shows the highest PGE grades (often >10 g/t 2PGE+Au, and locally reaching >100 g/t 2PGE+Au) and is best represented in the Esbarro, Curiú and Trapiá deposit areas. Thicknesses vary from 30 cm to 6 m thick, with lateral continuity up to 400 m, and the reef horizons often representing a transitional facies within layered ultramafic complexes (Figure 1-6).

Significant PGE mineralization discovered historically at the Pedra Branca was confined to 5 main deposits: Trapiá, Esbarro, Cedro, Curiú and Santo Amaro. Two historical exploration targets, Massapê (5 km along trend to the north of Trapiá), and Cana Brava (5 km north of Curiú), were historically underexplored, and identified by ValOre as high-priority targets. Subsequent surface exploration and diamond drilling by ValOre in 2020 and 2021 (described in Sections 9 and 10) delineated near-surface PGE-bearing ultramafic intrusions that are now included in the 2022 resource estimate. Massapê remains fully open in all directions, with the potential expand into one of the main deposits at Pedra Branca with additional drilling along strike and at depth.

Figure 1-5: Typical Cumulate Textures in Mineralized Metaperidotites and Metadunites from the Trapiá Deposit. (Source: Thiago Diniz, P.Geo – ValOre).

Figure 1-6: Mineralized Chromitites from the Esbarro Deposit (Drill Hole DD21ES15C). (Source: Thiago Diniz, P.Geo – ValOre).

1.5.4 Deposit Style

Layered and zoned ultramafic to mafic intrusions are uncommon in the geologic record but host magmatic ore deposits containing most of the world's economic concentrations of PGEs. These deposits are mined primarily for their platinum, palladium, and rhodium contents.

Magmatic ore deposits are derived from accumulations of crystals of metallic oxides, immiscible sulfides, or oxide liquids that formed during the cooling and crystallization of magma, typically with mafic to ultramafic compositions, according Zientek, M.L. (2012).

"PGE reefs" are stratabound PGE-enriched lode mineralization in mafic to ultramafic layered and zoned intrusions. The term "reef" is derived from Australian and South African literature for this style of mineralization and used to refer to (1) the rock layer that is mineralized and has distinctive texture or mineralogy (Naldrett, 2004), or (2) the PGE-enriched sulfide mineralization that occurs within the rock layer. For example, Viljoen (1999) broadly defined the Merensky Reef as "a mineralized zone within or closely associated with an unconformity surface in the ultramafic cumulate at the base of the Merensky Cyclic Unit."

PGE-enriched sulfide mineralization is also found near the contacts or margins of layered mafic to ultramafic intrusions (Iljina and Lee, 2005). This contact-type mineralization consists of disseminated to massive concentrations of iron-copper-nickel-PGE-enriched sulfide mineral concentrations in zones that can be tens to hundreds of metres thick. The modes and textures of the igneous rocks hosting the mineralization vary irregularly on the scale of centimetres to metres. Mineralization occurs in the igneous intrusion and in the surrounding country rocks, and can be preferentially localized along contacts with country rocks that are enriched in sulfur-, iron-, or CO_2-bearing lithologies.

Mafic and ultramafic bodies are abundant in Brazil, and several favourable geological settings for PGE-Ni-Cu deposits occur in the country. These include numerous large, layered intrusions in cratonic areas, several clusters or lineaments of mafic and mafic-ultramafic intrusions, including examples where feeder dykes and the lowermost parts of layered intrusions are exposed, a continental scale event of flood basalts, and several areas of extensive komatiitic magmatism in Precambrian greenstone belts. The abundance of mafic and ultramafic bodies in Brazil has not reflected so far in the number and magnitude of PGE-Ni-Cu deposits (Ferreira Filho, 2010).

Pedra Branca PGE mineralization occurs within zoned ultramafic bodies. The deposit characteristics, mineral associations and style of mineralization are believed to be related to the "reef-type" PGE ores, although in the Pedra Branca deposits the bulk of the PGE mineralization occurs not only with narrow discrete chromite-rich lenses, but more commonly with disseminated chromite over metres to many tens of metres thicknesses (>100 m in some cases, i.e. Trapiá). PGEs at Pedra Branca are dominantly associated with chromite and to a lesser degree with base metal sulfides, as is the case with the Merensky reef's chromite stringers and cumulate columns, respectively. The mechanical emplacement mechanisms appear to have been more turbulent with more filter-pressing than gravity-settling (post fractional crystallization). This distinguishes the Pedra Branca reef from the narrow Merensky reef by its expression of thick, disseminated mineralization up to 100 m in thickness.

1.6 Exploration, Drilling, Sampling and Data Validation

1.6.1 Exploration

Since acquisition of the project in 2019, ValOre re-processed and re-compiled over 40 years of historical data and carried out extensive field mapping and prospecting programs at over 20 property-wide targets. Additionally, ValOre has completed 17,434 metres drilling (15,606 m core and 1,828 RC), as described in Section 10.

Several historical target areas have been revisited, remapped and relogged, with successful reinterpretations that resulted in the inclusion of new deposit areas to the 2022 resource estimate, such as Massapê, Santo Amaro South, Cana Brava and Trapiá South. ValOre continues to work multiple additional targets with resource potential throughout the exploration tenements.

Table 1-2, below, presents a summary of the field exploration work and drilling completed by ValOre in the property since acquisition.

Table 1-2 Summary Exploration Work Performed by ValOre from March 2020 to April 2022.

Exploration Work	2020			2021			2022		
	length (m)	# holes & trenches	# samples	length (m)	# holes & trenches	# samples	length (m)	# holes & trenches	# samples
Diamond Drilling	6,315	48	3,398	9,292	70	4,336	-	-	-
RC Drilling	-	-	-	1,828	38	1,906	-	-	-
Auger Drilling	-	-	-	723	202	763	508	176	541
Rock Sampling	-	-	175	-	-	307	-	-	45
Soil Sampling	34,160	-	1,708	8,340	-	417	20,000	-	1,021
Trenching	131	2	187	713	11	473	189	4	189

Immediately following acquisition in mid-2019, ValOre conducted a comprehensive review of the historical records which resulted in the identification of approximately 100 historical trenches (many of them mineralized) that were not originally included in the project database. In addition, an increased understanding of geology, targeting methodologies and prospective exploration signatures was defined, with the main objective of expanding known PGE resources, advancing previously work but underexplored targets, and generating new “greenfields” discoveries.

WorldView Hi-Res Imagery and Spectral Data: acquisition of enhanced and modeled digital satellite imagery (2019 and 2021) from the highest-resolution commercially available satellite in the world, focused on supporting exploration fieldwork with mineral modeling aimed at identifying regional occurrences of target ultramafic intrusions, as well as providing high-spatial resolution true-color imagery of the project area.

Geophysics: re-processing the district-scale, detailed (50 m line-spacing) 2013 aeromagnetic survey collected by Anglo American by means of a 3D magnetic-susceptibility model to help define the geometry, dip and approximate dimensions of the target ultramafic intrusions and ultimately assist in drill targeting.

SGDS Hive: consultancy performing a full drill hole database verification program and supporting ValOre in the development and refinement of an accurate, organized and synthesized exploration database.

Data compilation: upon completion of the above-mentioned database verification and organization, authenticated historical data was synchronized with newly acquired exploration data to facilitate and accelerate the path to discovery and resource expansion.

1.6.2 Drilling

Since 1987, there have been several drilling programs completed on the property. ValOre completed 17,340 m of drilling in 2 campaigns (2020 and 2021) since acquisition, focusing on drilling for resource expansion, pre-resource target advancement, new discovery, and metallurgy.

Description of drill methods and logging for all historical drilling campaigns completed prior to ValOre's acquisition was modified and updated in the 2019 Lions Gate Geological Consulting Inc. ("LGGC") report.

Core for all drill holes completed from 1999 to 2021 is stored and available at the project's core yard and logging facility in Capitão Mor, Ceará State, Brazil. Core from the 1987 drill campaigns, prefixed with PBE or BR, is not available for review due to a motor vehicle accident which reportedly dumped all of the drill core out of a truck. Following recommendation from LGGC (2019), some BR and PBE holes were twined by ValOre at the Trapiá and Esbarro deposits. Both the lithological sequences and grade distribution records of the original holes were satisfactorily reproduced, certifying that the analytical results reasonably represent the tenor of mineralization at those deposits.

ValOre completed two drilling campaigns on the Property in 2020 and 2021, focused on three target classes: resource expansion, new discovery (undrilled targets), and target advancement (following-up historical drill intercepts at pre-resource targets).

Brazilian drilling company Servitec Foraco Sondagem SA, based in the State of Goiás, was engaged for the 2020 drill program, and in 2021, DrillGeo Geologia e Sondagem was contracted. In both campaigns, most of the drill holes were initiated in HQ diameter (casing), and subsequently reduced and completed in NQ core size. Some select shallow (<75 m deep) holes were entirely drilled in HQ core size, to provide more volume of rock for metallurgical test work.

ValOre engaged Brazilian drilling company Servdrill Perfuração e Sondagem for 1,828 m of RC drilling, which tested six property-wide target areas. RC holes were drilled in 4.5 inches diameter.

Drilling campaigns at Pedra Branca project are summarized in Table 1-3. Figure 1-7 to Figure 1-9 locate diamond drilling and RC drilling completed on the main mineralized zones of the Pedra Branca project, to date.

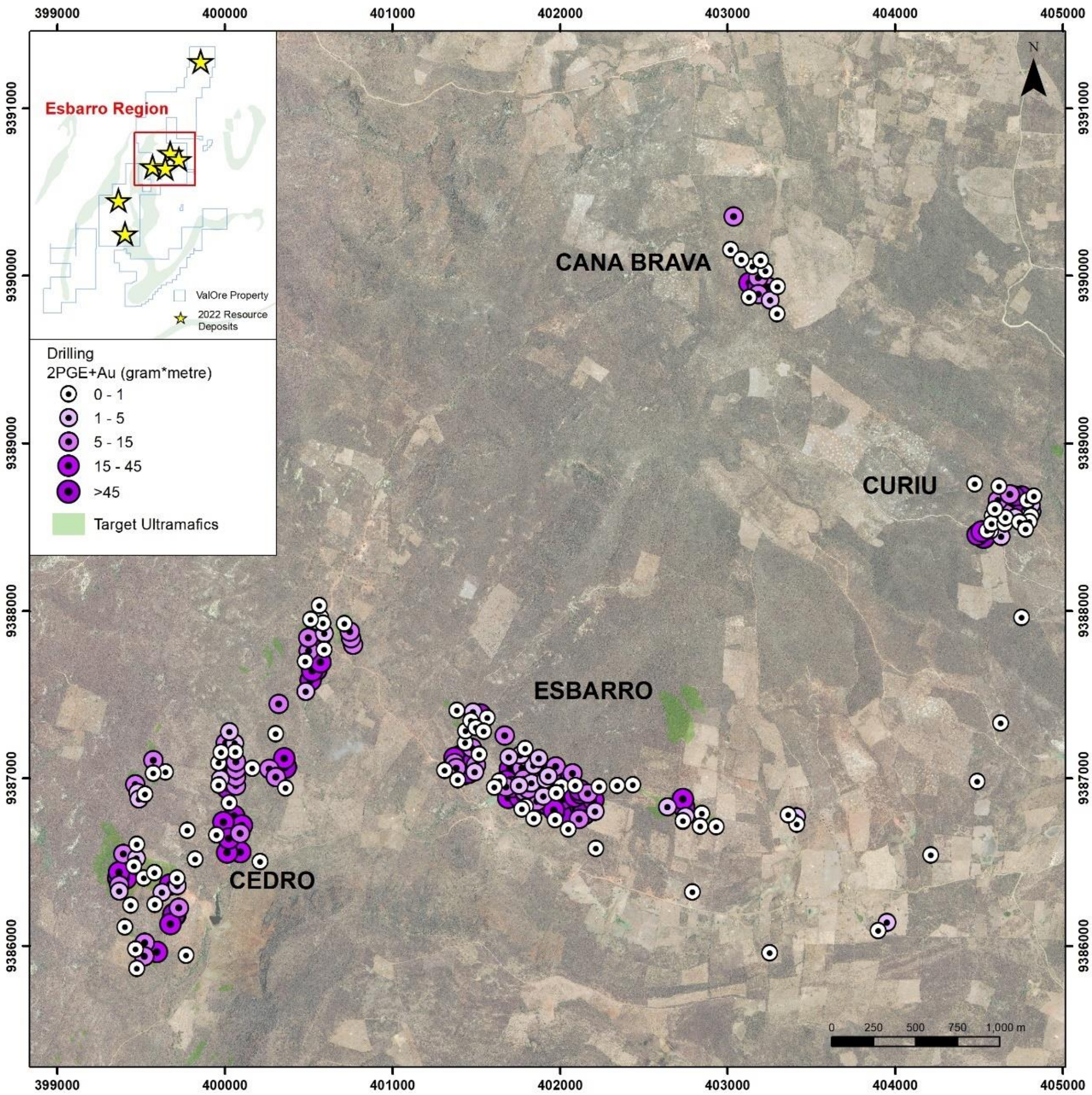


Figure 1-7 Esbarro, Cedro, Curiú and Cana Brava Resource Region, Drilling Location Map. Diamond and RC Drill Holes Categorized by Gram*Metre Values of Pd+Pt+Au ("2PGE+Au"). (Source: Thiago Diniz, P.Geo – ValOre).

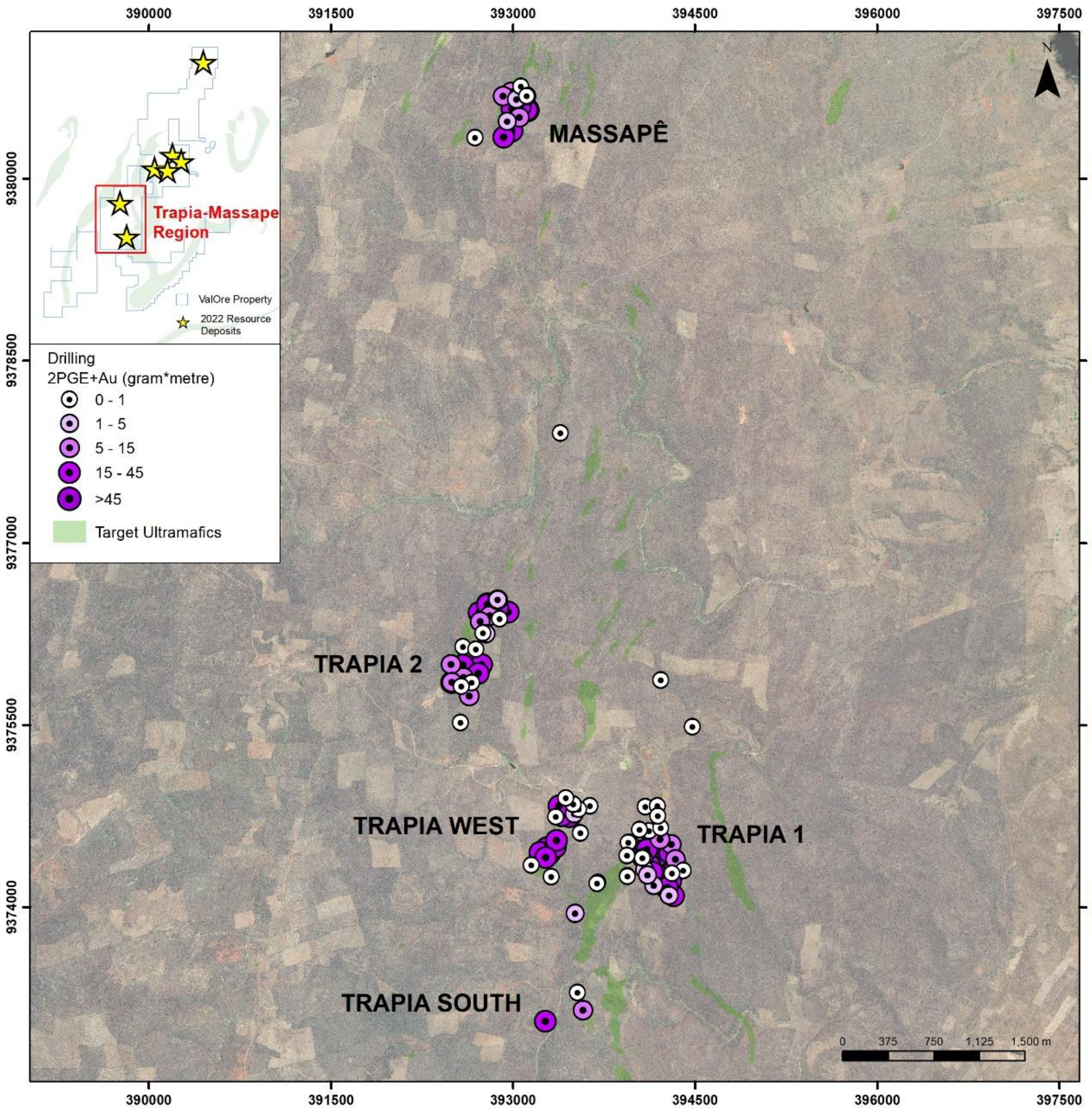


Figure 1-8 Trapiá – Massapê Resource Region, Drilling Location Map. Diamond and RC Drill Holes Categorized by Gram*Metre Values of Pd+Pt+Au ("2PGE+Au"). (Source: Thiago Diniz, P.Geo – ValOre).

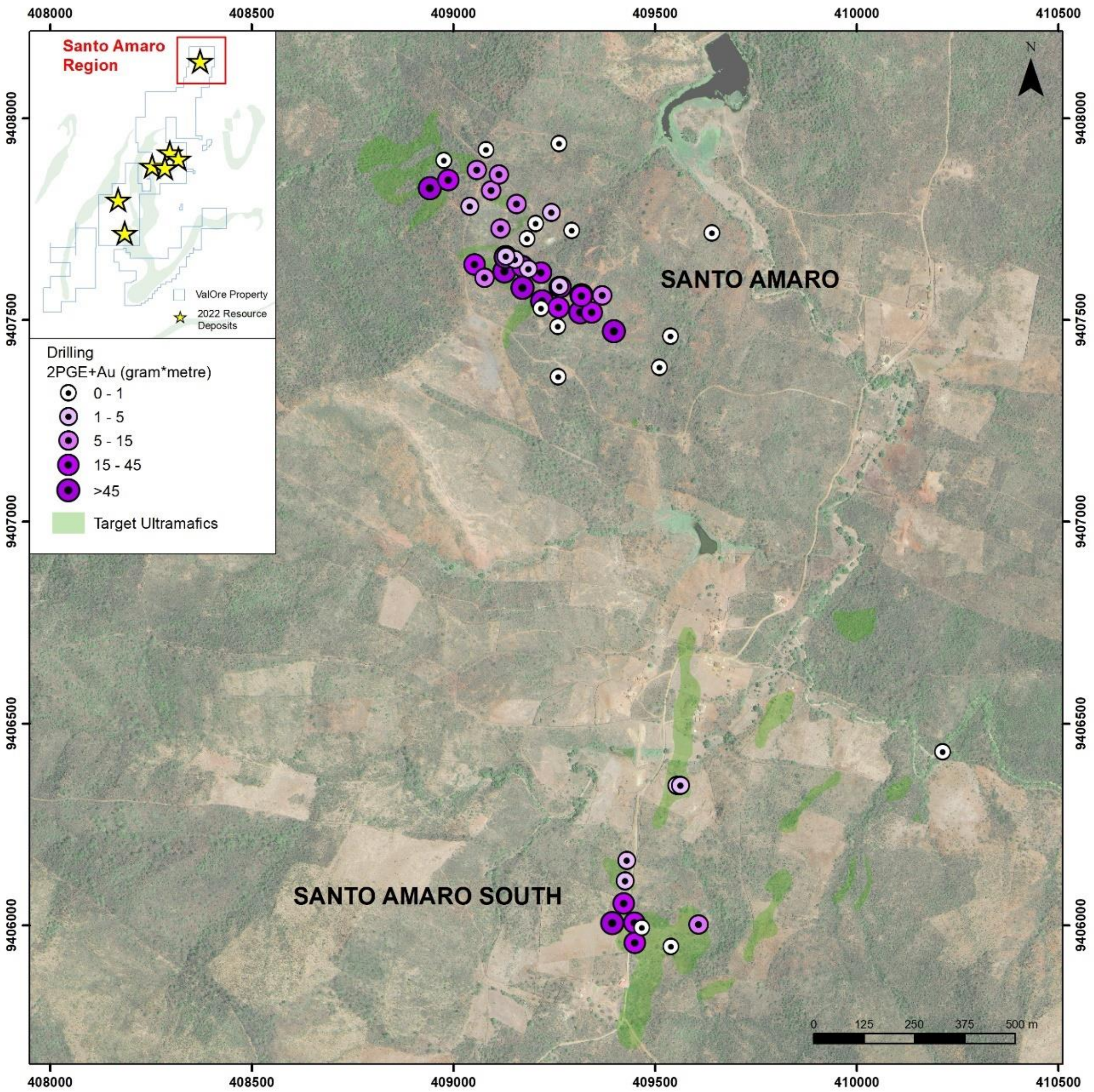


Figure 1-9: Santo Amaro Resource Area, Drilling Location Map. Diamond and RC Drill Holes Categorized by Gram*Metre Values of Pd+Pt+Au (“2PGE+Au”). (Source: Thiago Diniz, P.Geo – ValOre).

Table 1-3 Summary of Drilling Programs at the 43-101 Deposit Areas and Other Exploration Drillholes Property-Wide

Area	Year	No. Holes	No. Metres	Company	Prefix	Drilling Type
Esbarro	1987	42	2,525.60	RTZ	PBE	DD
	1999	8	583.90	Altoro	DD99	DD
	2001	24	1,613.40	Rockwell	RW	DD
	2003	25	1,792.50	Solitario	DD03	DD
	2004	5	316.10	Solitario	DD04	DD
	2007	2	318.20	Anglo Platinum	DD07	DD
	2012	3	462.90	Anglo Platinum	DD12	DD
	2020	3	146.40	ValOre	DD20	DD
	2018	7	360.5	Jangada	DD18	DD Twin/Metallurgy
	2021	6	377.45	ValOre	DD21	DD Twin/Metallurgy
	2021	9	191.00	ValOre	RC21	RC
		127	**8,327.45**			
Curiú	2001	2	146.50	Rockwell	RW	DD
	2001	1	38.50	Solitario	DD01	DD
	2003	12	622.70	Solitario	DD03	DD
	2004	6	225.70	Solitario	DD04	DD
	2008	8	360.40	Anglo Platinum	DD08	DD
	2009	15	880.30	Anglo Platinum	DD09	DD
	2010	6	360.60	Anglo Platinum	DD10	DD
	2012	3	475.30	Anglo Platinum	DD12	DD
	2021	4	212.75	ValOre	DD21	DD Twin/Metallurgy
		57	**3,322.75**			
Cedro	2001	7	603.30	Solitario	DD01	DD
	2002	8	876.20	Solitario	DD02	DD
	2003	2	146.30	Solitario	DD03	DD
	2004	6	502.30	Solitario	DD04	DD
	2007	8	596.70	Anglo Platinum	DD07	DD
	2008	19	1,481.60	Anglo Platinum	DD08	DD
	2009	24	1,824.10	Anglo Platinum	DD09	DD
	2010	20	1,324.50	Anglo Platinum	DD10	DD

Area	Year	No. Holes	No. Metres	Company	Prefix	Drilling Type
	2020	4	379.05	ValOre	DD20	DD
	2021	4	331.45	ValOre	DD21	DD Twin/Metallurgy
		102	**8,065.50**			
Trapiá 1	1987	4	299.20	Unamgen	BR	DD
	1999	1	86.30	Altoro	DD99	DD
	2001	2	221.00	Rockwell	RW	DD
	2001	2	333.10	Solitario	DD01	DD
	2004	3	358.10	Solitario	DD04	DD
	2007	1	79.00	Anglo Platinum	DD07	DD
	2009	2	171.20	Anglo Platinum	DD09	DD
	2020	12	2,520.30	ValOre	DD20	DD (incl. Twins)
	2021	11	2,762.65	ValOre	DD21	DD
	2021	6	463.00	ValOre	RC21	RC (incl. Twin)
		44	**7,293.85**			
Trapiá 2	1987	4	478.70	Unamgen	BR	DD
	2003	1	166.20	Solitario	DD03	
	2004	1	106.80	Solitario	DD04	
	2009	3	182.90	Anglo Platinum	DD09	
	2020	8	1,098.75	ValOre	DD20	
	2021	6	1,142.50	ValOre	DD21	
	2021	1	63.00	ValOre	RC21	RC Twin
		24	**3,238.85**			
Trapiá West	1999	7	451.00	Altoro	DD99	DD
	2001	3	277.00	Solitario	DD01	DD
	2002	1	103.10	Solitario	DD02	DD
	2007	3	253.00	Anglo Platinum	DD07	DD
	2009	4	244.00	Anglo Platinum	DD09	DD
	2021	2	102.00	ValOre	RC21	RC
		20	**1,430.10**			
Santo Amaro						

Area	Year	No. Holes	No. Metres	Company	Prefix	Drilling Type
	2002	7	562.70	Solitario	DD02	DD
	2004	2	307.90	Solitario	DD04	DD
	2007	3	382.90	Anglo Platinum	DD07	DD
	2020	12	1,370.40	ValOre	DD20	DD
	2021	20	2,315.65	ValOre	DD21	DD
		44	**4,939.55**			
Santo Amaro South	2004	1	62.70	Solitario	DD04	DD
	2007	2	129.80	Anglo Platinum	DD07	DD
	2021	4	299.80	ValOre	DD21	DD
	2021	5	282.00	ValOre	RC21	RC
		12	**774.30**			
Massapê	2003	1	85.70	Solitario	DD03	DD
	2004	1	113.30	Solitario	DD04	DD
	2018	3	200.10	Jangada	DD18	DD
	2021	11	1,509.85	ValOre	DD21	DD
		16	**1,908.95**			
Cana Brava	2010	2	71.40	Anglo Platinum	DD10	DD
	2020	4	199.65	ValOre	DD20	DD
	2021	9	351.00	ValOre	RC21	RC
		15	**622.05**			
Other Exploration targets	1987 - 2021	**73**	**8,272.15**	Various	Various	DD & RC
43-101 DEPOSITS TOTALS		**461**	**39,923.35**			
EXPLORATION TOTALS		**73**	**8,272.15**			
GRAND TOTAL		**534**	**48,195.50**			

1.6.3 Sampling

Sampling protocols and Quality Assurance and Quality Control ("QAQC") programs implemented in 2020-2021 campaign were considered in accordance with industry best practices.

Overall, the results of Quality Control are acceptable data quality to use into a Mineral Resource estimation proposes.

Six samples registered as Certified Reference Material ("CRM") CDN-PGMS-27 were removed from the evaluation, as the values for the Au, Pt and Pd were true outliers.

The recommendations made by LGGC were adopted and implemented in the 2020-2021 campaigns, including the total database validation executed by the independent consultant Andy Randell, P.Geo (SGDS HIVE Geological Consulting).

GE21 considers the drilling database satisfactory and has all the parametres needed for the execution of the Mineral Resources estimation.

Aiming a quality improvement for the database, GE21 makes the following recommendations:

- Implement the QAQC protocols stablished for the 2020-2021 program in the future drilling programs;
- Complete additional DDH and RC twin drillholes, to verify drilling data preceding the 1997 drilling program.

1.6.4 Data Verification

Geologist Fábio Xavier (MAIG #5179) of GE21 visited the project on January 18 to 20, 2022. The visit aimed to understand the nature of PGE mineralization, logging procedures, and QAQC protocol. The QP visited the local source of quartz used as control sample in QAQC.

The QP visited the main deposits to validate outcrops of mineralized ultramafic rocks, and observe the spatial distribution of these rocks within the geological and geomorphological context of the area. Technical discussions were held with the ValOre team throughout the visit period.

There was no drilling occurring during the site visit, and therefore, it was not possible to oversee the drilling operations.

The QP considers that the procedures related to the drilling processes, and carried out in the core logging facility, are in accordance with the best practices of industry and ensure adequate data collection quality for use in the estimation of mineral resources.

Despite the database validation conducted by the independent consultant Andy Randell, P.Geo (SGDS HIVE Geological Consulting), some inconsistences were found during the validation conducted to current estimative.

To improve the quality of the procedures and the database, GE21 recommends the following:

- Finish the current geological relogging of historical drillholes to standardizing litho-codes and grouping of lithotypes;
- Complete the weathering description for all drillholes;
- Detail zones and minerals into hydrothermal alterations aiming a geometallurgical model associated to flotation process;
- Conduct a new validation of database to guarantee its consistency;
- Adopt a Data Management System appropriated to the project activities and geological data;
- Validate the collar drillholes survey as well as to program topography survey of the targets with appropriated detail to level of the project.

1.7 Mineral Processing and Metallurgical Testing

Multiple lines of exploratory mineral processing and metallurgical test work were investigated on high-grade material from Pedra Branca in 2020 and 2021, to test the potential efficacy of these techniques to be used in more rigorous and representative subsequent test work programs, including: Falcon Ultrafine ("UF") Gravity Concentrator tests, Platsol™ pressure leaching, and cyanidation. Favorable metallurgical results from these techniques are to be followed-up with additional test work using representative samples. Gravity separation by high G-force centrifugal concentration was somewhat effective in recovering platinum from sample CCS. Fine grinding and approximately 20% mass pull was required to recover ~80% of the platinum content. Palladium recovery was poor at <40% in ~20% mass pull. Platsol™ testing produced high PGE extractions but acid requirements to treat the material were extremely high at >0.5 tonne H_2SO_4 per tonne of feed, with subsequent mineralogical evaluations suggesting that acid consumption was due to high MgO content. Direct cyanidation indicated that palladium leached somewhat efficiently under intensive conditions. Extractions of >84% were achieved from the CCS, TWMO and CMO samples. Subsequent testing of MV-1 and MV-5/5A indicated palladium extractions in the ~72% to ~83% range. Platinum extractions were poor at ~10% or less in all cases. A brief examination of heap leaching by coarse ore bottle roll testing, indicated that, while platinum extractions were low at <4%, palladium extraction averaged >50% in the three tests completed. Parallel analytical and mineralogical comparison of samples ground by conventional means and samples ground by VeRoLiberator® technology, indicated no discernable advantage to one comminution method over the other.

Two rounds of sensory-based ore sorting test work using X-Ray Transmission technology ("XRT") identified distinct XRT (density) signatures for the major rock groups, and in particular, the high-grade chromitite samples, suggesting a high potential for sortability. Additional testing is necessary to further define such relationships.

Flotation test work assessing the potential to produce marketable concentrates is currently in progress. This testing to date has been on samples from the Curiú zone ("Fresh" and "Weathered") and has included gravity, magnetic and flotation testing of the Fresh mineralization and gravity and flotation testing of the Weathered mineralization. Flotation separation on the Fresh Composite has been acceptable. A single locked cycle test measured recoveries of 85%, 83% and 71% for gold, platinum and palladium (respectively) into a bulk concentrate with a combined grade of 78 g/t gold, platinum and palladium. The determination of concentrations of other elements in this concentrate that might impact marketability is in progress. Additional locked cycle tests are recommended to validate the metallurgical performance for Fresh material. Rougher and cleaner testing on the Weathered Composite has shown a dissimilar performance to that of the Fresh Composite, with lower recoveries and concentrate grades. Blending of the Weathered Composite with the Fresh Composite did not improve performance.

The current flowsheet for the Fresh Composite is of conventional design and application, involving primary grinding, roughing, regrinding and three stages of dilution cleaning. Primary grinding is to a relatively fine size of about 53 µm P80 and reagents include PAX, Calgon, Mercaptan and MIBC.

Flotation test work is ongoing, assessing metallurgical responses associated with the different zones and material types within the project. This will be followed by flowsheet optimization evaluations and fine tuning the metallurgical response for the different material types, to determine the effect of head grade variability on metallurgical response and generate engineering design criteria to advance the development of the project.

1.8 Mineral Resource Estimate

In considering the overall quality and quantity of data, and confidence in the conceptual limits of the mining process that were utilized in the Mineral Resource estimate, the estimate was classified as Inferred using local geometric restrictions to guarantee the spatial continuity of classification.

All blocks assigned to the UM_PGE and CR domains and internal to (or within) the limits of the pit shells and tenements were considered Mineral Resources. Table 1-4 summarizes the Pedra Branca Mineral Resources. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

Table 1-4 Pedra Branca Mineral Resource

Target	Weathering	Mass	Average Value					Material Content				
		Mass	Au	Pd	Pt	Pd eq	PGE+Au	Au	Pd	Pt	Pd eq	PGE+Au
		kt	g/t	g/t	g/t	g/t	g/t	koz	koz	koz	koz	koz
Trapiá	Weathered	4 547.12	0.02	0.53	0.30	0.69	0.85	3.26	77.13	44.58	100.82	124.97
	Fresh	24 238.76	0.04	0.63	0.31	0.85	0.98	30.44	488.30	241.75	662.31	760.49
	Total	**28 785.88**	**0.04**	**0.61**	**0.31**	**0.82**	**0.96**	**33.69**	**565.43**	**286.33**	**763.13**	**885.46**
Cedro	Weathered	3 023.54	0.01	0.71	0.34	0.88	1.06	1.07	69.05	32.90	85.82	103.02
	Fresh	10 610.17	0.01	0.65	0.37	0.88	1.03	4.99	220.47	124.64	298.63	350.10
	Total	**13 633.71**	**0.01**	**0.66**	**0.36**	**0.88**	**1.03**	**6.05**	**289.53**	**157.54**	**384.45**	**453.12**
Esbarro	Weathered	4 712.74	0.05	0.79	0.41	1.02	1.25	7.73	119.64	61.92	154.24	189.29
	Fresh	6 070.93	0.01	0.72	0.36	0.94	1.09	2.37	139.87	71.23	184.02	213.47
	Total	**10 783.68**	**0.03**	**0.75**	**0.38**	**0.98**	**1.16**	**10.11**	**259.51**	**133.15**	**338.26**	**402.77**
Santo Amaro	Weathered	2 104.78	0.02	0.56	0.47	0.80	1.06	1.67	37.80	32.03	54.46	71.49
	Fresh	2 169.46	0.04	0.63	0.49	0.96	1.16	2.54	44.27	34.24	66.99	81.04
	Total	**4 274.24**	**0.03**	**0.60**	**0.48**	**0.88**	**1.11**	**4.20**	**82.06**	**66.27**	**121.45**	**152.53**
Massapê	Weathered	601.27	0.03	0.88	0.33	1.05	1.23	0.57	16.94	6.31	20.35	23.82
	Fresh	2 710.42	0.02	0.85	0.33	1.07	1.20	1.79	74.25	28.89	93.04	104.92
	Total	**3 311.69**	**0.02**	**0.86**	**0.33**	**1.06**	**1.21**	**2.36**	**91.18**	**35.19**	**113.39**	**128.74**
Curiú	Weathered	1 147.91	0.06	1.64	1.07	2.20	2.77	2.39	60.37	39.54	81.11	102.30
	Fresh	974.02	0.05	0.91	0.56	1.30	1.53	1.71	28.55	17.60	40.68	47.87
	Total	**2 121.93**	**0.06**	**1.30**	**0.84**	**1.79**	**2.20**	**4.10**	**88.92**	**57.14**	**121.79**	**150.17**
Cana Brava	Weathered	523.56	0.04	0.63	0.44	0.87	1.12	0.72	10.69	7.43	14.73	18.83
	Fresh	133.80	0.02	0.84	0.59	1.20	1.44	0.07	3.61	2.53	5.16	6.21
	Total	**657.36**	**0.04**	**0.68**	**0.47**	**0.94**	**1.18**	**0.79**	**14.30**	**9.96**	**19.89**	**25.04**
All Targets	Weathered	16 660.93	0.03	0.73	0.42	0.95	1.18	17.40	391.61	224.71	511.53	633.72
	Fresh	46 907.56	0.03	0.66	0.35	0.90	1.04	43.91	999.32	520.88	1 350.84	1 564.11
	Total	**63 568.48**	**0.03**	**0.68**	**0.36**	**0.91**	**1.08**	**61.31**	**1 390.94**	**745.58**	**1 862.36**	**2 197.83**

1. Mineral Resources which are not mineral reserves, do not have demonstrated economic viability.
2. The Mineral Resource estimates were prepared in accordance with the CIM Standards, and the CIM Guidelines, using geostatistical, plus economic and mining parameters appropriate to the deposit.
3. All figures have been rounded to the relative accuracy of the estimates. Summed amounts may not add due to rounding.
4. Mineral Resources are reported with Effective Date March 24, 2022.
5. Fábio Xavier (MAIG) is the QP responsible for the Mineral Resources estimate.
6. Mineral Resources were classified as Inferred.
7. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration.
8. Mineral Resources are associated to a cut-off grade of 0.4 g/t PGE+Au, correlated to Pd_eq. Grade of 0.35 g/t.
9. Mineral Resources were limited by an economic pit built in Geovia Whittle 4.3 software and following the geometric and economic parameters:
    - Pit slope angles: 55°;
    - Price: Pd=US$2000/oz, Pt=US$1000/oz and Au=US$1800/oz;
    - Costs: Mining costs=US$2.00/t; Milling=US$12.00/t; G&A=US$1.50/t;
    - Metallurgical Recoveries:
        - Weathered rock: 68% for Pd, 67% for Pt and 40% for Au;
        - Fresh rock: 71% for Pd, 82.9% for Pt and 85.2% for Au.
10. Blocks estimated by Ordinary Kriging at support of:
    - Trapia, Massape, Esbarro: 40m x 40m x 4m with sub-block 5m x 5m x 2m;
    - Santo Amaro, Cedro, Cana Brava: 20m x20m x 4m with sub-block 5m x 5m x 2m;
    - Curiu: 10m x 10m x 4m with sub-block 5m x 5m x 2m.
11. PGE+Au grade = Pt g/t + Pd g/t + Au g/t.

1.9 Conclusions and Recommendations

GE21 has been commissioned by ValOre Metals Corp ("ValOre") to prepare a Mineral Resource Estimative for the Pedra Branca Platinum Group Elements (PGE) Project in Ceará, Brazil, in accordance with the directives of CIM National Instrument 43-101 (NI 43-101).

The effective date for the resource estimate, "Effective Date" of March 08, 2022, is based on the date of relevant metallurgical test work data (lock cycle test results).

The principal Qualified Person with respect to the objectives of this report is Fábio Valério Câmara Xavier. Mr. Xavier, a geologist, is a member of the Australian Institute of Geoscientists and has more than 19 years experience in working with mining projects.

A total of 315 (23,606 m) historical drillholes and 147 (16,495 m) drillholes conducted by ValOre were used in the estimative.

The tridimensional geological model was developed using Leapfrog implicit modelling. The ultramafic rock bodies ("UM") were refined in the 3D geological model with a cut-off limit of 0.3 g/t PGE+Au, resulting in mineralized domains ("PGE_UM") with orientation based on UM domains. Chromitite layers ("CR") were individualized only for the targets that presented representative intersections with spatial continuity through the UM layer (Trapiá, Esbarro and Curiú targets).

The estimative of Pd (g/t), Pt (g/t) and Au (g/t) grades was conducted by Ordinary Kriging supported by geostatistical analysis.

Pit shell optimization was conducted to assess the reasonable prospects for economic extraction of material that can be mined via open pit methods. Pit shell optimizations were performed in Geovia Whittle software using the following the geometric and economic parametres:

- Pit slope angles: 55°;
- Price: Pd=US$2000/oz, Pt=US$1000/oz and Au=US$1800/oz;
- Costs: Mining costs=US$2.00/t; Milling=US$12.00/t; G&A=US$1.50/t;
- Metallurgical Recoveries:
    - Weathered rock: 68% for Pd, 67% for Pt and 40% for Au;
    - Fresh rock: 71% for Pd, 82.9% for Pt and 85.2% for Au.

Mineral Resources were calculated using a cut-off grade of 0.4 g/t PGE+Au, which correlates to PdEq grade of 0.35 g/t.

A total of 2,197.83 koz of PGE+Au was estimated within all targets.

Regarding the mineral resource estimation, the authors recommend a work program to include the following:

- Validation drillhole collar survey;
- Conduct a new validation of database to confirm accuracy;
- Adopt a drill hole data management system appropriated to the project activities and geological data;
- Execute detailed topographic survey of the main resource deposit areas with appropriated precision to the level of the project;
- Complete additional twin drill holes to check pre-1997 drilling results;
- Continue to implement the QAQC protocols established for the 2020 and 2021 drilling in future programs;
- Conclude ongoing relogging of historical drill holes to standardizing litho-codes and grouping of lithotypes;
- Complete the weathering description for all drillholes, with the recommended addition of sulfur analyses in subsequent drilling programs, to potentially aid in quantitatively defining transitional surface between weathered and fresh domains;
- Conduct geotechnical studies to stablish the stability angle for the mining pits;
- Conduct the hydrological studies aiming to support the mineral reserve studies;
- Conduct drilling programs to improve the mineral resource classification.

An estimated budget for the proposed programs totals approximately $4.6 million CAD. Table 1-5 summarizes the details and approximate costs of this development work.

Table 1-5 Estimated Budget of Proposed Work

Proposed Work			Approximate Cost ($ CAD)
Resource Delineation Drilling			
Diamond Drilling (~11,000 m)	$225 / m	$	2,475,000
Regional Exploration Drilling			
RC Drilling (~3,000 m)	$130 / m	$	390,000
Regional Prospecting			
Soil Samples (3,000 samples)	$25 / sample	$	75,000
Rock/Trado/Trench Samples (3,000 samples)	$40 / sample	$	120,000
Topography			
LiDAR (~4,000 hectares)	$20 / hectare	$	80,000
Advanced Studies			
Metallurgy		$	250,000
Subtotal		**$**	**3,390,000**
Corporate, Site and G&A		$	1,150,000
Contingency		$	100,000
Total		**$**	**4,640,000**

The project has the following opportunities:

- Increase the resource volumes, as many zones remain open along strike and at depth;
- Upgrade mineral resource category by increasing the drillhole density and by continuing the validation of the historic data by the completion of additional twin holes.

The risk associated with project development is water supply, and a hydrological study would help advance the understanding of groundwater resources.

2 Introduction

GE21 has been commissioned by ValOre Metals Corp ("ValOre") to prepare a Mineral Resource Update for the Pedra Branca Platinum Group Elements (PGE) Project in Ceará, Brazil, in accordance with the directives of CIM National Instrument 43-101 (NI 43-101).

The NI 43-101 is used to report mineral exploration results, mineral resources and mineral reserves.

2.1 Qualifications, Experience and Independence

GE21 is a specialized, independent mineral consulting company. The mineral resource estimate was developed by GE21 staff members, who are accredited by the Australian Institute of Geoscientists ("AIG") as "Competent Persons" for the declaration of Mineral Resources and Reserves in accordance with international codes, such as NI 43-101.

All authors of this report have the required qualifications, experience, competence and independence to be considered a "Qualified Person", as defined by NI 43-101.

Neither GE21, nor the Qualified Persons of this report, have, or have had, any material interest vested in ValOre or any of its related entities. GE21's relationship with ValOre is strictly professional, consistent with that held between a client and an independent consultant. This report was prepared in exchange for payment based on fees that were stipulated in a commercial agreement. Payment of these fees is not dependent on the results of this report.

2.2 Qualified Person

The principal Qualified Person with respect to the objectives of this report is Fábio Valério Câmara Xavier, who was responsible for developing the project's geological interpretations and modelling, in addition to activities related to QAQC procedures and the Mineral Resource Estimate. Mr. Xavier, a geologist, is also a member of the Australian Institute of Geoscientists and has more than 19 years experience in working with mining projects, and visited the Pedra Branca project from January 18 to 20, 2022. The visit aimed to understand the nature of PGE mineralization and the processes involved with logging and QAQC. Mr. Xavier is responsible for all sections of this report except for section 13.

Porfirio Cabaleiro Rodriguez is a mine engineer that has 43 years of experience in the field of mineral resource and reserve estimation. He possesses considerable experience dealing with various commodities, such as phosphate, titanium, vanadium, iron, uranium, gold, nickel, and rare earth elements. Mr. Rodriguez is a fellow of the Australian Institute of Geoscientists (FAIG). Mr. Rodriguez is responsible for sub-section 14.10 of this report.

Christopher Kaye is a process engineer with over 35 years' experience in mining and mineral processing, working with operating mines, engineering companies and consulting companies. He has expertise in PGEs, Gold, Silver, Copper, Nickel, Lead, Zinc and Aluminum projects in Australia, Finland, Canada, Zambia, Argentina, Chile, Mexico and the USA, with extensive experience in project development, managing plants, and developing "green-field" projects. Mr. Kaye is responsible for Section 13 of this report.

2.3 Effective Date and Sources of Information

The effective date for the resource estimate, "Effective Date" of March 08, 2022, is based on the date of relevant metallurgical test work data (lock cycle test results). GE21 believes that no relevant data with respect to the mineral resource estimate were produced after this date.

The units of measurement used in this report are all metric, in accordance with the International System of Units ("SI"). The DATUM SIRGAS 2000 was adopted for all maps in this report.

ValOre and its consultants provided GE21 with the information that was used to develop this report, specifically during the execution of the work that is described herein. This work reflects the technical and economic conditions at the time that it was executed. GE21 executed, whenever possible, an independent verification of the data that it received, in addition to field visits in order to corroborate the data. This information was supplied in the form of an exploratory drilling database, certifications, maps, technical reports and a topographical survey. The data is a combination of historical and newly generated information.

2.4 List of Abbreviations

The following abbreviations are used in this report:

Table 2-1: Units, Symbols and Abbreviations

Short Form	Long Form
QAQC	Quality Assurance and Quality Control
km	Kilometre
%	Percent
PGE	Platinum-Group-Elements
C$	Canadian Dollar
ha	Hectare
QPs	Qualified Person
m	Metre
Cu	Copper
Ni	Nickel
S	Sulfur
Au	Gold
mm	millimetre
g/t	Gram/tonne
cm	centimetre

CO_2	Carbon dioxide
3D	Three-dimensional
IDW	Inverse Distance Weight
RC	Reverse circulation
CRM	Certified Reference Materials Company
SRM	Standard Reference Material
PB	Pedra Branca
CCS	Curiú Core Samples
TWMO	Trapiá West Met Outcrop
CMO	Curio Met Outcrop
µm	micrometre
~	Circa, approximately
US$	American dollar
°	degree
BR	Brazilian federal highway
R$	Brazilian Real
CONAMA	"Conselho Nacional do Meio Ambiente"
K	Potassium
Na	Sodium
Ca	Calcium
Fe	Iron
Mg	Magnesium
kV	kiloVolt
Km^2	Square kilometre
kg	Kilogram
SGS	"Société Générale de Surveillance"
WNW	West-NorthWest
NNW-NNE	North- NorthWest – North-NorthEast
N-S	North-South
E-W	East-West
Mt	Million tonne
TTG	Trondhjemite – Tonalite - Granite Suites
ca.	circa
Ma	Million year
NE	North-east
MAIG	Member of the Australian Institute of
FAIG	Fellow of the Australian Institute of
LG	Lerchs-Grossman pit
NE	North-east
EDA	Exploratory Data Analysis
UTM	Universal Transverse Mercator
ROM	Run of Mine
NN	Nearest Neighbour
STL	Steinert Latinoamerica Test Centre
Ga	Giga year
PAX	Potassium Amyl Xanthate
MIBC	Methil Isobutil Carbinol
XRT	X-Ray Transmission
TMS	Trace Mineral Searches

BMS	Base Metal Sulfides
PMA	Particle Mineral Analysis
HARD	Half Absolute Relative Difference
BMWI	Ball Mill Work Index
MS	Microsoft TM
MG	Minas Gerais State, Brazil
Q-Q	Quantile-Quantile
MCAF	Mining Cost Adjustment Factor
CAPEX	Total Investment Cost
OPEX	Operation Costs
pH	Hydrogen ionic potential
CV	Variation Coefficient
DDH	Diamond Drillhole
RC	Reverse Circulation Drillhole
Pd_eq	Palladium Equivalent
PGM	Platinum Group Metals
DGV	Deposit Grade Value
OK	Ordinary Kriging
CIM	Canadian Institute of Mining

3 Reliance on Other Experts

Rodrigo Simões Lessa of FFA carried out a verification of the information on mineral claims and environmental licences. FFA is a law firm specialized in mineral and a legal opinion. The authors have not independently verified ownership or mineral title.

4 Property Description and Location

4.1 Project Location

The Pedra Branca project is located in the northeast region of Brazil in Ceará State, approximately 310 km south of the capital Fortaleza (Figure 4-1). The project is accessible via paved highways BR-020 and/or BR-122 from Fortaleza (approximate 4 hour drive) to the village and project headquarters of Capitão Mor, with BR-020 continuing on to the capital city of Brasilia. An extensive network of existing secondary roads enables excellent access throughout the exploration tenements.

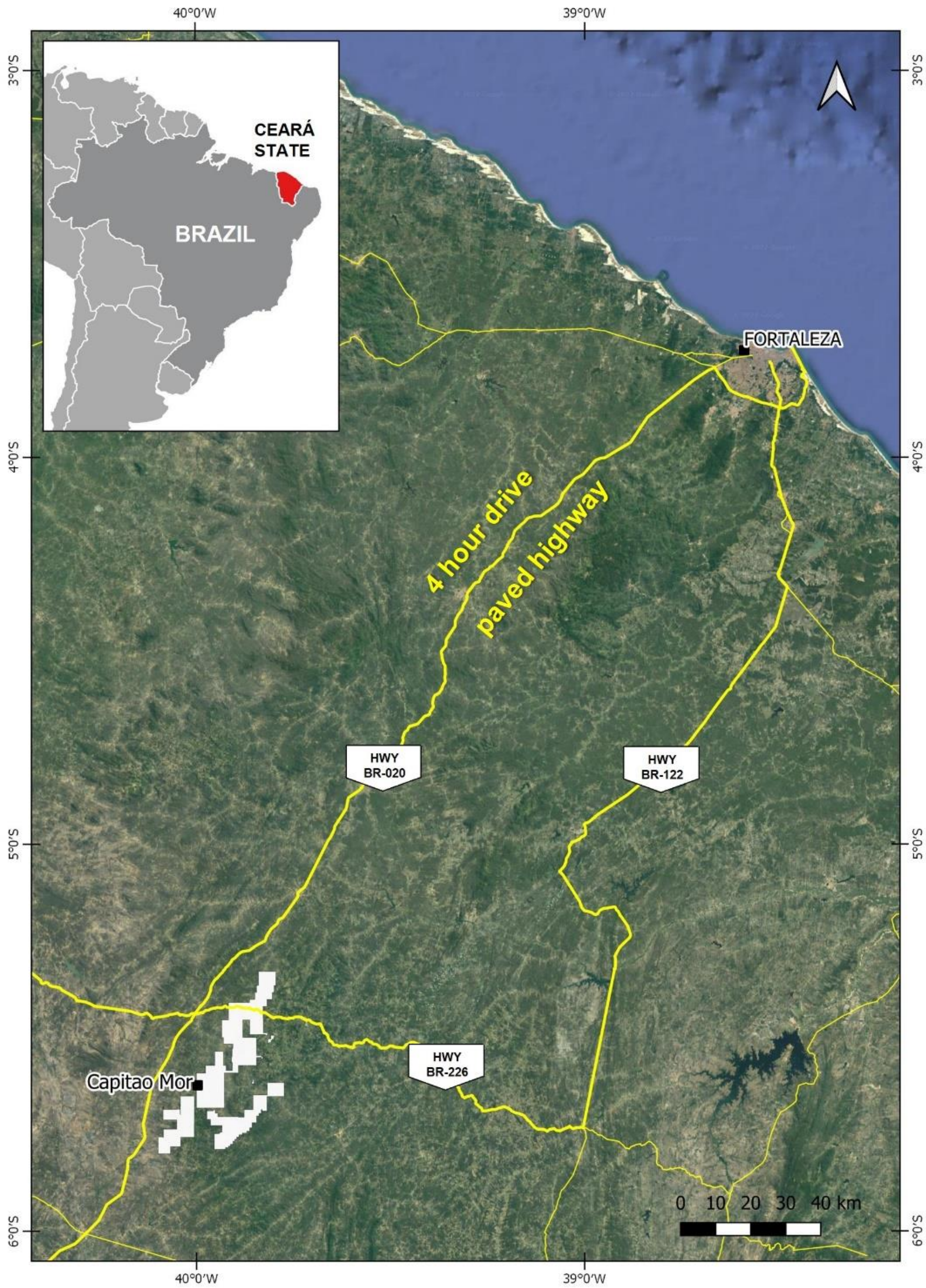


Figure 4-1: Pedra Branca Project Location Map (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

Historical work identified numerous property-wide PGE deposits and prospects, which have been expanded upon and added to by ValOre. This report documents the mineral resources estimated at the Trapiá, Cedro, Esbarro, Curiú, Santo Amaro, Massapê and Cana Brava deposits, as located in Figure 4-2.

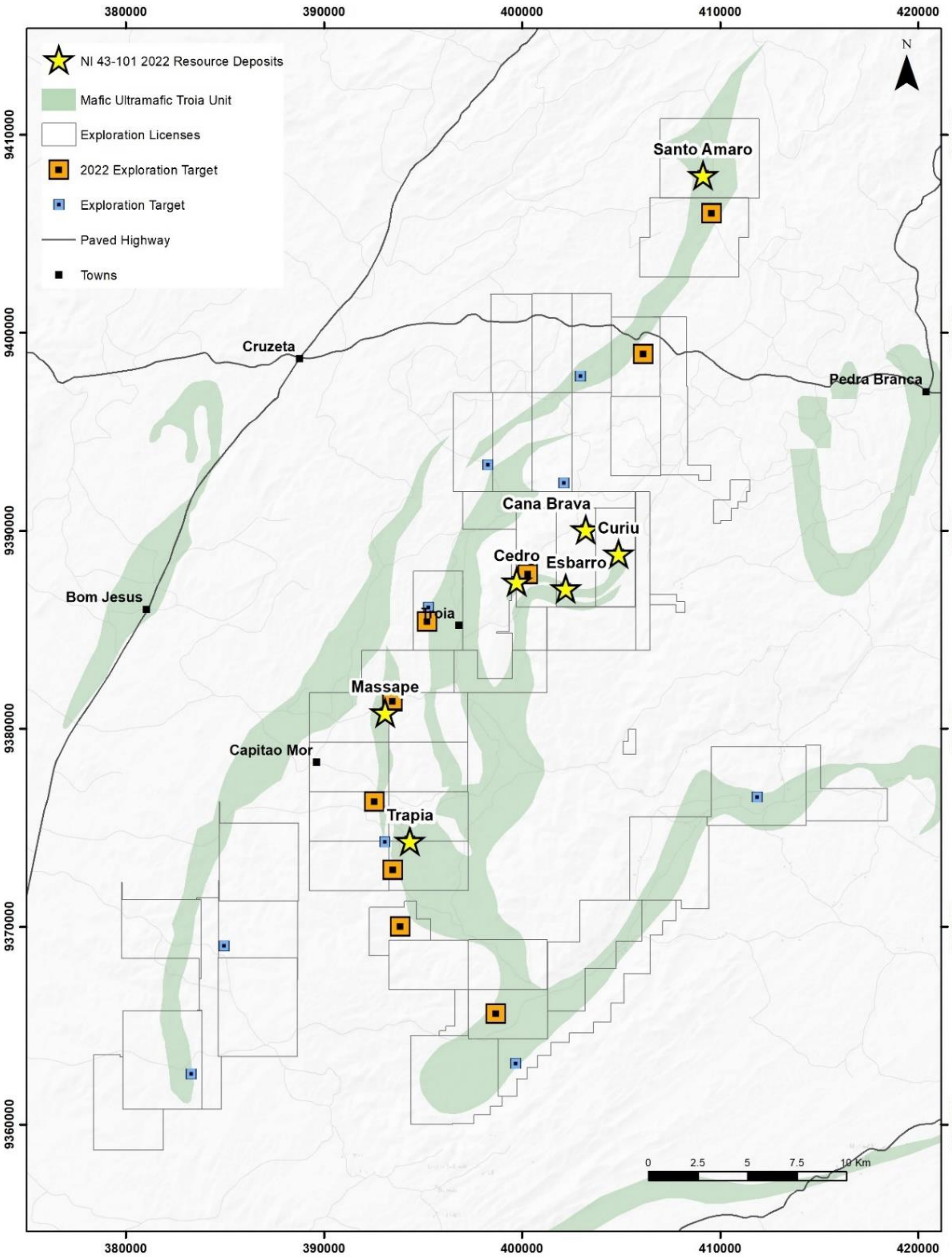


Figure 4-2: Location of the PGE-Au Deposits and Prospects at the Pedra Branca Project. (Source: Thiago Diniz, P.Geo – ValOre).

4.2 Project Ownership and Licenses

4.2.1 Brazil Mining Governance

Brazil has a complex regulatory framework for the mining sector, with jurisdiction and approval processes divided among municipal, state, and federal governments. At the federal level, there are three key government agencies – the Ministry of Mines and Energy ("MME"), the National Mining Agency ("ANM"), formerly known as the National Department of Mineral Production or ("DNPM"), and the Geological Survey of Brazil ("CPRM/SGB").

The Law No. 227/1967 ("Mining Code") grants authority to the MME and the environmental protection authorities, especially the Brazilian Environmental and Renewable Resources Institute ("IBAMA") and the Federal Environmental Protection Agency ("EPA"), which, along with the DNPM, are the main regulatory bodies supervising mining activities. The enactment of Law No. 13,575/2017 resulted in the creation of the ANM to replace the DNPM. The main legislation regulating mining activities in Brazil is the Mining Code and Law No. 13,575/2017. Law No. 13,540/2017 provides for modifications to the mining royalties legal framework. Law No. 9,406/2018 approves new Mining Code Regulations.

Although primarily regulated by the Federal Constitution and federal laws, mining activities are also subject to state and municipal laws, particularly on taxes, environmental and soil usage matters.

The ANM is the federal agency entitled to regulate mining activities in Brazil. Mineral exploration licenses are granted by the ANM, and development concessions are issued by the MME. The ANM has the responsibility of managing Brazil's Mineral Resources, including the supervision of the mining activity and the enforcement of mining related laws. CPRM/SGB, Brazilian Geological Survey, is responsible for collecting information on the country's geology, minerals and water resources.

The Ministry of Environment is responsible for developing environmental regulations. While the National Council of Environment ("CONAMA") implements these regulations, IBAMA acts as the primary licensing entity.

4.2.2 Mineral Licenses in Brazil

Mineral tenements in Brazil are granted subject to various conditions prescribed by the Brazil Mining Code, including rental payment and reporting requirements, and each tenement is granted subject to standard conditions that regulate the holder's activities or are designed to protect the environment. Mineral tenements in Brazil generally comprise Prospecting Licenses, Exploration Licenses and Mining Licenses.

The holder of a granted Prospecting License, Exploration License or Mining License is not required to spend a set annual amount per hectare in each tenement on exploration or mining activities. Therefore, there is no statutory or other minimum expenditure requirement in Brazil. However, annual rental payments are made to the ANM, and the holder of an Exploration License must pay rates and taxes, ranging, based on the current exchange rate, from R$ 4.09 to R$ 6.13 per hectare, to the Local Government.

Lodging a caveat or registering a material agreement against the tenement may protect various interests in a Mining License.

If a mineral tenement is located on private land, then the holder must arrange or agree with the landowners to access the property.

Prospecting Licence

A Prospecting Licence entitles the holder, to the exclusion of all others, to explore for minerals in the area of the licence, but not to conduct commercial mining. A Prospecting Licence may cover a maximum area of 50 ha and remains in force for up to 5 years. The holder may apply for a renewal of the Prospecting Licence which is subject to approval by ANM. The period of renewal may be up to an additional 5 years.

Exploration Licence

An Exploration Licence entitles a holder, to the exclusion of all others, to explore for minerals in the area of the licence, but not to conduct commercial mining. The maximum area of an Exploration Licence is 2,000 ha outside of the Amazonia region and 10,000 ha within the Amazonia region (Amazonas, Para, Mato Grosso, Amapá, Rondônia, Roraima and Tocantins States). An Exploration Licence remains in force for a maximum period of 3 years and can be extended by no more than a further 3 year period. Any extension is at ANM's discretion and will require full compliance with the conditions stipulated by the Mining Code that must be outlined in a report to ANM applying for the extension of the licence.

Once all legal and regulatory requirements have been met, exploration authorisation is granted under an Exploration Licence, granting the holder all rights and obligations relating to public authorities and third parties. An Exploration Licence is granted subject to conditions regulating to the conduct of activities, which includes the obligation to commence exploration work no later than 60 days after the Exploration Licence has been published in the Federal Official Gazette and not to interrupt it without due reason for more than three consecutive months or 120 non-consecutive days, to perform exploration work under the responsibility of a geologist or mining engineer, legally qualified in Brazil, to inform ANM of the occurrence of any other mineral substance not included in the exploration permit and to inform ANM of the start or resumption of the exploration work and any possible interruption.

If the holder of an Exploration Licence proves the existence of a commercial ore reserve (as defined in the Mining Code) on the granted Exploration Licence, the ANM cannot refuse the grant of a Mining Licence with respect to that particular tenement if the licence holder has undertaken the following:

- An exploration study to prove the existence of a Mineral Resource;
- A feasibility study on the commercial viability of the Mineral Resource; and
- The grant of an Environmental Licence to mine on the particular tenement.

Mining Licence

A Mining Licence entitles the holder to work, mine and take minerals from the mining lease subject to obtaining certain approvals. Mining rights can be denied in very rare circumstances, where a public authority considers that a subsequent public interest exceeds that of the utility of mineral exploration, in which case the Federal Government must compensate the mining concession holder.

A Mining Licence covers maximum areas ranging from 2,000 ha to 10,000 ha, depending on the geographical area, as detailed above, and remains in effect indefinitely. The holder must report annually on the status and condition of the mine.

As with other mining tenements, a Mining Licence is granted subject to conditions regulating activities. Standard conditions regulating activities include matters such as:

- The area intended for mining must lie within the boundary of the exploration area;
- Work described in the mining plan must be commenced no later than six months from the date of official publication of the grant of the Mining Licence, except in the event of a *force majeure*;
- Mining activity must not cease for more than six consecutive months once the operation has begun, except where there is proof of *force majeure*;
- The holder must develop the deposit according to the mining plan approved by the ANM;
- The holder must undertake the mining activity according to environmental protection standards detailed in an Environmental Licence obtained by the holder;
- The holder must pay the landowner’s share of mining proceeds according to values and conditions of payments set forth by law, which is a minimum of 50% of “CFEM” (Financial Compensation for the Exploration of Mineral Resources – the consideration paid to the Government of Brazil for the extraction and economic exploration of Brazilian mineral resources), but it is usually agreed to be higher under a contract between the holder of the Mining Licence and the landowner;

- The holder must pay financial compensation to the State and local authorities for exploiting mineral resources by way of a Federal royalty, the CFEM, which is a maximum of 3% of revenue, but varies from state to state.

An application for a Mining Licence is granted solely and exclusively to individual firms or companies incorporated under Brazilian law, which will have a head office, management and administration in Brazil, and are authorised to operate as a mining company.

4.2.3 Mineral Rights for Pedra Branca Project

The mineral rights to the Pedra Branca project are held under a series of Exploration Licences in the name of a Brazilian holding company, Pedra Branca do Brasil Mineração Ltda. ("PBBM"). On May 24, 2019, ValOre entered in an agreement with Jangada Mines PLC ("Jangada") to purchase 100% interest in their holdings of PBBM (ValOre press release, May 28, 2019, and updated ValOre press release, July 16, 2019).

Under the agreement, ValOre has agreed to the following considerations to Jangada:

- Issuance and allotment of a total of 25,000,000 ValOre common shares ("Consideration Shares"), with 22,000,000 of those being issued on the date of closing of the Acquisition and the remaining 3,000,000 issued over 3 years according to terms agreed between ValOre and Jangada; and
- Cash payments to Jangada in the aggregate of C$3,000,000, as follows:
    - Exclusivity payments totalling C$250,000 (paid);
    - C$750,000 payable on closing of the Acquisition;
    - C$1,000,000 on, or before, three (3) months after the closing of the Acquisition; and
    - C$1,000,000 on, or before, six (6) months after the closing of the Acquisition.

There is a net smelter returns royalty ("NSR") agreement, and subsequent royalty transfer agreement, appertaining to the project under which the owner ultimately grants and agrees to pay a 1% NSR royalty to Silverstream SEZC in the event that the owner (or any successor or assignor) of the project brings the underlying properties or any portion thereof into commercial production.

A total of 51 Exploration Licences held over an area of some 55,819 ha. Of these, final exploration reports have been submitted for three licenses (one at Curiú, two at Esbarro) with the intention of advancing to development. Brazilian mining law offers a provision for title holders to submit final exploration reports and subsequently apply for a postponement of development. In normal circumstances the title holder would have to start the process of development within 6 months of submission of the final report. The postponement is granted for 3 years at a time and has been granted for each of the aforementioned 3 licences. This allows the title holder to maintain ownership and good standing of a licence, and enables the alignment of further technical studies, fundraising, or more favorable market conditions (i.e. metal prices).

The legal status of the mineral tenure, ownership of the project area and underlying property agreements or permits has not been independently verified by the QPs. This verification was caried out by Mr. Rodrigo Simões Lessa, a lawyer with the firm FFA located in Rio de Janeiro, Brazil, regarding the status and validity of the Exploration Licenses.

The letter is dated February 16, 2022, and states that Branca do Brasil Mineracao Ltda. is currently the owner of the Esbarro, Cedro, Curiú and Cana Brava prospects through Exploration Licenses 800.097/1999 (Curiú), 800.096/1999 and 800.698/2014 (Cedro) and 800.095/1999 (Esbarro and Cana Brava) and also Trapiá (800.411/2014, 800.413/2014, 800.415/2014 and 800.561/2021), Santo Amaro (800.124/2014 and 800.133/2014), and Massapê prospect (800.412/2014).

The licences are only valid for platinum group minerals but the other elements (Au, Ni, Cu, Co etc.) are perceived to be "by products" in Brazilian law and therefore are covered by the licences.

A summary of the details of the licences is provided in Table 4-1 and a map of the exploration tenements is included in Figure 4-3.

Table 4-1: Summary of Exploration Licences Encompassing the Pedra Branca Project.

#	PROCESS	TITLE HOLDER	AREA (ha)	PHASE	ISSUE DATE	EXPIRY DATE
1	800.138/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,159	Exploration License Extended	2018-01-17	2022-07-20
2	800.139/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2018-01-17	2022-07-20
3	800.373/2013	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	999	Exploration License Extended	2019-10-01	2024-03-28
4	800.374/2013	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	580	Exploration License Extended	2019-10-01	2024-03-28
5	800.375/2013	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	976	Exploration License Extended	2019-10-01	2024-03-28
6	800.124/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-09-12	2024-03-14
7	800.126/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-10-01	2024-03-28
8	800.133/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-09-12	2024-03-14
9	800.137/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	2,000	Exploration License Extended	2019-09-12	2024-03-14
10	800.140/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,569	Exploration License Extended	2019-10-01	2024-03-28
11	800.236/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,196	Exploration License Extended	2019-09-12	2024-03-14
12	800.410/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	999	Exploration License Extended	2019-10-01	2024-03-28
13	800.411/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
14	800.412/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
15	800.413/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
16	800.415/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
17	800.515/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,146	Exploration License Extended	2019-09-12	2024-03-14
18	800.698/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	483	Exploration License Extended	2019-09-12	2024-03-14
19	800.700/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
20	800.705/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14

#	PROCESS	TITLE HOLDER	AREA (ha)	PHASE	ISSUE DATE	EXPIRY DATE
21	800.706/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	746	Exploration License Extended	2019-09-12	2024-03-14
22	800.707/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
23	800.712/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
24	800.713/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
25	800.714/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
26	800.715/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-09-12	2024-03-14
27	800.152/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-08-22	2024-02-13
28	800.159/2014	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2019-08-22	2024-02-13
29	800.495/2016	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License Extended	2020-03-06	2024-09-01
30	800.095/1999	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Final Report Presented	2019-03-07	2022-09-10
31	800.096/1999	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Final Report Presented	2019-03-07	2022-09-10
32	800.097/1999	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Final Report Presented	2019-03-07	2022-09-10
33	800.002/2018	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	960	Exploration License	2019-03-14	2023-09-14
34	800.060/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	97.07	Exploration License	2019-08-29	2024-02-21
35	800.061/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	567.81	Exploration License	2019-08-29	2024-02-21
36	800.062/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	66.18	Exploration License	2019-08-29	2024-02-21
37	800.063/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	188.96	Exploration License	2019-08-29	2024-02-21
38	800.064/2019	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	207.9	Exploration License	2019-08-29	2024-02-21
39	800.218/2020	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,046	Exploration License	2021-01-27	2024-09-25
39	800.557/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,805	Exploration License	2022-02-08	2025-02-01
40	800.558/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,884	Exploration License	2022-02-08	2025-02-01
42	800.559/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,928	Exploration License	2022-02-08	2025-02-01
43	800.560/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,525	Exploration License	2022-02-08	2025-02-01
44	800.561/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
44	800.565/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
45	800.566/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,738	Exploration License	2022-02-08	2025-02-01
46	800.567/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	989	Exploration License	2022-02-08	2025-02-01
47	800.574/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
48	800.575/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,000	Exploration License	2022-02-08	2025-02-01
49	800.576/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	1,135	Exploration License	2022-02-08	2025-02-01
51	800.636/2021	PEDRA BRANCA DO BRASIL MINERAÇÃO LTDA	868	Exploration License	2021-12-17	2024-12-01

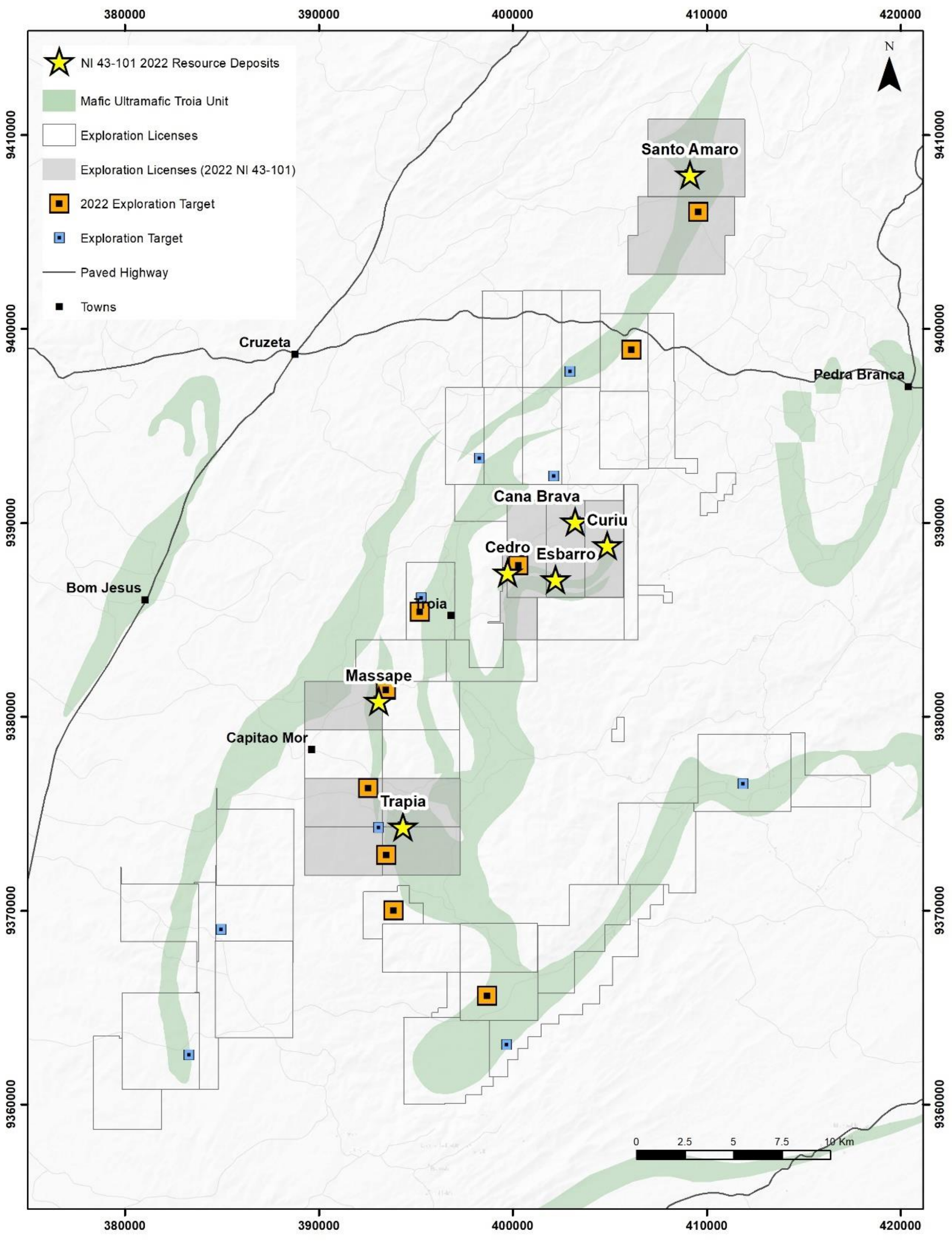


Figure 4-3 Location of Pedra Branca Exploration Licences (February 16, 2022) (Source: Thiago Diniz, P.Geo – ValOre).

4.3 Surface Rights

Brazilian law entitles landowners to receive various payments during mineral exploration and mining operations, including revenues for the occupation and use of the land, and compensation for the damage caused to the landowner's property. The payable amounts must be negotiated between the landowner and the mineral licence holder.

Surface rights in the Pedra Branca area are owned by small scale subsistence farmers who own properties varying in size from a few hectares to as large as 300 ha. During the exploration and drilling campaigns carried out by ValOre since acquisition, the company held temporary contractual access to their licence areas with the farmers for the period of work. In return, the landowners were compensated for any loss or damage to vegetation and/or crops.

Should the Company proceed to the mining phase, consideration will be given to purchasing the land as opposed to leasing with royalty agreements (common practice in Brazil).

4.4 Social and Environmental Considerations

4.4.1 Regulatory Framework

According to the Federal Constitution, the Federation, the states and the Federal District have legislative competence in environmental matters. In addition, it is the responsibility of municipalities to legislate on matters of local interest. Therefore, Brazilian environmental legislation has a high diversity of laws and administrative acts, which affect mining activity.

Article 225 of the Brazilian Constitution requires reclamation and rehabilitation of mined out areas by the operators. All possible polluting activities are required to be licensed under the terms of the Brazilian National Environmental Policy (Federal Law 6.938 of August 13, 1981).

Regulations for the administration of Environmental Policy are established by CONAMA’s Resolution 237 issued on December 19, 1997. CONAMA sets the conditions, limits and the control and use procedures for natural resources and permits implementation and operation of projects. Licenses are issued by either a federal, state or a municipal agency.

The National Environmental Council through Resolution 237/97 has established a three-stage licensing process for mining projects in Brazil:

- Preliminary Licence at the planning stage of development:
    - Requires approval by the relevant Environmental Authority of the project EIA/RIMA and plan for the recovery of degraded areas;
    - Indicates environmental viability of project;
    - Location and concept approval, subject to a specific EIA and a formal public hearing.
- Installation Licence:
    - Authorises project initiation and construction according to specifications contained in the approved EIA or Environmental Assessment (“EA”), as well as the Environmental Control Plan.

- Operation Licence
  - Authorises the start of operations;
  - Requirement to demonstrate establishment of all the environmental programmes and control systems required to mine, process and sell mineral substances;
  - Granted once the Environmental Authority has inspected the site and verified that construction was completed in keeping with all the requirements of the Installation License, and that the environmental control measures and other conditions of the Installation License have been satisfactorily implemented.

In Ceará State, environmental licensing or permitting is the responsibility of Superintendência Estadual do Meio Ambiente ("SEMACE"). Licences and authorisations are granted based on an analysis of the environmental studies that have been completed to date. This analysis considers the objectives, criteria and norms for the conservation, preservation, protection and improvement of the environment, the possible cumulative impacts and the planning and land use guidelines of the State. For mining projects that are exceptionally large, as it is the case of Pedra Branca, the preparation of the EIA and RIMA must comply with the Reference Term Sheet issued specifically for the project and the report will be reviewed by SEMACE in agreement with COEMA.

In addition to the environmental licence process and according to Resolution 237/97, requirements of the preliminary licencing phase also include:

- Approval for water resources use by Secretary of Water Resources of the State of Ceará according to the State Decree No. 31.076, from 17 November 2012 and Federal Decree No. 24,643, from 10 July 1934;
- Authorisation for Forest Exploration ("APEF") which is required in cases where there is change in the Surficial Deposit usage or vegetation suppression;
- Authorisation for disturbance of vegetation in Permanent Protected Areas ("APP") or in Units of Conservation ("UC") by the Authorised Environmental entity.

4.4.2 Environmental Aspects and Permits

An Environmental Viability Study ("EVA") was completed by SSA for the Pedra Branca project, which will be a basis for any advanced study requested by SEMACE. The EVA includes environmental baseline studies carried out as part of the preparation of the EIA/RIMA. An EIA/RIMA needs to be undertaken for the project site.

The RIMA will allow the identification of a number of potential environmental impacts, including stripping and mining bench preparation, drilling and blasting, waste loading and transportation, mineral processing, waste and tailings disposal access opening and ancillary works.

Once the mine advances to development and operation, the following impacts, amongst others, are expected:

- Vegetation and soil will be disturbed by stripping and bench preparation. Erosion will then increase, and surface quality water will be impacted, which can be mitigated through appropriate control procedures;
- Drilling, blasting and processing activities will generate dust, vibration and noise. Measures should be taken to minimise the effects of these on the environment, such as installation of sprinklers to control dust;
- Waste generated by sampling and mining activities, as well as wastewater, should be properly disposed of to minimise environmental impacts;
- Effluents from flotation from the beneficiation plant should be stored in the designed retention dam;
- A stormwater drainage system should be established in the project area to control the impact of heavy rain erosion, avoiding environmental impacts on the natural drainage network;
- Berms with cross slopes within the mining area will control internal drainage;
- Rehabilitation should include topographic and landscaping reconstruction, stabilisation of topsoil and revegetation. The immediate objectives will be aesthetics, erosion control and drainage.

Currently, no environmental or water use permits are held or required for Pedra Branca.

Should the project advance to mining, full applicable environmental permitting will be necessary. In addition, a mine closure plan detailing rehabilitation of the land post-mining as well as an economic development plan will have to be developed and approved by the authorities. There is currently no legislative requirement in Brazil for rehabilitation guarantees related to the closure of a mine and the recovery of the damaged area.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Accessibility

Access to the project area is via paved Brazilian state Highway BR-020 that connects Fortaleza to Brasilia (approximate 4 hour drive). At the town of Bom Jesus, 260 km by road from Fortaleza, a secondary road exits to the village of Capitão Mor, located 18 km to the east.

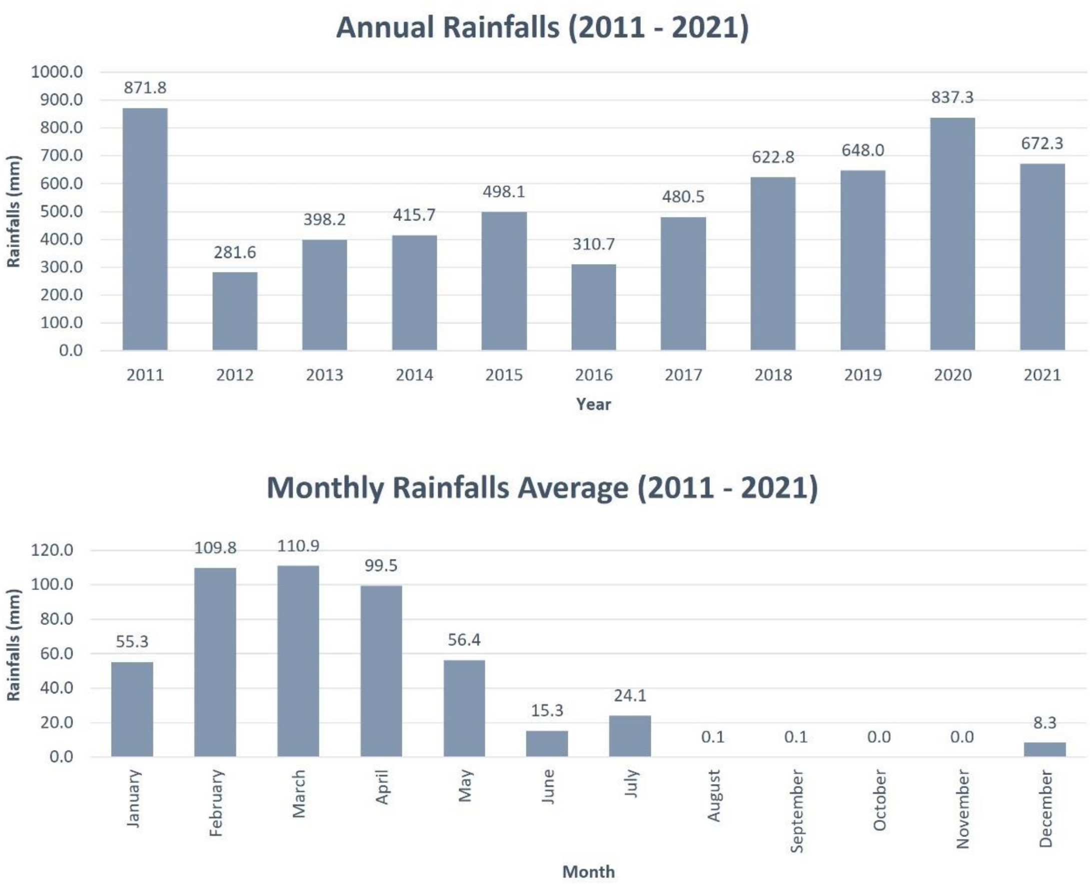
Capitão Mor is in the central-west project area and serves as the operations headquarters. An extensive network of secondary roads and jeep tracks provide access throughout the exploration tenements.

5.2 Climate and Physiography

According to the Köppen classification in the Climatological Atlas of Brazil published in 1969 Pedra Branca project area is located in the BSwh type climate characterized by a very hot climate, semi-arid, with an annual dry season up to ten months.

The semi-arid climate in this region has the highest temperatures occurring in the month of November with an average of 25°C. The month of June has the average temperature of 23°C with the lowest average during the year (Climate-Data.org).

The wet season can last from 4 to 5 months from January to May. The Figure 5-1 shows the historical rainfall in the last 10 years in this region and the Monthly average of rainfalls from the same period, from FUNCEME.



Data source: Fundação Cearense de Meteorologia e Recursos ("FUNCEME")

Figure 5-1 Historical Rainfall Indexes in the Pedra Branca Project Region (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

The Physiography of the Pedra Branca project is characterized by plateaus, rolling hills, valleys, and exposures of heavily fractured rocks that are favourable to water percolation (Figure 5-2).

Figure 5-2 Photos of Landforms, Topography at Pedra Branca Project (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

Residual soils are typically clay-rich, with high compressibility and good stability on slopes, making them suitable for use in civil works. The soils are derived from metamorphic and meta-ultramafic rocks usually with high content of K, Na, Ca, Fe and Mg, which add strong fertility to support cultivation.

5.3 Local Resources and Infrastructure

The Municipalities of Pedra Branca, Mombaça and Tauá host mainly small agricultural properties, with predominantly monoculture cropping of grains (corn and beans) seasonally. With the closure of an old cotton oil processing facility, the region relies only subsistence agriculture.

Primary and secondary schools are present in the towns and in most villages including Pedra Branca, Tauá and Boa Viagem.

Companhia Energética do Ceará - ENEL (previously COLECE) is the company responsible for supplying electric power in the Pedra Branca region. A 69 kV network connects from the Senador Pompeu Substation located in the District of Minerolândia (municipality of Pedra Branca).

Capitão Mor is in the central-west area of the project and serves as the operations headquarters. The village has a population of approximately 1000 people, and extensive infrastructure, including: electrical power, housing, potable water, Wi-Fi internet and a large core storage and logging facility. An extensive network of secondary roads and trails provides access throughout the exploration tenements.

6 History

The Pedra Branca complex was discovered in the 1960's by local government geologists who were exploring the area for its chromite potential and by 1969, 5 holes were drilled into the Esbarro Deposit ("Esbarro").

The project then sat idle until 1985, when South African-based Gencor and Rio Tinto identified chromite-associated platinum-palladium mineralization. Targeting separate areas on the ultramafic belt, the companies completed airborne magnetic and radiometric surveys, as well as mapping, soil sampling and trenching. The work resulted in the discovery of 10-15 showings of chromitite and copper-nickel soil geochemical anomalies. Rio Tinto focused on the most northerly (at that time) chromite occurrence, Esbarro, and drilled a total of 42 drill holes over an 800 m strike length, with 13 of the holes intersecting the chromite horizon. Meanwhile, Gencor targeted the central and southern portions of the ultramafic belt carrying out trenching and drilling eight holes into the Trapiá 1 and Trapiá 2 showings. Both Rio Tinto and Gencor ceased exploration following a slump in platinum and palladium prices.

As the price of platinum and palladium started to increase in the late 1990s, Altoro Gold (since merged with Denver-based Solitario Resources), acquired the project and started drilling in 1999.

In January 2003, Anglo American Platinum ("Amplats") signed a joint venture agreement with Solitario Resources ("Solitario") and carried out significant exploration programs for the next 11 years, ultimately securing a majority ownership in 2011.

Jangada acquired the project from Amplats in 2015, and advanced various facets of Pedra Branca until ValOre's 2019 acquisition.

6.1 Exploration History

Solitario and Amplats advanced the project through several exploration programs, including:

- Extensive drilling on the main deposits bringing (30,000 m drilled by 2014);
- Resource estimate and scoping study in 2005;
- Drill core based metallurgical test work in 2005 and 2006;
- Ground geophysics, target generation and drilling 2007 to 2012;
- Resampling of all historic 1999 to 2004 drill core in 2011 to 2012;
- Mineral resource estimate in 2012;
- Regional scale airborne geophysics 2013;
- Additional metallurgy test work in 2013;
- Geophysics target regeneration and exploration drilling in 2014.

Extensive work throughout the history of the Pedra Branca has identified a number of advanced stage targets with significant PGE mineralization throughout the district, demonstrating metal occurrence in the regional geological system and district-scale exploration potential.

Jangada integrated all the available information validated by Amplats and carried out their own validation program, which included exploration drilling at the Massapê target and metallurgical drilling at Esbarro deposit.

The exploration database consists of data resulting from field mapping, remote sensing, geological mapping, soil sampling programs, ground geophysics magnetic work, airborne geophysics, diamond drilling, topographic survey, chemical analysis and petrography.

6.2 Exploration Work

6.2.1 Field Mapping and Sampling

Extensive field mapping and soil sampling campaigns have been conducted in the Pedra Branca project area by various companies since the 1960’s. The entire field mapping data set, geological maps and chemical analyses have been preserved.

Soil and stream sediment sampling have also proven effective at evaluating near-surface PGE occurrences. Soil sampling was typically conducted by digging down to a depth of 50 to 80 cm (C-horizon) and collecting 2 to 3 kg of sample. A sample spacing of 20 to 30 m and a line spacing of 100 to 200 m was typically conducted. Figure 6-1 illustrates historical soil sampling at Pedra Branca (25,678 samples total).

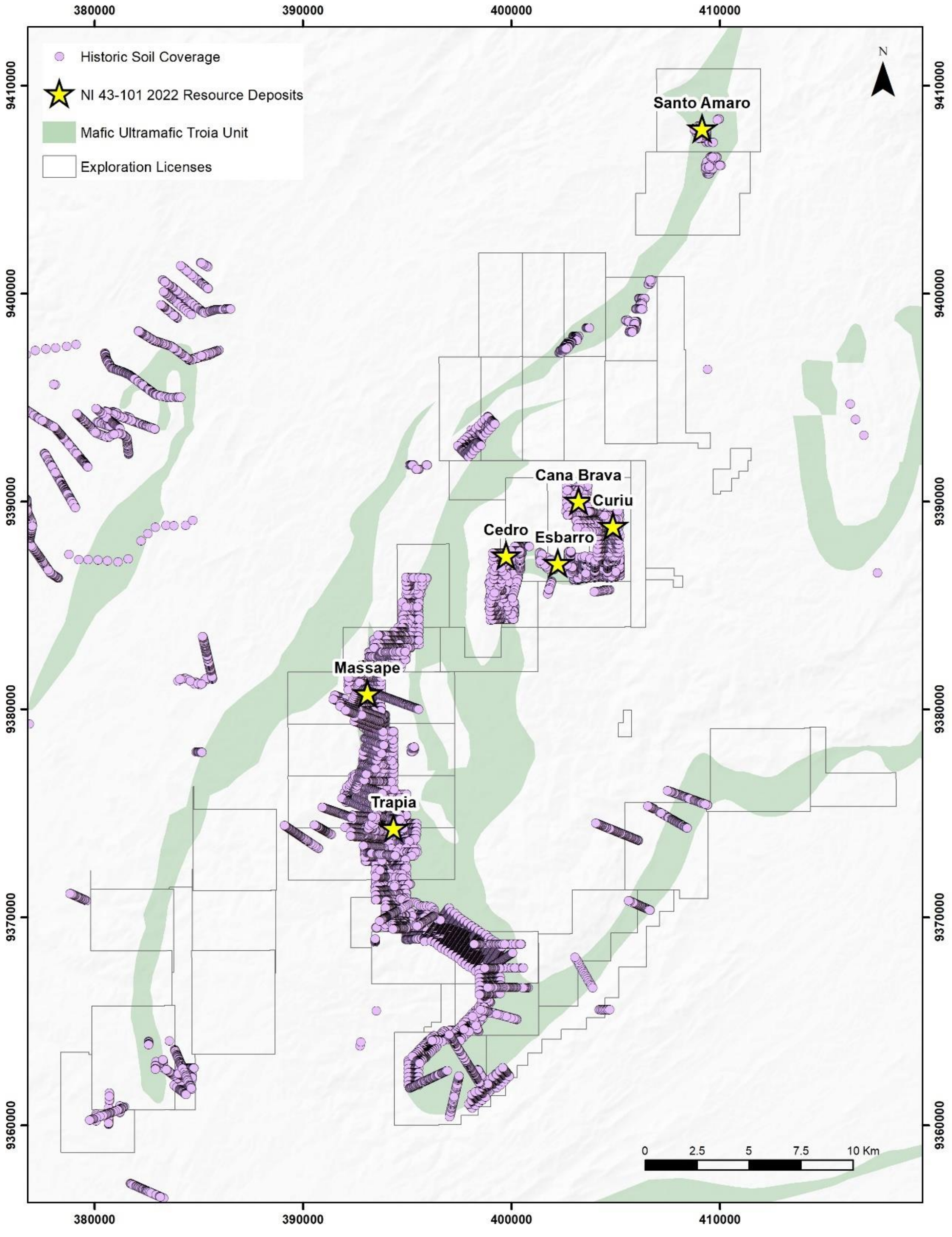


Figure 6-1 Map Showing the Location of Soil Samples Taken at Pedra Branca Project. (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

A government stream sediment dataset was obtained over the project, with a sampling density of approximately 1 sample per 2 km^2 (Figure 6-2).

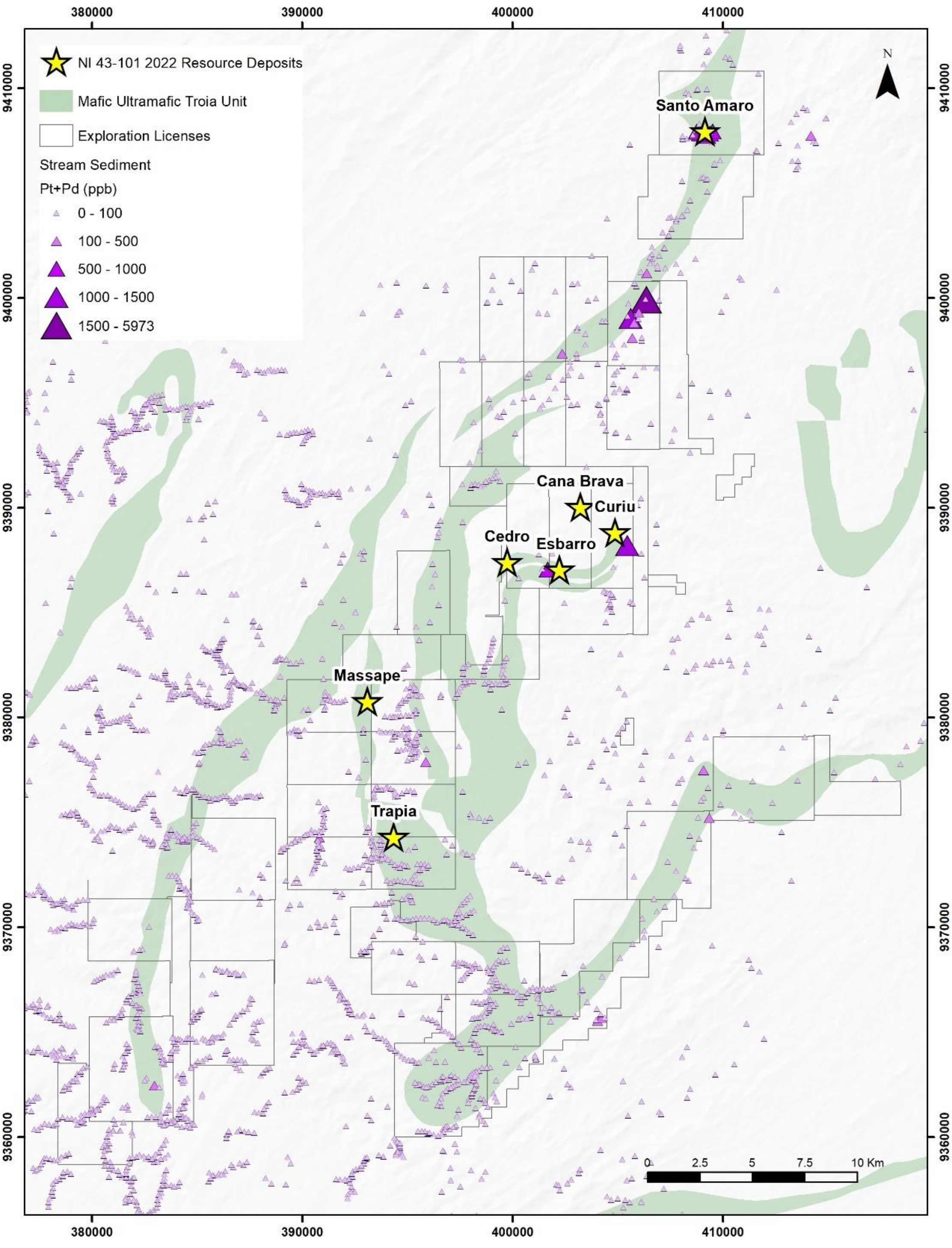


Figure 6-2: Map Showing Stream Sediment Sample Locations at Pedra Branca (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

6.2.2 Remote Sensing

6.2.2.1 ASTER Mineral Mapping

Amplats purchased two adjacent ASTER ("Advanced Spaceborne Thermal Emission and Reflection Radiometer") scenes over the Pedra Branca exploration area in 2006. The main objective of the project was to process the data and provide information to aid the regional exploration in the area.

The system and data correction of ASTER Level 1A data was done using routines and procedures developed by Amplats. Enhanced imagery, mineral abundance maps, and litho-spectral and structural interpretation results were generated from the data by applying standard as well as customized algorithms.

Integrated interpretation provided information into litho-structural domains of the Pedra Branca area. Three major structural trends were defined, including: WNW, NE and NNW-NNE trending faults. Major spectral domains associated with vegetation, mafic and ultramafic rocks, and soils were regionally mapped, resulting in new areas of interest for exploration.

The prospects along the Trapiá, Esbarro and Santo Amaro trends lie in the vicinity of the cross cutting linear structures. Spectral signatures of the prospects along the Esbarro trend show a mixture of Vegetation and Mafic Soil assemblages with Intermediate Silica Soils extracted over the Esbarro West prospect. The spectral domains over the prospects along the Santo Amaro and Trapiá trends show similarities with the Mafic and Silica mixed assemblages.

The selected AOIs lie along the cross-cutting faults. Three prospects in the west along the Trapiá trend were mapped within the Silica and Intermediate Silica spectral domains. Mineral assemblage associated with these areas appears to be representative of kaolinite ±mica mineral assemblage. Spectral signatures of the remaining AOI's along the Santo Amaro and Esbarro trends are associated with Mafic spectral domains, and Iron Oxide occurrences. The area is dominated by a dense vegetation hence the mixing of the vegetation with the mapped Mafic Soils.

6.2.3 Geophysics

6.2.3.1 Ground Geophysics

Ground magnetometry work was conducted by Altoro Ltd. in the early 2000's over historic target areas and areas where exploration drilling had been focused. The purpose of this geophysical work was to determine the extent and geometry of targets.

The initial processing was done with data normalized to the equator, but this proved problematic in detecting anomalous ultramafic rocks which, at times, demonstrate very small magnetic signature differences compared to the country rock.

The data was reprocessed in 2008 and normalized to the poles. This reprocessed data and the resultant images were found to be a better fit to the actual body geometries and better guided exploration work on a local scale.

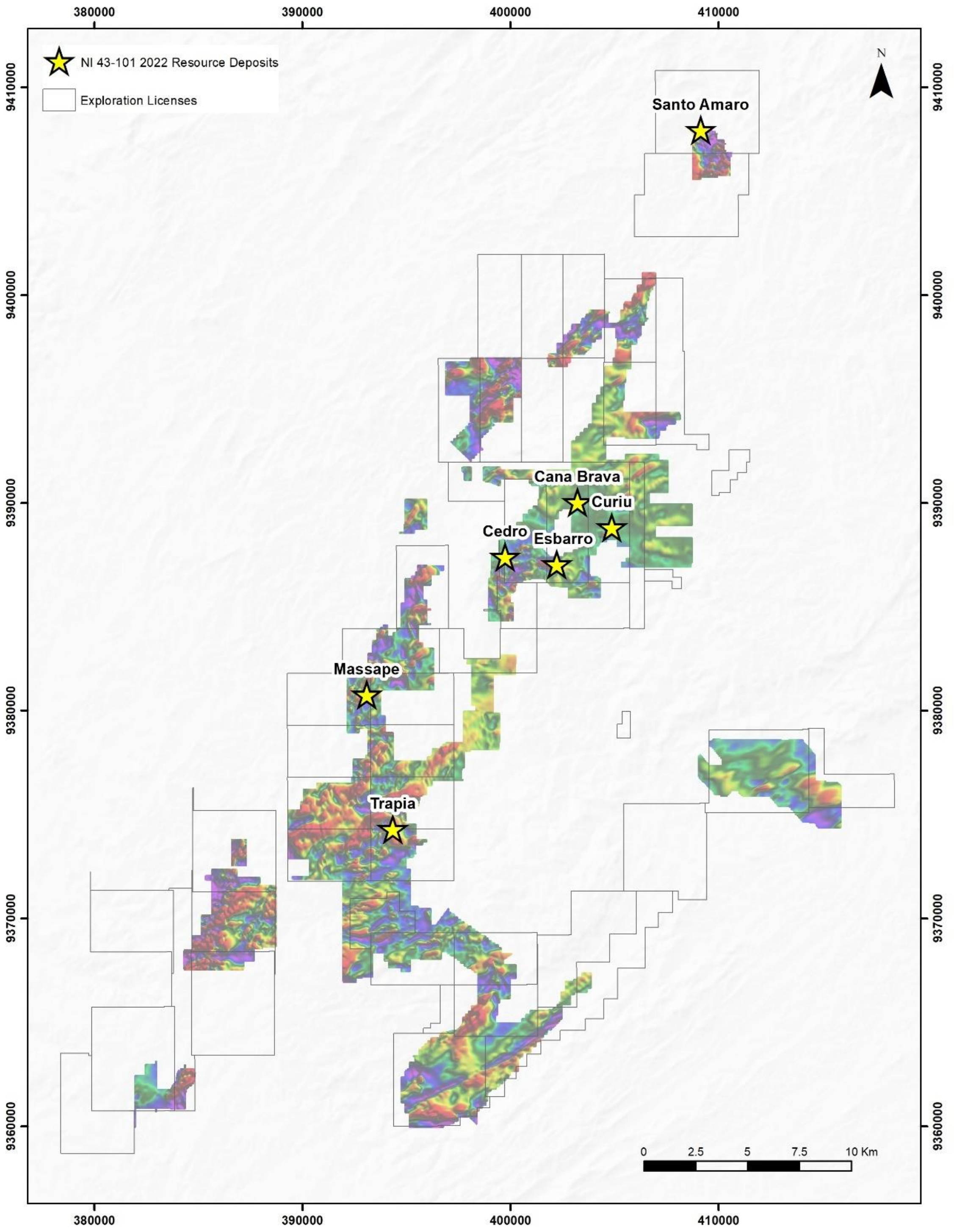


Figure 6-3: Ground Magnetometry Coverage in the Property Showing Analytical Signal. (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

6.2.3.2 *Airborne Magnetic Survey*

The 2013 airborne magnetic survey provided the project with a definitive regional tool to guide exploration going forward. The survey was conducted using a fixed wing aircraft and flight lines were spaced at 50 m covered an area of 80,000 ha.

Extensive work has been carried out on the target areas to understand and delineate the separate, deposits by previous operators of the project. Regional mapping and sampling campaigns across the project area located most of the ultramafic outcrops. Limited ground magnetic surveys further assisted in delineating the buried extents of known deposits.

The Tróia Unit (“TU”) was historically interpreted to be a continuous sill that has been, to various degrees, dismembered by several phases of tectonic restructuring. It is not known how much of the sill had been preserved in areas of cover.

Amplats decided to use a regional, airborne magnetic and radiometric survey to gain insight into the TU structure and extent, and to investigate the subsurface potential throughout the project area. The final survey area included the areas over Curiú, Esbarro, Cedro and Trapiá, the central preserved core of the mega-sigmoidal structure associated with Pedra Branca.

The survey was carried out by Prospectors Aerolevantamentos e Sistemas Ltda using a Piper Navajo Chieftan PA31-350 fitted with 3 high resolution cesium magnetometers and a gamma spectrometer. A linear distance of 14,270 km was flown in a N-S orientation, at a 50 m line spacing. Flying height averaged 100 m. Control lines were flown at 1,000 m in an E-W orientation.

Quality assurance work was done on the survey data by Anglo American Geophysics Department. The data was subsequently processed by the Anglo American Exploration team based in Goiania, Brazil who completed the modelling and 3D inversion which was then integrated at Pedra Branca with known geological information and geochemical data to generate exploration targets for follow up and drill testing (Figure 6-4 to Figure 6-6).

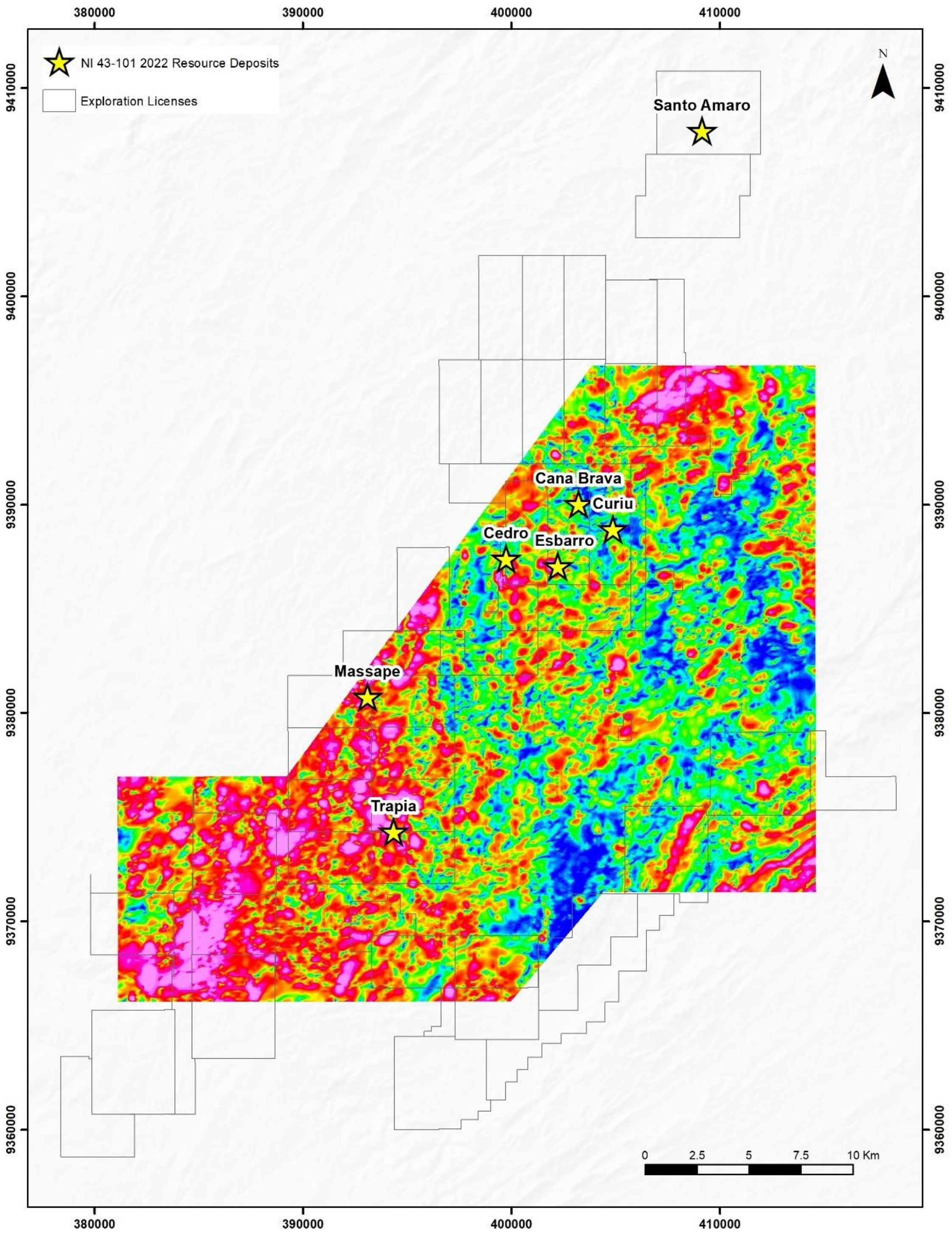


Figure 6-4: Analytical Signal Airborne Data Showing PGE Deposit Areas (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

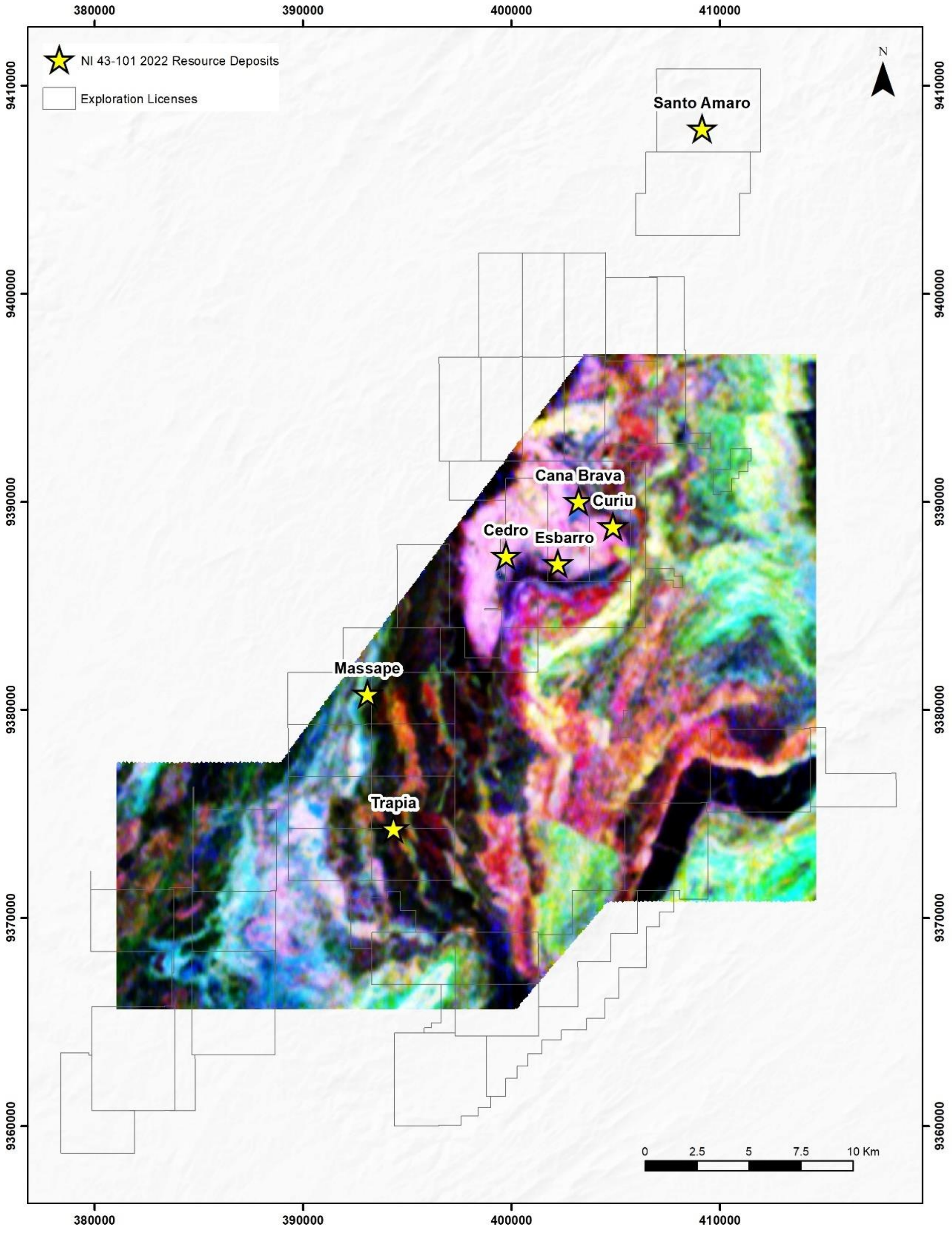


Figure 6-5: Ternary Radiometric Airborne Data Showing PGE Deposit Areas (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

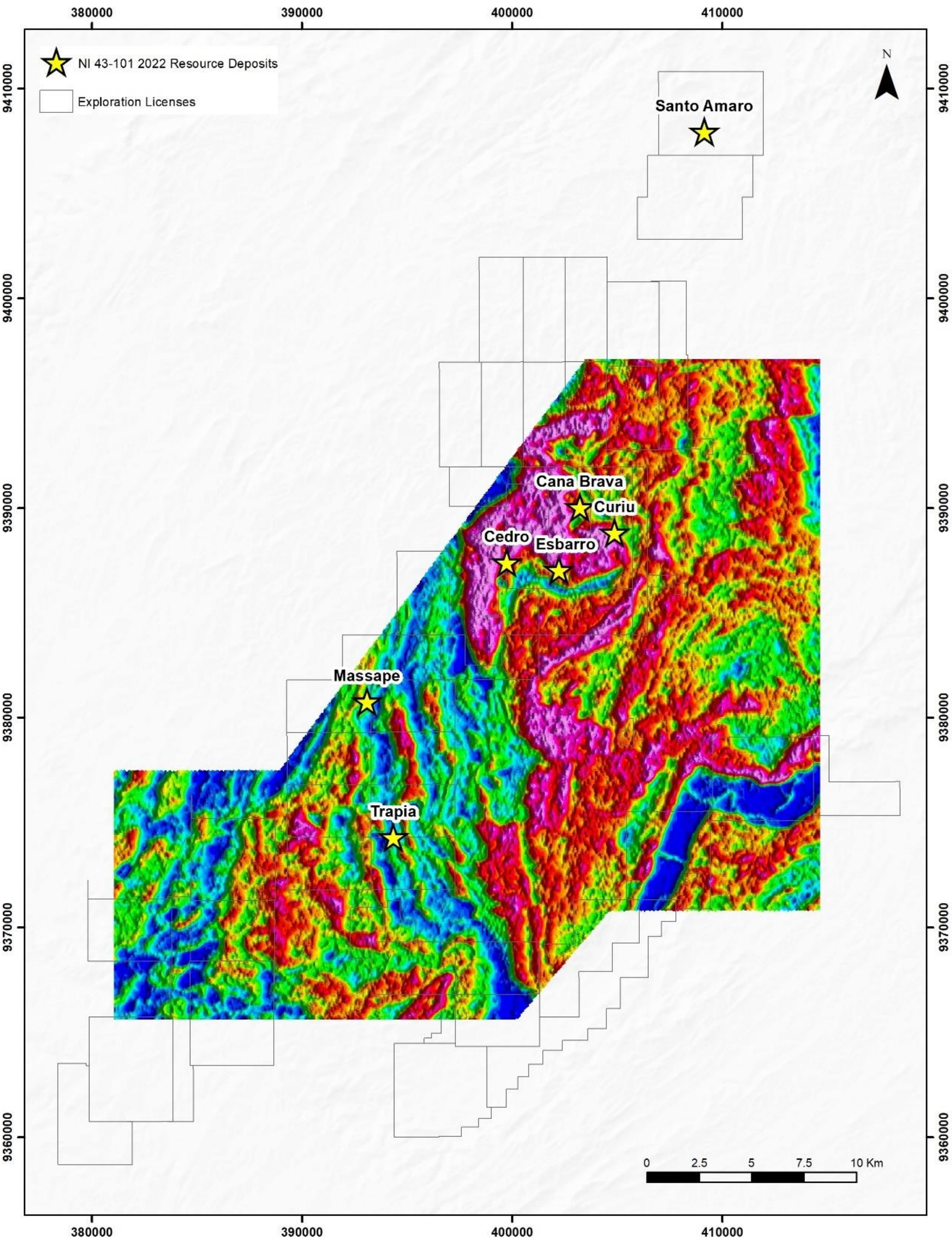


Figure 6-6: Radiometric (K) Airborne Data Showing PGE Deposit Areas (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

6.2.4 Technical Reports

6.2.4.1 2017 JORC Resource Estimate Update – GE21

In 2017 and 2018, Jangada hired GE21 to complete a mineral resource estimation and a Preliminary Economic Assessment ("PEA") on the Pedra Branca project.

GE21 completed the geological modelling, grade estimation and classification of the mineral resources (Santo Amaro, Curiú, Esbarro, Trapiá and Cedro targets), and reported the results in a JORC-complaint report, with effective date of October 2, 2017.

The modelling and the estimate were developed using Geovia Surpac 6.4 software. The project's database was based on UTM zone 24 south, SIRGAS2000. The estimate was built using 351 drill holes and 9,349 assays composited to 1 m lengths. Grades were estimated into blocks using kriging and bulk density values were estimated using inverse distance weighting. The block models were 20x20x2 m with 5x5x0.5 m sub-block sizes.

A cut-off grade of 0.30 g/t Au equivalent (no Au equivalent formula was supplied in the GE21 2018 report) was used for mineral resource estimation reporting using $1300 Au, processing costs of US $6/t, mining costs of US $5.04/t and G&A US $1.5/t.

The classification was based on the following criteria:

- Measured resources had grades estimated with +/-10% relative accuracy with respect to the quarterly production and have a 90% reliability rate;
- Indicated resources had grades estimated with +/-10% relative accuracy with respect to the annual production and have a 90% reliability rate.

Results of resource estimation tabulation are included in Table 6-1.

Table 6-1: Grade Tonnage Table – Pedra Branca Deposit – Mineral Resources – Declared Using a 0.30 g/t AuEq. Effective Date: October 02, 2017

		Tonnes (kt)	PGM (g/t)	Pd (g/t)	Pt (g/t)	Au (g/t)	Cu (%)	Ni (%)	Cr2O3(%)	Co (g/t)	PGM (koz)	Pd (koz)	Pt (koz)	Au (koz)
Cedro	Indicated	3 798	1.066	0.665	0.383	0.018	0.043	0.196	0.789	118.73	130.2	81.2	46.8	2.2
	Inferred	2 003	1.522	0.934	0.569	0.019	0.032	0.179	0.812	109.40	98.0	60.2	36.6	1.2
Curiu	Measured	1 061	2.091	1.043	0.957	0.091	0.038	0.218	1.156	130.123	71.3	35.6	32.6	3.1
	Indicated	382	2.046	1.035	0.893	0.119	0.037	0.199	2.382	122.121	25.1	12.7	11.0	1.5
	Inferred	37	2.967	1.550	1.294	0.123	0.056	0.206	2.099	109.791	3.5	1.8	1.5	0.1
Esbarro	Measured	2 985	1.316	0.863	0.428	0.025	0.047	0.249	1.145	139.677	126.3	82.8	41.1	2.4
	Indicated	7 126	1.206	0.771	0.405	0.031	0.047	0.227	0.600	128.516	276.3	176.6	92.8	7.1
	Inferred	495	0.996	0.549	0.424	0.023	0.056	0.178	0.276	109.553	15.9	8.7	6.7	0.4
Trapia	Indicated	2 529	1.113	0.639	0.422	0.052	0.055	0.216	0.910	133.035	90.5	52.0	34.3	4.2
	Inferred	2 717	1.320	0.605	0.616	0.099	0.045	0.202	1.184	122.955	115.3	52.9	53.8	8.6
Santo Amaro	Inferred	11 380	1.360	0.650	0.690	0.020	0.010	0.120	0.710	105.870	497.0	237.0	252.0	7.0
Total	Meas+Ind	17 881	1.252	0.767	0.450	0.036	0.047	0.221	0.846	128.898	719.7	440.9	258.6	20.5
	Inferred	16 632	1.366	0.676	0.657	0.033	0.020	0.142	0.790	109.205	729.7	360.6	350.7	17.4

The 2018 GE21 mineral resource estimate was based on historical drilling only, and economic and metallurgical processes parameters which are out-of-date with respect to the current Mineral Resource estimate update.

6.2.4.2 2018 Preliminary Economic Assessment – GE21

GE21 prepared a PEA based on the Measured, Indicated and Inferred resources included in Table 6-1, and optimized plant feed for 2.2 Mtpa of production.

The Pedra Branca project was envisioned as an open pit operation utilizing a contract mining fleet of hydraulic excavators, front-end loaders and 36 tonne haul trucks. The mine planning model adopted is considered to be a "diluted" model, adding approximately 5% dilution to the source model.

The disposal of waste rock, and low-grade mineralized material was to be in an area close to the pit. The site was prepared to include drainage at its base and channels to direct the flow of water with the aim of aiding geotechnical stability and mitigating the erosion of the stockpiled material.

Table 6-2 presents the result of pit optimization and refers to the Pedra Branca project Mineable Resources. The results of the PEA-level work are preliminary in nature, and they include inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

Table 6-2: Pedra Branca Project, Mineable Resources from PEA Study. Note: the table below is based on historical resource data from GE21 (2018) Independent Technical Report - Preliminary Economic Assessment (Pt, Pd, Au, Ni, Cu, Cr2O3, Co). Pedra Branca Platinum Group Metals Project, Brazil. Developed by GE21 Ltda on behalf of: Jangada Mines Plc. Effective Date: May 18, 2018. Effective Date: May 18, 2018.

	Potential Viability of Mineral Resources											
	Mineralization											
Target	Mass	Au	Pd	Pt	Au Equiv	Co	Cr2O3	Cu	Ni	Waste	Total Mined	Strip Ratio
	Mt	ppm					%			Mt		t/t
Esbarro	9.44	0.025	0.782	0.406	0.928	125.6	0.74	0.05	0.22	6.81	16.25	0.7
Curiu	1.26	0.084	1.132	0.955	1.463	122.6	1.59	0.03	0.20	1.52	2.79	1.2
Cedro	2.93	0.016	1.026	0.583	1.250	109.2	1.16	0.04	0.19	4.71	7.64	1.6
Trapia	3.64	0.056	0.746	0.546	1.069	123.7	1.08	0.05	0.21	7.14	10.78	2.0
Sto Amaro	9.77	0.015	0.638	0.675	1.079	102.0	0.69	0.01	0.12	11.43	21.20	1.2
Total	**27.04**	**0.027**	**0.768**	**0.567**	**1.062**	**114.9**	**0.85**	**0.03**	**0.18**	**31.61**	**58.66**	**1.2**

Modifying Factors applied: Mining Recovery: 95% and Dilution: 5%
* Block Model: 10m x 5m x 1m (5m x 2.5m x 0.5m)
** Block Model: 10m x 5m x 1m (5m x 5m x 0.5m)

Market Studies

Jangada performed a study based on public data from various third-party providers to assist in the analysis and understanding of supply and demand trends. PGEs (palladium, platinum), gold, and base metal prices are based on a number of factors derived from research by Johnson Matthey (PGM Market Report, February 2018), LBMA Precious Metals Forecast Survey (January 2018) and World Bank Report Commodity Markets Outlook from October 2017. Metal prices used in the PEA are summarized in Table 6-3.

Table 6-3: Metal Selling Prices

Metal	Sell Price
Pd - Palladium	1 080 (US$/oz)
Pt - Platinum	1 000 (US$/oz)
Au- Gold	1 318 (US$/oz)
Co - Cobalt	80 775 (US$/t)
Cu - Copper	6 800 (US$/t)
Ni - Nickel	14 650 (US$/t)
Chrome ore concentrate (Cr_2O_3)	260 (US$/t)

Capital and Operating Costs

GE21 summarized the operating and administrative costs, based on costs incurred at similar projects in Brazil.

Table 6-4: Pedra Branca Project CAPEX

Metal	US$ (Mi)
Mine Development	0.63
Infrastructure	5.0
Mine Closure	4.0
Tailing Dam	7.5
Working Capital	7.8
Exploration	0.39
Plant	54.2

Table 6-5: Average Operating Cost Summary

Operating Cost	US$ /t
Mining (US$/t)	6.61
Processing (US$/t)	10.5
General and Admin (US$/lb)	0.20

Table 6-6 presents the discounted cash flow for the Pedra Branca project. The results of the PEA-level work are preliminary in nature, and they include inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

Table 6-6: Discounted Cash Flow Results

CAPEX (US$ mi)	64.5
NPV (US$ mi)@7%	192.9
IRR (%)	67.9
Payback time (years)	1.6

The Mineable Resources reported in the 2018 GE21 PEA were reported at a PEA level study. The current study refers to a mineral resource estimate update.

6.2.4.3 2019 JORC Mineral Resource Estimate – Minxcon

Jangada hired Minxcon (Pty) Ltd of South Africa ("Minxcon") to estimate the mineral resources for the Pedra Branca project and they completed a JORC report in February 2019.

Minxcon estimated Au, Pd and Pt grade elements along with values for Ni, Cu and Co into their block model. They reported the results of their estimation work in two ways, one using Au, Pd and Pt grades only, using what they called a 3E cut-off of 0.65 g/t (Au+Pd+Pt grades) and they used a PdEq cut-off that included Au, Pd, Pt, Ni, Cu and Co.

The Pd Eq formula was given as:

PdEq=Pd + (Pt * 0.965) + (Au *0.714) + (Ni * 1.834) + (Cu * 2.033) + (Cr * 0.063) + (Co * 1.183)

They generated pit shells for mineral resource declarations and included "geological losses of 10% to 15% for indicated and inferred mineral resources", applied respectively. The reporting pitshells were build using the recoveries, metal prices and costs as included in Table 6-7.

Table 6-7: Mineral Resource Pit Shell and Pay Limit Calculation Parametres

Description	Pt	Pd	Au	Ni	Cu	Cr	Co	
Recoveries	67%	68%	40%	26%	77%	67%	7%	
Price (US$/kg)	39,352	40,188	48,804	19.27	7.22	0.26	46.17	
Mining Cost (US$/t)								3.40
Processing Cost (US$/t)								10.80

MCF (%)	100.00
Payability Factor (%)	85.00

The total Pt, Pd and Au ounces for the 3E cut-off approach is 1.73 Moz while the total Pt, Pd and Au ounces for the PdEq cut-off approach is 2.17 Moz. The total Mineral Resources for the 3E approach and PdEq approach are presented in the tables Table 6-8.

Table 6-8: Mineral Resources for the 3E approach and PdEq approach. The table below is based on historical resource data from Minxcon (2019) Independent Competent Person's Report on the Pedra Branca PGM Project, Brazil. Effective Date: February 01, 2019.

Mineral Resources for 3E (Pt+Pd+Au) for the Pedra Branca Project as at 1 February 2019

Mineral Resource Classification	Tonnes		Grade								Metal Content					
	Tonnes	Tonnes less Geo Loss	3E	Pt	Pd	Au	Ni	Cu	Cr	Co	Pt	Pd	Au	Pt	Pd	Au
	M/t	Mt	g/t	g/t	g/t	g/t	%	%	%	%	kg	kg	kg	oz	oz	oz
Indicated	17.97	16.18	1.30	0.42	0.84	0.03	0.21	0.04	0.55	0.010	6,865	13,661	542	220,727	439,214	17,431
Inferred	31.93	27.14	1.21	0.44	0.74	0.03	0.17	0.03	0.50	0.010	11,820	20,101	920	380,016	646,276	29,588
Indicated and Inferred	**49.91**	**43.32**	**1.24**	**0.43**	**0.78**	**0.03**	**0.19**	**0.03**	**0.52**	**0.010**	**18,685**	**33,763**	**1,462**	**600,742**	**1,085,490**	**47,019**

Notes:

1. Cut-off of 0.65 g/t 3E.
2. Only Mineral Resources falling with in the Mineral Resources pit have been declared.
3. Geological losses of 10% for Indicated and 15% for Inferred were applied.
4. Prices used: Pt = USD1,224/oz, Pd = USD1,250/oz, Au = USD1,500/oz, Ni = USD19,27/t, Cu = USD7,216/t, Cr = USD258/t & Co = USD46,171/t.
5. Mineral Resources are stated as inclusive of Ore Reserves (no Ore Reserves declared at this stage).
6. Mineral Resources are reported as total Mineral Resources and are not attributed.

Mineral Resources for PdEq for the Pedra Branca Project as at 1February 2019

Mineral Resource Classification	Tonnes		Grade									Metal Content					
	Tonnes	Tonnes less Geo Loss	Pd Eq	3E	Pt	Pd	Au	Ni	Cu	Cr	Co	Pt	Pd	Au	Pt	Pd	Au
	M/t	Mt	g/t	g/t	g/t	g/t	g/t	%	%	%	%	kg	kg	kg	oz	oz	oz
Indicated	32.61	29.34	1.36	0.90	0.30	0.58	0.03	0.20	0.03	0.40	0.009	8,823	16,951	747	283,653	544,987	24,023
Inferred	53.53	45.50	1.28	0.90	0.33	0.55	0.03	0.17	0.03	0.40	0.009	14,826	24,866	1,221	476,681	799,457	39,263
Indicated and Inferred	**86.13**	**74.84**	**1.31**	**0.90**	**0.32**	**0.56**	**0.03**	**0.18**	**0.03**	**0.40**	**0.009**	**23,649**	**41,817**	**1,968**	**760,334**	**1,344,445**	**63,286**

Notes:

1. Cut-off of 0.6 g/t Pd Equivalent.
2. PdEq = Pd+(Pt*0,965)+(Au*0,714)+(Ni*1,834)+(Cu*2,033)+(Cr*0,063)+(Co*1,183).
3. Only Mineral Resources falling with in the Mineral Resources pit have been declared (RPEEE).
4. Geological losses of 10% for Indicated and 15% for Inferred were applied.
5. Prices used: Pt = USD1,224/oz, Pd = USD1,250/oz, Au = USD1,500/oz, Ni = USD19,272/t, Cu = USD7,216/t, Cr = USD258/t & Co = USD46,171/t.
6. Mineral Resources are stated as inclusive of Ore Reserves (no Ore Reserves declared at this stage).
7. Mineral Resources are reported as total Mineral Resources and are not attributed.

A review of the mineralization solids modelled for this resource estimate were considered optimistic by LGGC and that further drilling on the Santo Amaro, Trapiá and Cedro Deposits was necessary to support the estimates of tonnage and grade.

The 2019 Mixcon mineral resource estimate was based on historical drilling only, and economic and metallurgical processes parameters which are out-of-date with respect to the current Mineral Resource estimate update.

6.2.4.4 2019 NI 43-101 Mineral Resource Estimate – LGGC

Lions Gate Geological Consulting Inc. (“LGGC”) completed a review of the drilling and exploration data for the five deposits and completed a 2019 resource estimate in conformity with generally accepted CIM Estimation of Mineral Resources and Mineral Reserves Best Practices Guidelines (November 23, 2003).

Mineral resources are not mineral reserves and they do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserves upon application of modifying factors.

Estimations were made from 3D block models based on geostatistical applications using commercial mine planning software (Geovia GEMS 6.7.4). The project limits are based in the UTM coordinate system using block sizes measuring 20 m x 20 m x 10 m for the Santo Amaro and Trapiá Deposits and 15 m x 15 m x 5 m blocks for the Curiú, Cedro and Esbarro deposits. Grades were estimated using inverse distance squared (“ID2”) method and nearest neighbour (“NN”) method was used for comparison and validation purposes.

The diamond drill holes intersect the PGE+Au mineralization of the tabular 5 PB Deposits predominantly in a perpendicular to sub-perpendicular manner. The resource estimates were generated using drill hole sample assay results and the interpretation of a PGE+Au grade-based model that relates to the spatial distribution of platinum, palladium and gold. The assay data was composited into 2 m intervals. Interpolation characteristics were defined based on the geology, drill hole spacing, and geostatistical analysis of the data. The resources were classified according to their proximity to the sample data locations and are reported, as required by NI 43-101, according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014).

Bulk density values were averaged by oxide, transition and sulfide domains for each deposit then assigned to the 5PB Deposit area block models to the Density Block value. Future resource estimates with more geology and structure influencing the domaining would benefit from bulk density data being interpolated through the block model to better reflect local variations.

LGGC reviewed the basic statistics for the assay and 2 m composite data, selected capping levels for extreme grades and applied a Restricted Outlier Strategy (“RO”) for some zones to allow top grades to influence local block grades over a shortened range but to not smear into more distal blocks in the deposits. The total metal removed by LGGC’s capping/restricted outlier strategy was 11%.

LGGC set the restrictions on the influence of elevated grades at the Santo Amaro and Cedro Deposits conservatively where the percent difference in PGE+Au ounces was reduced by 22% and 23% respectively between the capped and uncapped summations. LGGC considers the risk related to the influence of the elevated assays to be greater for these deposits. The estimation of grades at Santo Amaro is supported by 6 drill holes (3 of them carry the bulk of the elevated grades), representing only 3% of drill hole database but carries 19% of the overall ounces. There appears to be reasonable continuity in the mineralization to support a mineral estimation for this deposit, but more drilling is required to support the consideration of less restrictive influence of the higher-grade assays. The Cedro Deposit has similar concerns. This deposit hosts 8 separate mineralization solids and 68 drill holes support the mineral resource estimate. Four of the solids have less than 5 drill holes so more drilling is required at Cedro to provide more confidence in the higher-grade assay population.

The grade restriction strategy for the other deposits had less of an overall impact on the reduction in the PGE+Au contained ounces due to better drill hole support or smaller number of outlier top grades. The reduction in reported ounces from capped to uncapped PGE+Au ounces was -3% at Curiú, -6% at Esbarro and -9% at Trapiá Deposits and these deposits account for just under 70% of the contained ounces at the Pedra Branca project.

All blocks were classified into the Inferred Mineral Resources category and higher levels of classification could be considered when there is the following:

- Detailed modelling of the geology and structural influences on mineralization;
- Increased drill density at some of the deposits such as Santo Amaro, Curiú and Trapiá;
- Full database check of all assay data back to the assay certificates for all the 5PB Deposit areas, more drill holes with downhole survey information, • resurvey of all collar locations;
- Checks on the bulk density data, and;
- Acceptance of the Applications for Extension on the Exploration Licenses for parts of Trapiá, Cedro and Santo Amaro Deposits.

Pit shells were generated for each of the 5PB Deposits using palladium price of $1000/ounce, platinum price of $860/ounce and gold price of $1250/ounce, $1.50/tonne operating costs (ore and waste), $13.50/tonne milling and G+A costs and recoveries of 68% for Pd, 67% for Pt and 40% for Au. Mineral resources are reported using a combined PGE+Au cut-off of 0.65 g/t (Table 6-9).

There are no known factors related to environmental, permitting, legal, title, taxation, socio-economic, marketing, or political issues which could materially affect the mineral resource. Resources in the Inferred category have a lower level of confidence than Measured and Indicated resources and, although there is sufficient evidence to imply geologic grade and continuity, these characteristics cannot be verified based on the current data. It is reasonably expected that the majority of Inferred mineral resources could be upgraded to Indicated Mineral Resources with continued exploration.

Table 6-9: Mineral Resources Reported Using a Combined PGE+Au Cut-Off of 0.65 g/t (LGGC, 2019). Note: the table presented below it is not the actual resources update covered in this report. Effective Date: May 28, 2019.

Zone	Oxidation	Tonnes	Pt g/t	Pd g/t	Au g/t	PGE+Au g/t	Pt Oz	Pd Oz	Au Oz	PGE+Au Oz
Santo Amaro	Oxide	400,000	0.66	0.71	0.02	1.38	9,000	10,000	-	19,000
	Transition	2,000,000	0.43	0.71	0.02	1.15	27,000	45,000	1,000	73,000
	Sulphide	2,900,000	0.48	0.70	0.01	1.19	44,000	65,000	1,000	110,000
	All	5,300,000	0.47	0.71	0.02	1.19	80,000	120,000	3,000	203,000
Curiu	Oxide	1,000,000	0.88	1.28	0.07	2.23	29,000	43,000	2,000	74,000
	Transition	300,000	0.54	1.04	0.05	1.62	5,000	10,000	-	15,000
	Sulphide	300,000	0.38	0.73	0.05	1.16	3,000	6,000	-	9,000
	All	1,600,000	0.73	1.14	0.06	1.93	38,000	59,000	3,000	100,000
Esbarro	Oxide	4,600,000	0.43	0.84	0.02	1.29	65,000	125,000	3,000	193,000
	Transition	2,400,000	0.35	0.79	0.02	1.15	26,000	60,000	1,000	87,000
	Sulphide	2,900,000	0.35	0.84	0.02	1.21	33,000	79,000	1,000	113,000
	All	9,900,000	0.39	0.83	0.02	1.23	124,000	264,000	6,000	394,000
Cedro	Oxide	1,700,000	0.43	0.78	0.01	1.22	24,000	43,000	1,000	68,000
	Transition	300,000	0.30	0.60	0.01	0.91	3,000	5,000	-	8,000
	Sulphide	2,300,000	0.36	0.65	0.02	1.03	26,000	48,000	2,000	76,000
	All	4,200,000	0.38	0.70	0.02	1.10	52,000	96,000	3,000	151,000
Trapia	Oxide	600,000	0.43	0.48	0.02	0.93	8,000	9,000	-	17,000
	Transition	500,000	0.32	0.58	0.03	0.93	5,000	9,000	1,000	15,000
	Sulphide	5,100,000	0.37	0.74	0.03	1.15	61,000	122,000	5,000	188,000
	All	6,200,000	0.37	0.71	0.03	1.11	73,000	140,000	6,000	219,000
All Zones	Oxide	8,400,000	0.50	0.85	0.02	1.37	135,000	230,000	6,000	371,000
	Transition	5,400,000	0.38	0.74	0.02	1.15	66,000	129,000	3,000	198,000
	Sulphide	13,400,000	0.39	0.74	0.02	1.15	167,000	320,000	9,000	496,000
	All	27,200,000	0.42	0.77	0.02	1.22	367,000	679,000	21,000	1,067,000

Notes:

1. Resources are reported using a 3PGE+Au cut-off of 0.65 g/t;

2. Based on historical resource data from LGGC. 2019. Pedra Branca Project May 2019 Resource Estimate Technical Report. Pedra Branca Project, Ceará State, Brazil and does not the actual resources update in this report

3. Only blocks within a pitshell are reported as Mineral Resources;

4. Prices used were Pd=US$1000/ounce, Pt=US$860/ounce, Au=US$1250/ ounce, operating costs (ore and waste) =US$1.50/tonne, G+A and milling=US$13.50/tonne;

5. Recoveries used were 68% for Pd, 67% for Pt and 40% for Au;

6. PGE+Au grade = Pt g/t + Pd g.t + Au g/t;

7. Mineral resources are not mineral reserves because the economic viability has not been demonstrated.

This report includes estimates for mineral resources. No mineral reserves were prepared or reported.

The 2019 Lions Gate Mineral Resource Estimate was reported based on historical drilling only. Differences in volume and tonnage found in comparison with the current mineral resource estimate are explained by the 50% increase in the total drilling amount and by geological model re-interpretation. It is also worth mentioning improvement of economic parameters, including higher metal prices, and a more optimistic scenario for metallurgical recovery in the RPEEE.

6.3 Historical Metallurgical Test Work

This section summarizes metallurgical test work conducted prior to ValOre's acquisition of the Pedra Branca project and was reviewed and compiled by metallurgical engineer Dr. Bert J. Huls (P.Eng.).

Metallurgical test work has been conducted on samples from the Pedra Branca deposit in Brazil over several years by various previous operators. Test work has been of exploratory nature and is not complete. Results indicate a potential flowsheet consisting of crushing and grinding the mineralized material prior to flotation. Rougher flotation concentrate will require cleaning to produce a saleable PGE concentrate.

Correct analytical procedures were followed in determining the PGE and Au assays, according to the historical reports and interval ValOre review; however, no details are available of actual test procedures, although the staging of reagents employed in flotation testing, as well as the testing equipment used, were standard. This section includes the results of actual metallurgical test work conducted at the various laboratories and does not include any simulation results that inherently contain assumptions that have not been verified.

Metallurgical test work programs were completed by independent commercial metallurgical laboratories, as well as by in-house laboratory facilities of a previous owners (Amplats). The following is a listing of reports with respect to the test work conducted on samples from the Pedra Branca project in Brazil, prior to the acquisition of the project by ValOre Metals Corp.

1. Anglo Platinum Management Services (Pty) Ltd. ARC – Mineralogical Research Department, Minerals Processing Research Department. Homestead, South Africa. April 2004. Mineralogical and Metallurgical investigation of selected borehole core intersections from Pedra Branca, Brazil. Platinum Project No 183. Platinum Project No 183;
2. Anglo Research, Mineralogy Department, Metallurgical Services, Homestead, South Africa. November 2005. Metallurgical test work on 2 Pedra Branca Composite Samples using a grin of 60% -75 µM – Final Results;
3. Anglo Research, Mineralogy Department, Metallurgical Services, Homestead, South Africa. December 2005. Mineralogical and Metallurgical Examination of Material from Pedra Branca, Brazil (CU14 and ES32). Report No: M/05/121;

4. Anglo Research, Mineralogy Department, Metallurgical Services, Homestead, South Africa. January 2006. Metallurgical and mineralogical test work on Piedra Branca Ore Sample;
5. Technical Solutions – Research, Johannesburg, South Africa. April 2014. Geometallurgical Characterisation of eight boreholes from the Pedra Branca Exploration Project in Brazil (DD99 ES01 - DD08 CU26). Report No. MPR/14;
6. SGS Geosol, Vespasiano – MG – Brasil. November 2017. Rougher Flotation Test work on Samples from the Pedra Branca Project. Final Report;
7. PPM - Projetos e Gerenciamento em Mineração, Belo Horizonte – MG, Brasil. June 2017. SIMULAÇÃO DO PROJETO PEDRA BRANCA;
8. GE21 Ltda– Belo Horizonte, Brasil. May 2018. Independent Technical Report - Preliminary Economic Assessment (Pt, Pd, Au, Ni, Cu, Cr2O3, Co);
9. Minxcon (Pty) Ltd., Roodepoort, South Africa. March 2019. Independent Competent Person's Report on the Pedra Branca PGE Project, Brazil. Mineral Resource Report. Minxcon Reference: M2018-050a;
10. Consulmet Metals, Johannesburg, South Africa, May 31, 2019. Feasibility Study Phase 1: Pedra Branca Mine PGE Beneficiation Plant, Project Number: JANG-19-001. Executive Summary;
11. Consulmet Metals, Johannesburg, South Africa. June 2019. Jangada flowsheet development test work. Rev1;
12. Jangada Mines, Brasil. January 2019. Report of sampling for metallurgical tests.

6.3.1 Ore Hardness

2004-2006

In 2017, nine samples were taken from each of four types of mineralized material: Esbarro Fresco (fresh) and Oxidado (oxidated), and Curiú Fresco and Oxidado. The selection of drill core was made with the accepted standard of care so that the samples submitted for test work represent all the mineralized rock types within the mineralized area.

For each type of mineralized material, samples were combined into a composite to generate a single Ball Mill Work Index. This index is expressed in kWh/metric tonne. Each composite was prepared by adding equal weight of each individual sample, such that for each type of mineralized material the overall head assay became the average of each of the nine sample head assays. The resulting Ball Mill Work Index for each type of mineralized material is summarized in Table 6-10. BMWI test work was conducted by SGS GEOSOL.

Table 6-10: Ball Mill Work Index for Each Ore Type

Sample ID	Limiting screen	F80	Circulating	P80	Wi
	microns	microns	Load, %	microns	kWh/tonne
Esbarro Fresco	106	1,985	264	77	15.9
Esbarro Oxidado	106	1,898	249	75	16.5
Curiu Fresco	106	1,861	253	77	19.8
Curiu Oxidado	106	1,296	259	76	18.0

Mineralized material (both Fresco and Oxidado) from the Curiú deposit was harder compared to that from the Esbarro deposit. It can be considered moderately hard to hard.

6.3.2 Flotation testing

2004-2006

Table 6-11: Head Assays, Esbarro and Curiú Samples Tested in 2005

	Pt:Pd	PGE, (g/t)					Base Metals, %		
Sample	ratio	Pt	Pd	Rh	Au	4E	Cu	Ni	S
ES32(Run1)	0.61	3.36	5.53	0.32	0.02	9.23	<0.05	0.23	0.12
ES32(Run2)	0.61	3.4	5.59	0.33	0.02	9.34	<0.05	0.24	0.09
ES32 Avg	**0.61**	**3.38**	**5.56**	**0.32**	**0.02**	**9.28**	**<0.05**	**0.24**	**0.11**
CU14(Run1)	0.28	0.68	2.44	0.03	0.14	3.29	0.08	0.29	0.26
CU14(Run2)	0.28	0.69	2.46	0.03	0.15	3.32	0.08	0.28	0.27
CU14 Avg	**0.28**	**0.68**	**2.45**	**0.03**	**0.15**	**3.31**	**0.08**	**0.29**	**0.27**

Flotation tests using standard Bushveld Merensky flotation procedure were carried out in duplicates on each composite sample using a single stage grind of 60% -75 µm. The flotation concentrates were submitted for Pt, Pd, Au, Cu, Ni, Co, and S assays. Aliquots of the rougher tailings and head samples were submitted for Pt, Pd, Au, Cu, Ni, Co, S, and Rh analysis.

The metallurgical results show that the flotation response of ES32 is poor, ~48 % Pt recovery and ~44 % Pd recovery despite a head grade of 9.3 g/t PGE(4E), see Table 6-12. Mineralogical examinations revealed that this ore was highly altered (high content of serpentine, chlorite and chromite) with Pd(Pt)-tellurides being the predominant PGE minerals followed by Pt-arsenides. The PGEs are predominantly well-liberated Pd (Pt)-tellurides.

In subsequent test work on the Esbarro sample, the SIBX collector dosage was increased from 60 to 150 and 300 g/t, resulting in an increase in Pd recovery, but at significant drop in concentrate grade, while collector dosage had no effect on the recovery of Pt. The addition of sodium silicate to remove any slime coatings on mineral surfaces improved the metallurgical performance of Pt but failed to increase the total Pd recovery. It was postulated that Pt and Pd minerals carry different surface charges and behave differently in the presence of serpentine.

For CU14 the recoveries are better, ~73 % Pt and ~79 % Pd from a head grade of 3.31 g/t PGE(4E). From a mineralogical viewpoint, this mineralized material is less altered than ES32 with the Base Metal Sulfides (“BMS”) being better liberated and of a more optimal flotation size. The PGEs are either well liberated or associated with silicates.

Table 6-12: Pt, Pd Ultimate Recoveries and Final Grades for the Samples Investigated

Sample	Mass Pull (%)	Pt Rec. (%)	Pt Grade (g/t)	Pd Rec. (%)	Pd Grade (g/t)	Pt Recon Head (g/t)	Pd Recon Head (g/t)
ES32(Run1)	10.6	50.6	16.69	45.7	23.29	3.48	5.38
ES32(Run2)	9.5	45.5	16.71	42.7	23.17	3.49	5.15
ES32, Avg	**10**	**48.1**	**16.7**	**44.2**	**23.23**	**3.48**	**5.27**
CU14(Run1)	6.4	70.8	7.81	78	26.11	0.71	2.14
CU14(Run2)	6.9	75.3	9.14	80.7	25.65	0.83	2.18
CU14, Avg	**6.6**	**73.3**	**8.5**	**79.4**	**25.87**	**0.77**	**2.16**

Note: the values in bold are the weighted average results for the tests conducted

2012

The Anglo Research Center tested eight reef samples from the Esbarro and Curiú deposits in 2012. The samples for metallurgical testing were obtained from judicious planning, considering the typology, spatial distribution of samples, the geological characteristics of the mineralization according to the geological block model and the mining production plan.

Mineralogy showed that the layered ultramafic dunite intrusion is highly altered to chlorite, with lesser amphibole and talc, and contains up to 20% chromite and almost 3% BMS.

Milling liberates 41 to 87% of the BMS and 59 to 71% of the PGEs in six of the eight feeds at a grind of 60% <75 µm. A much poorer liberation of respectively 23 and 32% of the BMS and 36 and 27% of the PGEs are obtained for DD99 ES04 and DD08 CU20 at the same mill grind. Inadequate liberation of the BMS and PGEs is due to the high proportion of middlings and locks hosted by altered silicates, olivine, chromite and magnetite. PGE-arsenides, with lesser PGE-bismuthotellurides and PGE-alloys, are the predominant and coarsest liberated PGE-types, with pentlandite and lesser chalcopyrite being the coarsest and most common PGE-bearing BMS. Pyrite and pyrrhotite are the prevailing minor BMS and generally occur in composite middlings and locks together with pentlandite and/or chalcopyrite, particularly in the DD99 ES01, DD99 ES11 and DD03 CU10 feeds.

Most of the BMS in the oxidised feeds are partially to almost completely oxidised, with pyrite and pyrrhotite being the most susceptible and chalcopyrite the most resistant. Only a small proportion of the PGE-bismuthotelluride and PGE-sulpharsenide grains display sub-micron transverse cracking in places along their periphery.

The feeds have a 4E head grade of 1.4 to 7.4 g/t at a Pt:Pd ratio of 0.25 to 0.77 (Table 6-13). A good agreement between actual and built-up 4E head grade is obtained (Table 6-14), apart from the Pt grade for DD03 CU10, DD08 CU20 and DD08 CU26.

Table 6-13: Head Assays, Esbarro and Curiú Samples Tested in 2012

Borehole ID	Nature of the Reef	Pt/Pd ratio	Pt (g/t)	Pd (g/t)	Rh (g/t)	Au (g/t)	4E (g/t)	Cu (%)	Total Ni (%)	Total S (%)
DD99 ES01	Fresh	0.45	0.96	2.12	0.09	0.01	3.18	0.02	0.21	0.05
DD99 ES04	Oxidised	0.77	2.08	2.69	0.16	0.01	4.94	0.03	0.24	0.06
DD99 ES05	Fresh	0.25	0.34	1.34	0.03	0.03	1.74	0.14	0.35	0.23
DD99 ES11	Oxidised	0.31	0.45	1.43	0.03	0.08	1.99	0.06	0.23	0.07
DD03 CU07	Fresh	0.62	0.53	0.86	0.02	0.06	1.47	0.03	0.2	0.09
DD03 CU10	Fresh	0.36	0.99	2.78	0.07	0.09	3.93	0.21	0.6	1.22
DD08 CU20	Oxidised	0.48	0.46	0.95	0.03	0.08	1.52	0.04	0.18	0.09
DD08 CU26	Oxidised	0.55	2.54	4.63	0.1	0.18	7.45	0.04	0.2	0.06

The standard flotation procedure for Bushveld Merensky ore-types was used. The best flotation response, in terms of recovery, 74 % Pt and 49 % Pd, was generated from sample DD08 CU26. This sample also contains the highest grades of Pt and Pd of all samples tested. Concentrate grades are low at 18 g/t Pt and 20 g/t Pd from a head grade of 7.4 g/t 4E (Table 13-5). Test results indicate that the first concentrate was pulled with a recovery of 47 % Pt and 21 % Pd at a grade of 74 g/t Pt and 58 g/t Pd.

Table 6-14: Final Recovery and Concentrate Grade Obtained from the Milled Flotation Feeds

Borehole ID	Mass Pull (%)	Pt Grade (g/t)	Pt Rec (%)	Pd Grade (g/t)	Pd Rec (%)	2E (g/t)	2E (%)	Pt BUH (g/t)	Pd BUH (g/t)	% Pt Error	% Pd Error
DD99 ES01	17.2	1.3	23.5	2.7	21.7	4.0	22.6	0.96	2.15	0.4	1.2
DD99 ES04	6.9	7.1	25.1	5.4	14.2	12.5	19.7	1.95	2.61	-6.1	-3.1
DD99 ES05	5.3	2.1	31	3.6	13.9	5.7	22.5	0.36	1.38	4.9	2.6
DD99 ES11	11.7	1.2	30	2.4	21	3.6	25.5	0.45	1.35	0.9	-5.4
DD03 CU07	4.8	5.5	53.6	7.5	41.6	13.0	47.6	0.49	0.86	-7.2	0.5
DD03 CU10	10.3	7.8	73.2	10	40.9	17.8	57.1	1.1	2.53	11.5	-8.9
DD08 CU20	13.4	0.9	22	1.5	20.1	2.4	21.1	0.53	1.01	15.8	6
DD08 CU26	11.6	18	74.7	20.1	49	38.1	61.9	2.79	4.75	10	2.6

*BUH is recalculated head grade from flotation results

2017

In 2017, SGS GEOSOL conducted metallurgical test work on four composite samples from the Pedra Branca project, with the main objective of defining suitable conditions for rougher flotation of those samples. These composites were prepared from samples from the Esbarro (Fresco and Oxidado) and Curiú (Fresco and Oxidado) PGE deposits. No description was provided on the selection procedure followed to collect these samples.

The Esbarro Fresco and Esbarro Oxidado composites were similar in terms of copper (~0.08%), nickel (~0.3%) and iron (~10%) content. The main differences between those samples were in sulfur (0.38% for Esbarro Fresco and 0.11% for Esbarro Oxidado) and carbon (0.35% and 1.18%, respectively); The Curiú Fresco and Curiú Oxidado composites were also very similar in terms of copper (0.05%), nickel (0.24%) and iron (9.9%) assays. Once again, the main differences were in sulfur (0.25% for Curiú Fresco and 0.03% for Curiú Oxidado) and carbon (0.29% and 0.72%, respectively). Assays for Pt, Pd and Au and Basic Sulfides for each sample are provided in Table 6-15.

Table 6-15: Head Assays, Esbarro and Curiú Samples Tested in 2017

Sample	Au	Pt	Pd	3E	Ni	Cu	Co	S
	ppm	ppm	ppm	ppm	%	%	%	%
Esbarro Fresco 1	0.024	0.650	1.442	2.12				
Esbarro Fresco 2	0.026	0.591	1.430	2.05				
Esbarro Fresco 3	0.028	0.585	1.378	1.99				
Esbarro Fresco 4	0.025	0.560	1.369	1.95				
Esbarro Fresco 5	0.030	0.533	1.402	1.97				
Esbarro Fresco 6	0.027	0.547	1.518	2.09				
Esbarro Fresco 7	0.033	0.548	1.485	2.07				
Esbarro Fresco 8	0.024	0.530	1.378	1.93				
Esbarro Fresco 9	0.024	0.516	1.414	1.95				
Average	0.027	0.562	1.424	2.01	0.30	0.08	0.02	0.38
st dev	12%	7%	4%	3%				
Esbarro Oxidado 1	0.031	0.497	1.338	1.87				
Esbarro Oxidado 2	0.034	0.676	1.363	2.07				
Esbarro Oxidado 3	0.033	0.537	1.301	1.87				
Esbarro Oxidado 4	0.032	0.455	1.332	1.82				
Esbarro Oxidado 5	0.032	0.647	1.360	2.04				
Esbarro Oxidado 6	0.033	0.605	1.387	2.03				
Esbarro Oxidado 7	0.029	0.586	1.310	1.93				
Esbarro Oxidado 8	0.032	0.547	1.367	1.95				
Esbarro Oxidado 9	0.029	0.512	1.284	1.83				
Average	0.032	0.562	1.338	1.93	0.32	0.06	0.02	0.11
st dev	5%	13%	3%	5%				
Curiu Fresco 1	0.081	0.696	1.459	2.24				
Curiu Fresco 2	0.085	0.718	1.485	2.29				
Curiu Fresco 3	0.089	0.709	1.495	2.29				
Curiu Fresco 4	0.087	0.636	1.546	2.27				
Curiu Fresco 5	0.081	0.628	1.504	2.21				
Curiu Fresco 6	0.084	0.689	1.534	2.31				
Curiu Fresco 7	0.096	0.630	1.576	2.30				
Curiu Fresco 8	0.096	0.618	1.632	2.35				
Curiu Fresco 9	0.105	0.591	1.780	2.48				
Average	0.089	0.657	1.557	2.30	0.25	0.05	0.02	0.25
st dev	9%	7%	6%	3%				
Curiu Oxidado 1	0.079	1.267	1.964	3.31				
Curiu Oxidado 2	0.080	1.364	2.051	3.50				
Curiu Oxidado 3	0.073	1.145	1.974	3.19				
Curiu Oxidado 4	0.076	1.118	1.871	3.07				
Curiu Oxidado 5	0.079	1.166	2.035	3.28				
Curiu Oxidado 6	0.110	1.212	1.994	3.32				
Curiu Oxidado 7	0.083	1.357	2.173	3.61				
Curiu Oxidado 8	0.075	1.167	1.946	3.19				
Curiu Oxidado 9	0.075	1.151	2.003	3.23				
Average	0.081	1.216	2.001	3.30	0.23	0.05	0.02	0.03
st dev	14%	8%	4%	5%				

Under different reagent regimes, rougher flotation tests were conducted at either a P80 of 75 microns or a P80 of 53 microns), and at either 38 % or 22 % solids content in the pulp. An assessment was made of the effect of pre-floating talc. No cleaner flotation was attempted.

Table 6-16 summarizes the findings of effect of grind. The employed reagent regime in all these tests was similar, maintaining a relatively high collector dosage and CMC to depress talc in the first flotation stage.

Table 6-16: Effect of Grind on Esbarro and Curiú Composites

Esbarro Oxidado

				Rougher Grade				Rougher Recovery				
Test #	P80	Talc	Solids	Au	Pd	Pt	3E	Mass	Au	Pd	Pt	3E
	microns	Pre-float	%	g/t	g/t	g/t	g/t	%	%	%	%	%
3	75	N	38	0.07	4.6	1.9	6.5	24.2	53.6	73.9	78.4	68.6
8	53	N	38	0.03	1.6	0.7	2.4	62.8	70.0	72.4	78.0	73.5

Curiu Oxidado

				Rougher Grade				Rougher Recovery				
Test #	P80	Talc	Solids	Au	Pd	Pt	3E	Mass	Au	Pd	Pt	3E
	microns	Pre-float	%	g/t	g/t	g/t	g/t	%	%	%	%	%
4	75	N	38	0.11	2.4	1.5	4.0	70.3	84.1	81.3	85.5	83.6
9	53	N	38	0.15	3.4	2.1	5.6	31	56.3	50.9	51.1	52.8

Curiu Fresco

				Rougher Grade				Rougher Recovery				
Test #	P80	Talc	Solids	Au	Pd	Pt	3E	Mass	Au	Pd	Pt	3E
	microns	Pre-float	%	g/t	g/t	g/t	g/t	%	%	%	%	%
5	75	N	38	0.16	3.0	1.2	4.4	45.4	80.6	87.7	87.7	85.3
7	53	N	38	0.13	2.2	0.9	3.2	64.9	82.9	91.8	93.7	89.5

Esbarro Fresco

				Rougher Grade				Rougher Recovery				
Test #	P80	Talc	Solids	Au	Pd	Pt	3E	Mass	Au	Pd	Pt	3E
	microns	Pre-float	%	g/t	g/t	g/t	g/t	%	%	%	%	%
2	75	N	38	0.06	4.4	1.9	6.3	24.2	53.6	73.9	78.4	68.6
6	53	N	38	0.04	2.6	1.1	3.7	45.4	68.6	83.7	87.3	79.9

Rougher flotation under these conditions resulted in a relatively high mass recovery with very little upgrading. Except for Curiú Oxidado, a finer grind at P80 of 53 microns produced a higher recovery of the PGE metals.

Further test work on the Esbarro Fresco composite employing different flotation conditions, produced an improvement in rougher flotation results, as shown in Table 6-17. All flotation testing was conducted at pH 9. The rougher concentrate grades were calculated from upgrade factors provided for each rougher test.

Table 6-17: Effect of Varying Flotation Conditions on the Esbarro Fresco Composite

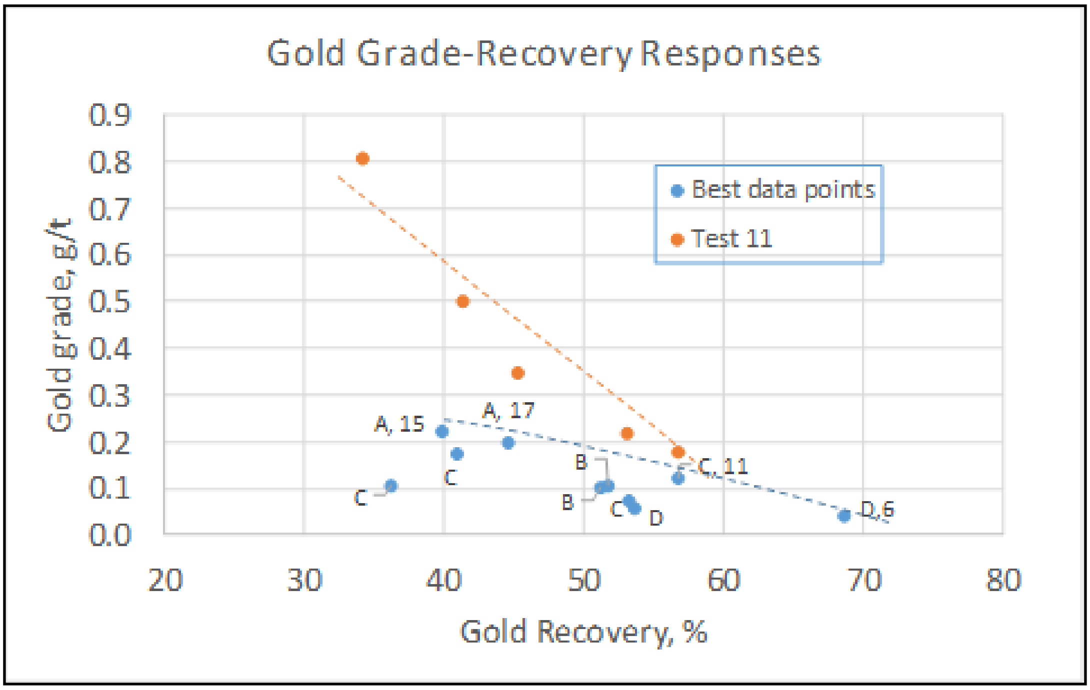
					Rougher Grade				Rougher Recovery				
Test #	Reagent	P80	Talc	Solids	Au	Pd	Pt	3E	Mass	Au	Pd	Pt	3E
	Regime	microns	Pre-float	%	g/t	g/t	g/t	g/t	%	%	%	%	%
2	D	75	N	38	2.2	3.1	3.3	8.6	24.2	53.6	73.9	78.4	68.6
6	D	53	N	38	1.5	1.8	1.9	5.2	45.4	68.6	83.7	87.3	79.9
10	C	75	Y	22	6.5	9.0	8.4	23.9	6.3	40.9	56.3	52.7	50.0
11	C	53	N	22	4.6	4.7	4.5	13.8	12.8	56.8	59.7	57.2	57.9
12	C	53	Y	22	2.8	3.5	3.4	9.7	19.3	53.2	68.2	65.2	62.2
13	C	75	Y	22	4.0	7.0	7.0	18.0	8.9	36.2	62.8	62.7	53.9
14	B	53	Y	22	4.0	7.4	7.1	18.5	10.1	51.8	74	70.6	65.5
15	A	53	Y	22	7.5	13.4	12.8	33.7	4.7	44.6	62.4	59.4	55.5
16	B	75	Y	22	3.9	6.3	6.4	16.6	10.2	51.2	63.8	64.9	60.0
17	A	75	Y	22	8.3	11.5	11.8	31.6	3.9	39.9	44.2	45.4	43.2

A decrease in collector dosage and reduction of the flotation pulp density produced a better flotation response through improved selectivity. For gold, the dominant factor remains the finer grind, while more than halving the collector dosage appears to move the response towards a higher grade along the same grade-recovery curve. Rougher grade-recovery responses for gold and the PGEs are presented in Figure 6-7. The label lettering indicates flotation regimes, while label numbers refer to test numbers reported in Table 6-17. In this Figure 6-7, a blue-dotted line has been drawn through the best responses of all the different tests. Technically, this is not a grade-recovery curve, only a “best-performance” line, because we deal with results from tests conducted under varying conditions. Such line provides an insight to the extremities reached for each test. Dashed-orange rougher grade-recovery curves of the best test for gold and for Pt+Pd are inserted in each graph to illustrate the direction of upgrading achieved for these elements.

For gold, changing the type of collector from SIBX (in regime C, test 11) to that of SNPX (in regime A, in tests 15, 17) improved selectivity, producing a higher gold grade at the expense of recovery. Pre-floating talc or not, did not bear much influence on the grade-recovery response.

For PGEs (Pt+Pd) in the right-hand graph of Figure 6-7, a similar result was found. A finer grind generates a better flotation response. Lowering collector dosage and switching to either Senkol 5 or SNPX collector, the increased selectivity improved grade, sacrificing recovery (compare results of test 6 with those of tests 14 (Senkol) and 17 (SNPX).

It must be recognized, however, that rougher flotation is intended to maximize recovery, while selectivity must be obtained in the cleaner flotation to maximize concentrate grade at maximum possible recovery. From the results, it is not yet clear whether a talc pre-float is warranted, although talc depression in flotation is required.



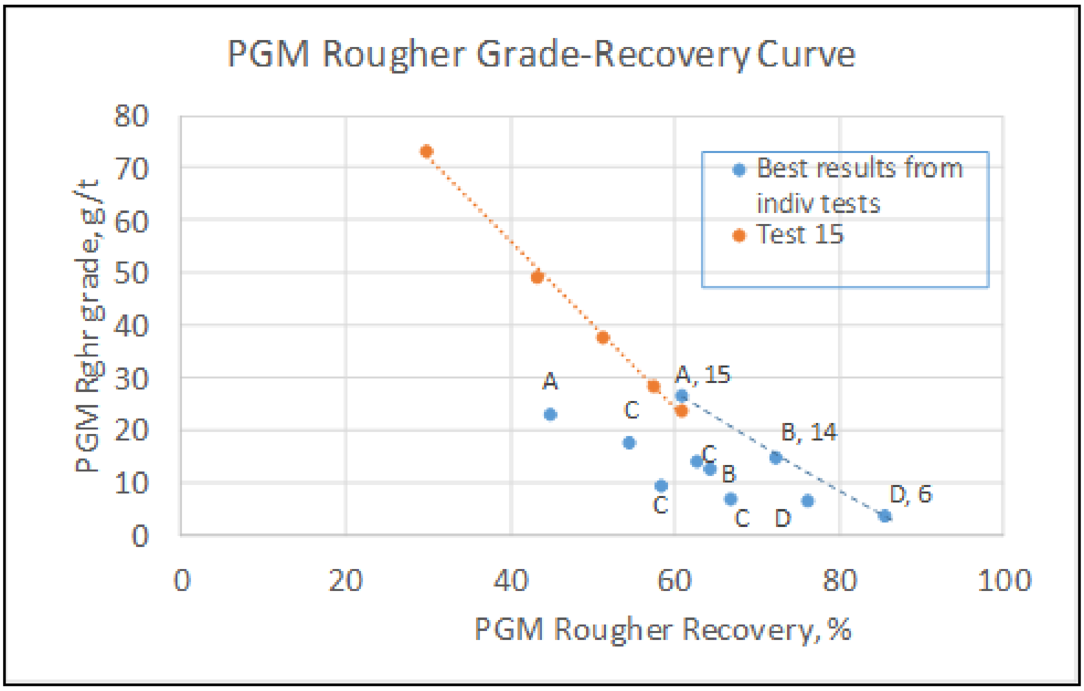


Figure 6-7: Best Au and PGE Rougher Grade Recovery Responses from 2017 Test work on Esbarro Fresco (Modified from Bert Huls, P.Eng. – LGGC, 2019)

The flotation recovery of copper, nickel, cobalt, chrome and sulfur in tests 14 and 15 was estimated by the difference between head grades and tailings assays, since the small concentrate masses were totally used for chemical analysis of the PGEs. Table 6-18 summarizes the results. The recovery of copper attained 85 % and 68 % in respectively tests 14 and 15, while the recovery of nickel lagged at respectively 31 % and 21%.

Table 6-18: Recovery of Copper, Cobalt and Nickel – Esbarro Fresco Composite

		Grade				Recovery			
Product	Test	Ni	Cu	Co	S	Ni	Cu	Co	S
	#	%	%	%	%	%	%	%	%
Feed		0.30	0.08	0.02	0.38				
Tailings	14	0.23	0.01	0.01	0.09	31.1	85.0	10.1	79.5
Tailings	15	0.25	0.03	0.02	0.13	20.6	68.2	4.7	67.4

2019

In 2019, Consulmet Metals tested sample composites labeled “Rock” and “Oxidised”. Oxidised material indicates here that the material is weathered. Seven HQ core size drill holes were drilled (twinning historical holes) at the Esbarro deposit in 2018 for metallurgical sample. To better represent the oxidized ore sample from the Esbarro target, one sample interval from an open trench was selected. The material collected from the trench was oxidized ore sampled from and exposed chromitite reef. The estimated grade of this material was obtained by sampling the trench, homogenization of the material and submittal of samples to an external lab for chemical analysis.

A separate objective was to identify if a chromite by-product would be viable. The test work entailed initial comminution and size classification, followed by mineralogy to characterize the ores in terms of abundant mineral content and liberation and PGE liberation and deportment. Magnetic and gravity separation were evaluated as possible pre-concentration stages. PGE flotation was subsequently conducted on magnetic/gravity products, as well as untreated feed material to evaluate final PGE recovery potential.

Table 6-19 summarizes the head grades of the two samples.

Table 6-19: Head grades of the “Rock” and “Oxidised” Samples tested by Consulmet

Head grade	3E	Cu	Ni	Cr2O3
	g/t	%	%	%
Rock	2.61	0.13	0.5	3.14
Weathered	11.4	0.05	0.18	17

6.3.2.1 “Rock” material

The PGEs identified in a sample of “Rock” were less than 9 µm in size – fine in nature, but assuming good liberation, likely to float slowly. The liberation analysis also indicated that the rock ore feed, milled to a grind of 75 µm, contained 44.5 v/v % of liberated PGEs. The collective remaining 24.5 v/v % of PGEs were attached to silicate or oxide gangue and 9.6 v/v % of PGEs were still locked in the gangue.

The chromite crystals have a wide range of Cr_2O_3 content (12 to 44%), with an average of 30% and the associated Cr/Fe ratios between 0.14 to 0.88. This indicates that a chromite product of 42% Cr_2O_3 metallurgical grade cannot be obtained from this "Rock" sample.

Four flotation tests on rock ore produced the results shown in Table 6-20, with details of the rougher and cleaner tests shown in Table 6-21, and Figure 6-8. Test work was performed using typical flotation conditions, not observing the more optimized conditions established in the 2017 test work.

Table 6-20: Flotation Test Results for "Rock" Ore

	Test Sample	3E+Au	
		Grade (g/t)	Recovery (%)
Test 1	Rougher kinetics	12.5	74.5
Test 2	Rghr+Clnr Tests	49.0	46.1
Test 3	Rghr+Clnr Tests at P80 of 53 micron	40	51
Test 4	Rghr+Clnr Tests at P80 of 38 micron	70	13

In rougher flotation, the overall PGEs recovery for the rock at P80 of 75µm can reach 75%, at a grade of 12.5% 4E. Results are summarized in Table 6-21.

Table 6-21: Results of Rougher and Cleaner Test on "Rock" Ore

		Grade						Recovery					
Test 1 P80 75µm	Mass	4E	Cr_2O_3	S	MgO	SiO_2	Fe	4E	Cr_2O_3	S	MgO	SiO_2	Fe
	%	g/t	%	%	%	%	%	%	%	%	%	%	%
RC1+RC2+RC3	7.49	15.0	0.79	3.33	29.9	37.37	10.07	56.3	3.21	51.3	6.47	7.28	7.07
Overall RC	11.8	12.5	0.76	3.26	29.5	38.0	10.4	74.5	4.86	79.2	10.1	11.7	11.5
RT	88.2	0.58	1.99	0.12	35.3	38.5	10.7	25.5	95.1	20.8	89.9	88.3	88.5

		Grade						Recovery					
Test 2 P80 75µm	Mass	4E	Cr_2O_3	S	MgO	SiO_2	Fe	4E	Cr_2O_3	S	MgO	SiO_2	Fe
	%	g/t	%	%	%	%	%	%	%	%	%	%	%
Recl Conc1	1.78	52.0	0.07	13.7	0.24	38.0	26.9	40.8	0.04	35.4	0.012	1.88	3.69
Recl Conc2	0.35	33.9	0.07	11.5	0.23	37.9	27.1	5.26	0.01	5.90	0.002	0.37	0.74
Recl Tail	0.43	22.6	1.46	6.30	26.0	33.2	14.4	4.32	0.20	3.94	0.32	0.40	0.48
Ctail	4.83	8.06	1.46	2.20	30.5	37.7	10.9	17.21	2.23	15.6	4.23	5.05	4.07
Overall Recl Con	2.13	49.0	0.07	13.3	0.24	38.0	26.9	46.1	0.05	41.3	0.00	2.20	4.43
Overall RC	7.39	20.7	1.06	5.64	21.5	37.5	15.7	67.6	2.48	60.8	4.56	7.70	8.98
Rtail	92.6	0.79	3.33	0.29	35.9	35.8	12.7	32.4	97.5	39.2	95.4	92.3	91.0

In cleaning tests, results indicated that, at a grind of P80 of 75 µm, the final concentrate grade achieved was of low grade, attaining 49 g/t PGE grade at 46% recovery. The overall performance of cleaner concentrate was poor at 67% PGE recovery at 20 g/t grade. Only a slight upgrade is noticeable between the cleaner and recleaner stages. The SiO_2, Fe and S contents were very high in the final concentrate, reporting 38%, 27% and 13.3%, respectively.

When grinding finer, the grade-recovery curve of the recleaner concentrate marginally shifts upwards. At a grind P80 of 38 µm, the final concentrate grade achieved was 70 g/t 4E at 13% recovery, as evident in Figure 6-8.

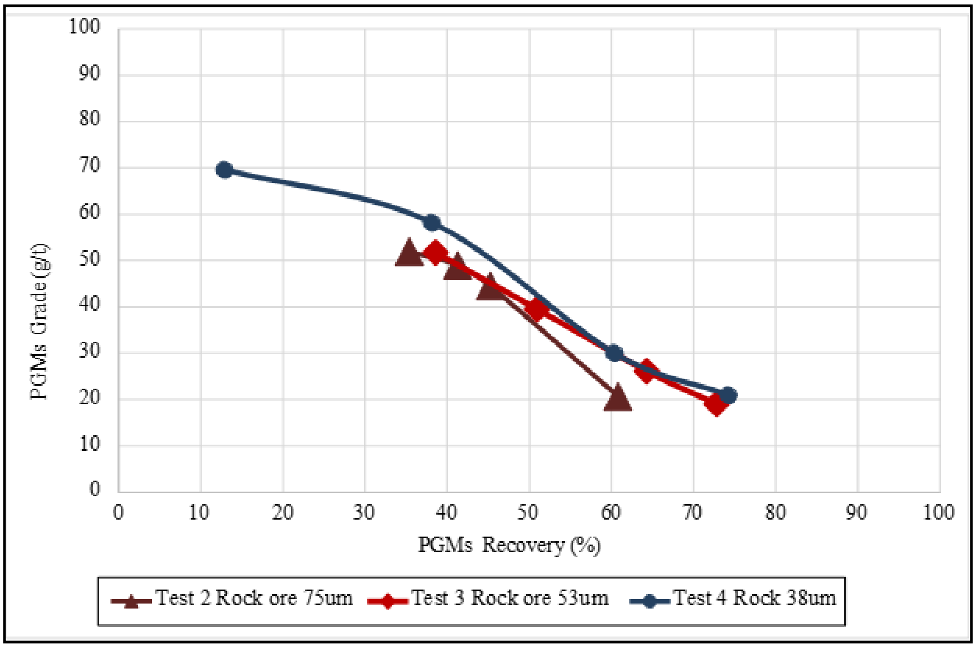


Figure 6-8: Grade-Recovery curve for effect of grinding on "Rock" material (Modified from Bert Huls, P.Eng. – LGGC, 2019)

6.3.2.2 Weathered material

A sample of "Oxidised" showed that 43 v/v % of PGE grains are less than 9 µm, 56 v/v % is liberated, 39 v/v % is attached to silicate or oxide gangue and 8 v/v % is locked. The PGE head grade is high enough to float the run of mine ("ROM") material directly without requiring pre-concentration.

As with the rock ore, the spinel chemistry in the "Oxidised" sample reported that the pure chromite crystals have a wide range of Cr_2O_3 content (24 to 53%), with an average of 45% and the associated Cr/Fe ratios between 0.31 to 1.74. Even though it is possible to achieve a Cr_2O_3 product grade of 42%, the fluctuating Cr_2O_3 grades present in feedstock will make it challenging to achieve. The main contaminants were identified as chlorite and enstatite.

The production of a chromite concentrate through gravity separation proved unsuccessful. Test results show that is possible to attain a 40.5% Cr_2O_3 gravity concentrate at 21.7% mass pull and 62.1% recovery. This is however at a 32.7% PGE loss at 14.8 g/t 3E.

Rougher kinetics indicate that the proportion of fast floating minerals can reach ~26% 4E at 7 minutes. About 20% slow floating particles were recovered between 7 and 30 minutes. The overall 4E rougher recovery reached for this ore was ~47%, as shown in the upper part of Table 6-22.

Table 6-22: Results of Rougher and Cleaner Test on "Oxidised" Ore

		Grade						Recovery					
Test 1 P80 75µm	Mass	4E	Cr2O3	S	MgO	SiO2	Fe	4E	Cr2O3	S	MgO	SiO2	Fe
	%	g/t	%	%	%	%	%	%	%	%	%	%	%
RC1+RC2+RC3	5.58	61.1	10.2	0.02	21.9	32.9	10.6	26.4	3.63	11.8	5.82	6.98	4.92
Overall RC	13.1	45.7	10.4	0.02	22.5	31.9	10.8	46.7	8.73	26.1	14.1	15.9	11.8
RT	86.9	7.91	16.5	0.01	20.7	25.5	12.2	53.3	91.3	73.9	85.9	84.1	88.2

		Grade						Recovery					
Test 2B P80 75µm	Mass	4E	Cr2O3	S	MgO	SiO2	Fe	4E	Cr2O3	S	MgO	SiO2	Fe
	%	g/t	%	%	%	%	%	%	%	%	%	%	%
RC1+RC2+RC3	5.58	61.1	10.2	0.02	21.9	32.9	10.6	26.4	3.63	11.80	5.82	6.98	4.92
Overall Rghr Conc	13.1	45.7	10.4	0.02	22.5	31.9	10.8	46.7	8.73	26.10	14.1	15.9	11.8
Rtail	86.9	7.91	16.5	0.01	20.7	25.5	12.2	53.3	91.3	73.90	85.9	84.1	88.2
Test 3 P80 75µm													
Recl conc	0.73	363	3.17	0.13	25.7	43.8	6.95	26.2	0.14	7.04	0.89	1.3	0.42
Recl Tail	1.16	66.9	7.53	0.13	22.6	31.4	9.76	7.68	0.52	11.20	1.24	1.48	0.93
Clnr tail	5.8	25.7	8.39	0.03	23	30.6	9.67	14.8	2.9	13.00	6.34	7.21	4.64
Overall RC	7.68	63.8	7.77	0.05	23.2	32	9.43	48.6	3.55	31.20	8.46	9.99	5.99
Rghr Tail	92.3	5.61	17.5	0.01	20.9	24	12.3	51.4	96.4	68.80	91.5	90	94

The PGEs upgraded well because of the high feed grade. Of concern with the weathered ore is that the amount of chromite in the concentrate may approach 3 to 5%, depending on fineness of grind. South African smelters use a maximum of 2% chromite as a guideline for an acceptable PGE concentrate.

Cleaner test results indicated a PGE product grade of 363 g/t at 24% is attainable. Combining recleaner tailings with the final concentrate, the recovery improved to 33%, with grade diluted to 181 g/t.

The effect of grind tests demonstrated that there was no improvement in performance in grinding the flotation feed finer to P80 of 53 µm as the final product PGE recovery was reduced to 15%. The overall rougher recovery also did not improve; it was 49%. Hence, conducting further test work is recommended at a P80 of 75 µm.

6.3.3 Magnetic Separation

In 2019, the "Rock" and "Oxidised" samples were subjected to magnetic separation to evaluate the possibility of upgrading flotation feed. A higher-grade flotation feed may result in better metallurgical response.

6.3.3.1 "Rock" material

The overall results, summarized in Table 6-23, show that the feed can be upgraded from 2.49 g/t 3E to 2.74 g/t 3E at 66% mass pull and >85% recovery. Although there is a slight upgrade to the final magnetic material, magnetic separation can be beneficial in reducing the feed to the flotation circuit (and thus reduce CAPEX and OPEX) by discarding 34% of the mass at 0.94 g/t 3E grade and 14% PGE loss to tailings. High chromite recovery (93%) was also achieved. This is due to the chromite crystal containing high concentrates of iron, which causes the chromite to behave as a ferromagnetic material.

The PGEs upgrade in rock ore to the magnetic fraction would be beneficial to the flotation circuit performance and may have the potential to generate a PGE product of >100 g/t, to be validated in future test work.

Table 6-23 Summary of Results of Magnetic Separation of "Rock" Material

Overall Balance															
		Grade							**Recovery**						
	Mass	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**
Stream	**(%)**	**%**	**%**	**%**	**g/t**	**g/t**	**g/t**	**g/t**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
Feed (meas.)	100	2.16	35.2	12.8	0.71	1.74	0.04	2.49	100	100	100	100	100	100	100
Feed (calc.)	100	2.18	40.1	13.7	0.60	1.63	0.05	2.28	100	100	100	100	100	100	100
Variance		0.83	12.2	6.85	19.0	6.44	17.2	9.23							
-45µm	32.2	1.39	41.7	11.52	0.90	2.28	0.05	3.23	20.5	33.5	27.0	48.6	44.9	33.3	45.6
Final mags	33.5	4.75	34.8	19.3	0.59	2.09	0.06	2.74	73.0	29.1	47.1	33.3	42.8	42.8	40.3
Final n/mags	34.3	0.41	43.8	10.4	0.32	0.59	0.03	0.94	6.46	37.4	25.9	18.1	12.3	23.9	14.1
Flotation Feed															
		Grade							**Recovery**						
	Mass	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**
Stream	**(%)**	**%**	**%**	**%**	**g/t**	**g/t**	**g/t**	**g/t**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
Feed (meas)	2	35.20	12.8	0.7	1.74	0.04	2.49								
Feed (calc)	100	2.18	40.1	13.7	0.60	1.63	0.05	2.28	100	100	100	100	100	100	100
Variance	0.83	12.20	6.9	19.00	6.4	17.20	9.2								
Float Feed	65.7	3.10	38.2	15.50	0.74	2.18	0.06	2.98	93.5	62.6	74.1	81.9	87.7	76.1	85.9
Final non-mags	34.3	0.41	43.8	10.4	0.32	0.59	0.03	0.94	6.5	37.4	25.9	18.1	12.3	23.9	14.1

6.3.3.2 Weathered material

The overall PGE recovery for +45 µm particles was approximately 41%, as may be evident from Table 6-24. The PGEs did not upgrade significantly (upgrade ratio of 1.15) due to the majority of PGE grains being associated with chromite. The chromite recovery to magnetic fraction was approximately 50%. It is expected that the PGE grains attached to the chromite particle will report to the magnetic fraction. This chromite gangue dilutes the PGE concentrate. The PGE grains locked up in chromite and/or other gangue will report to the non-magnetic fraction. With the PGE distribution being split almost equally between the magnetic and non-magnetic fraction, it becomes evident that the weathered ore cannot be upgraded using magnetic separation.

The flotation performance of the "Rock" and Oxidised" samples, tested in 2019, are summarized in Figure 6-9. Note that the concentrate grades for each sample are on different ordinates. The performance of the weathered sample, largely contributed to its higher feed grade, is superior to that of the "Rock" sample.

Table 6-24 Summary of Results of Magnetic Separation of “Oxidised” Material

		Cum. Grade							Cum. Recovery						
Stream	**Mass**	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**
-500 micron + 106 micron	**%**	**%**	**%**	**%**	**g/t**	**g/t**	**g/t**	**g/t**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
LIMS mags	9.7	22.1	16.5	39.4	1.86	2.25	0.06	4.17	8.3	8.1	17.5	5.3	3.3	6.4	4.0
WHIMS 1 amp mags	10.7	22.7	16.7	37.9	2.20	2.79	0.08	5.07	9.5	9.0	18.6	6.9	4.5	9.6	5.3
WHIMS 2 amp mags	12.5	23.3	16.9	35.8	2.43	3.33	0.09	5.84	11.4	10.7	20.7	9.0	6.3	12.4	7.2
WHIMS 3 amp mags	15.8	22.9	18.2	32.9	2.49	3.66	0.09	6.24	14.1	14.5	23.9	11.6	8.7	15.3	9.7
WHIMS 5.5 amp mags	26.7	22.7	20.1	28.4	2.51	4.33	0.08	6.92	23.7	27.1	34.9	19.8	17.3	23.7	18.2
WHIMS 8.5 amp mags	39.0	25.5	18.9	27.2	2.60	5.20	0.08	7.88	38.8	37.3	49.0	30.0	30.4	35.9	30.3
WHIMS 20 amp mags	49.7	28.1	17.4	26.7	2.75	6.05	0.09	8.89	54.5	43.7	61.1	40.4	45.1	50.1	43.6
WHIMS 20 amp non-mags	100.0	25.6	19.7	21.7	3.38	6.66	0.09	10.10	100.0	100.0	100.0	100.0	100.0	100.0	100.0

		Cum. Grade							Cum. Recovery						
Stream	**Mass**	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**	**Cr2O3**	**SiO2**	**FeO**	**Pt**	**Pd**	**Au**	**3E**
-106 micron + 45 micron	**%**	**%**	**%**	**%**	**g/t**	**g/t**	**g/t**	**g/t**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
LIMS mags	4.0	20.9	12.9	44.4	1.79	3.71	0.09	5.59	7.3	1.8	13.3	2.2	3.0	6.0	2.7
WHIMS 1amp mags	6.0	18.4	17.7	35.0	3.44	4.84	0.10	8.39	9.8	3.7	16.0	6.5	6.1	10.2	6.3
WHIMS 2amp mags	8.8	16.4	21.2	29.4	3.81	5.01	0.10	8.91	12.6	6.5	19.5	10.4	9.1	14.3	9.6
WHIMS 3amp mags	13.1	15.6	23.2	25.2	4.10	5.25	0.09	9.45	18.1	10.7	25.0	16.8	14.3	20.2	15.3
WHIMS 5.5amp mags	19.2	15.3	24.3	22.2	3.98	5.33	0.08	9.39	25.9	16.3	32.2	23.7	21.2	27.3	22.2
WHIMS 8.5amp mags	25.8	15.9	24.4	20.8	3.82	5.39	0.08	9.29	36.1	22.1	40.6	30.7	28.8	35.2	29.6
WHIMS 20amp mags	33.1	16.2	24.6	19.8	3.77	5.48	0.08	9.33	47.2	28.6	49.7	38.9	37.6	43.7	38.2
WHIMS 20amp n/mags	100.0	11.3	28.5	13.2	3.21	4.83	0.06	8.10	100.0	100.0	100.0	100.0	100.0	100.0	100.0

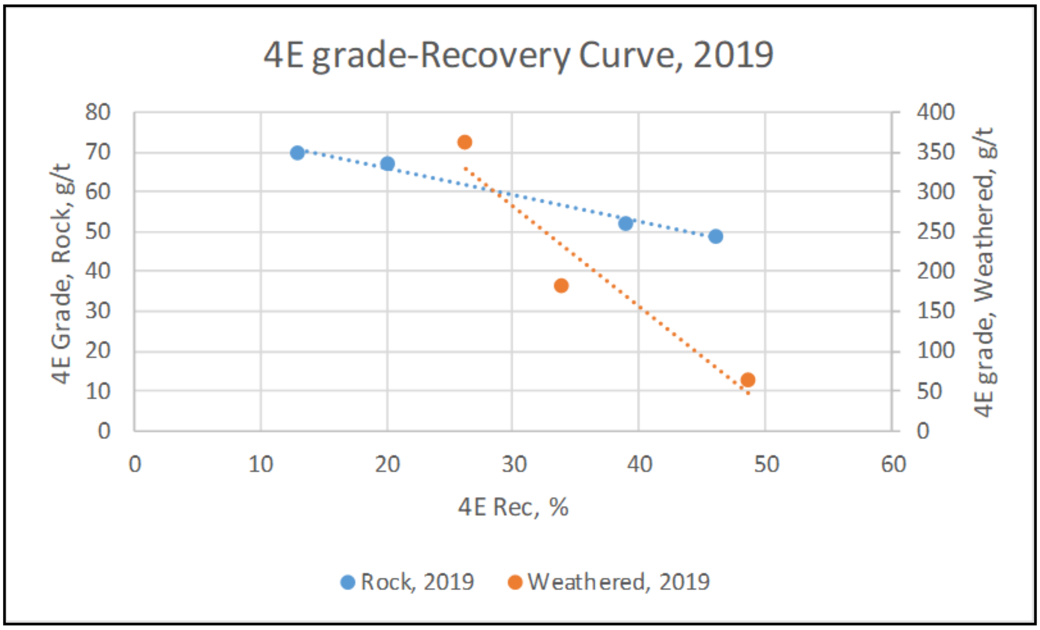


Figure 6-9 Flotation Performance of “Rock” and Oxidised” Samples Tested in 2019 (Modified from Bert Huls, P.Eng. – LGGC, 2019)

7 Geological Setting and Mineralization

7.1 Regional Geology

The Pedra Branca PGE project is situated in the Borborema Structural Province, in Ceará State, Brazil, 310 km from the city of Fortaleza. The Borborema Province is a region of great structural complexity, characterized by the superposition of distinct deformational, metamorphic, and magmatic events. Its final structural configuration is subsequent to the transcurrent collisional and post-collisional stages of the Brasiliano/Pan-African Orogeny (ca. 625–510 Ma), which resulted from the convergence of the Amazonian, West African/Sao Luis and San Francisco-Congo Cratons during the assembly of West Gondwanaland (Santos 1996, Santos et al. 2000, Brito Neves et al. 2000, Oliveira et al. 2010, Caxito et al. 2014b, 2014d, 2016, Basto et al. 2019, in Caxito et al. 2020).

The Borborema Province comprises several distinct tectono-stratigraphic domains separated by regional, hundreds-of km-long shear zones (Almeida et al. 1976, Brito Neves 1983, Santos and Brito Neves 1984, Jardim de Sá et al. 1992, Santos et al. 2000, Brito Neves et al. 2000 in Caxito et al. 2020).

The main shear zones subdivides the Borborema Province into three major tectonic zones or sub-provinces: the northern, transversal, and southern zones (Figure 7-1), which are further subdivided into internal domains (Almeida et al. 1976, Brito Neves 1983, Santos and Brito Neves 1984, Jardim de Sá et al. 1992, Santos et al. 2000, Brito Neves et al. 2000, in Caxito et al. 2020).

The main structures that divide these domains are the NE-trending Transbrasiliano (locally called Sobral-Pedro II) Shear Zone at the northwest corner of the province and the major east-west trending Patos and Pernambuco Shear Zones that separate the transversal zone from the other domains to the north and south (Figure 7-1).

The northern Borborema Province is subdivided into the Médio Coreaú ("MC"), Ceará Central ("CC"), Orós-Jaguaribeano, Seridó, and Rio Grande do Norte ("RGN") domains. The Cruzeta Complex, which hosts the PGE-bearing Tróia Mafic-Ultramafic Complex of the Pedra Branca project is located in the CC domain of the northern Borborema zone, within the Tróia-Pedra Branca Massif (Figure 7-1).

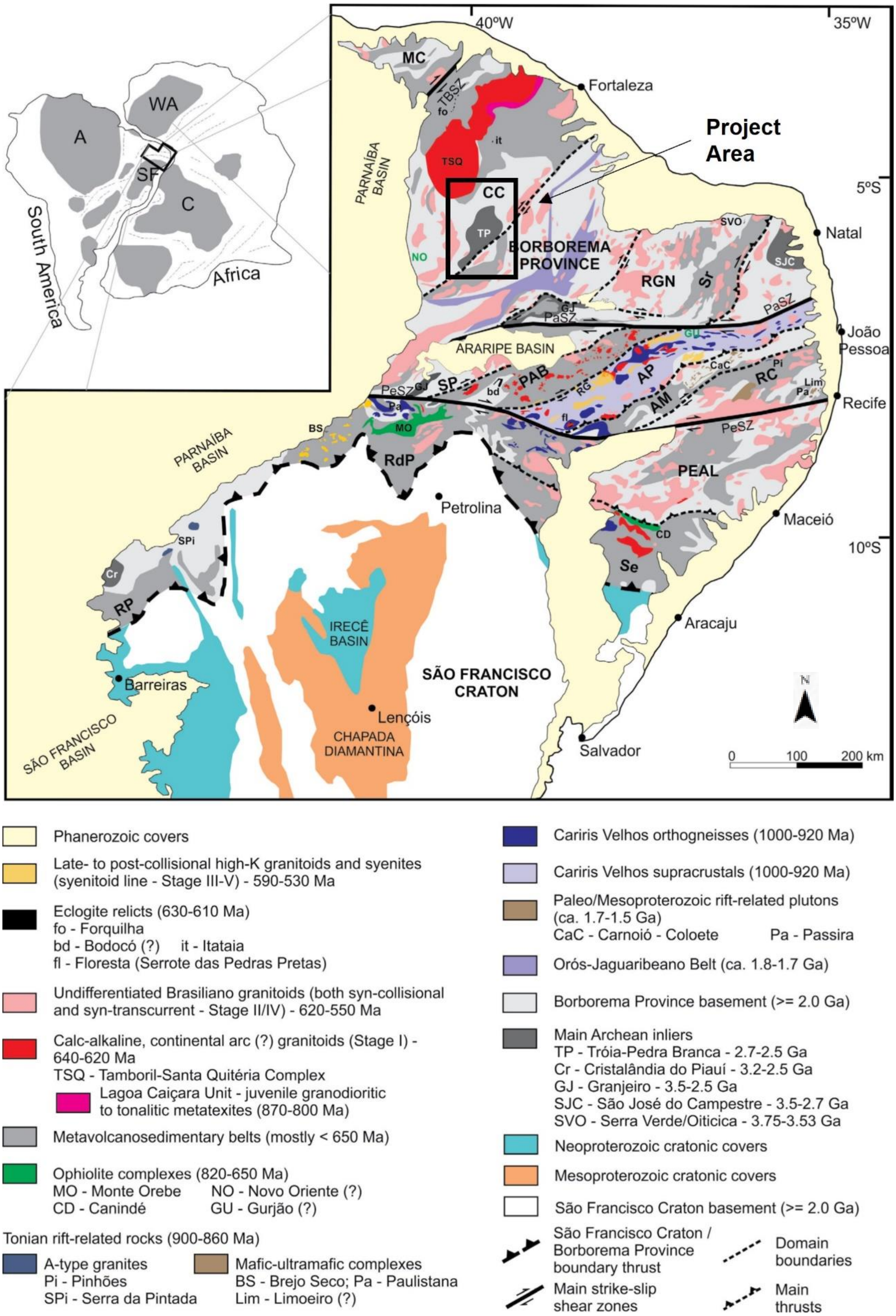


Figure 7-1: Simplified Geological Features of the Borborema Province. Domains and Subdomains: “RP” - Rio Preto, “RdP” – Riacho do Pontal, “Se” - Sergipano, “PEAL” - Pernambuco–Alagoas, “RC” - Rio Capibaribe, “AM” - Alto Moxotó, “AP” - Alto Pajeú, “RG” - Riacho Gravatá, “PAB” - Piancó-Alto Brígida, “SP” – São Pedro, “MC’ - Medio Coreaú, “CC” - Ceará Central, “RGN” - Rio Grande do Norte, “Sr” - Seridó.

“PeSZ” - Pernambuco Shear Zone; “PaSZ” - Patos Shear Zone; “TBSZ” - Transbrasiliano Shear Zone (Modified from Caxito et al. 2020).

The Tróia Massif predominantly encompasses Neoarchean TTG gneisses (Tróia Massif/Cruzeta complex of 2.8–2.7 Ga, Brito Neves 1975, Fetter 1999, Ganade de Araújo et al. 2017 in Costa et al., 2021), which are enveloped by Paleoproterozoic (Rhyacian) gneisses, migmatites and metavolcano–sedimentary sequences, with ages ranging from 2.17 to 2.03 Ga (Fetter et al. 2000, Martins et al. 2009, Silva et al. 2014, Costa et al. 2015, 2018 in Costa et al., 2021). These Archean to Paleoproterozoic rocks represents the basement for Neoproterozoic supracrustal volcano–sedimentary rocks of the Ceará Complex and the Novo Oriente Group (Arthaud et al. 2008, Ganade de Araújo et al. 2010, 2012, Garcia et al. 2014 in Costa et al., 2021). In general, all these units (basement and supracrustal rocks) were strongly deformed and migmatized during the Brasiliano/ Pan African Orogeny (e.g., Castro 2004, Arthaud et al. 2008 in Costa et al., 2021).

7.2 Local Geology

The Pedra Branca Pd-Pt-Au deposits are hosted within the mafic to ultramafic rocks of the Tróia Massif, collectively termed the Tróia Unit (Oliveira and Cavalcante et al. 1993 in Costa et al. 2021). The Tróia Unit occurs for over 50 km along trend from north-northeast to south-southwest in the central part of the Tróia Massif (Figure 7-2) and are the most extensive occurrence of mafic to ultramafic rocks in the Borborema Province (Costa et al. 2021).

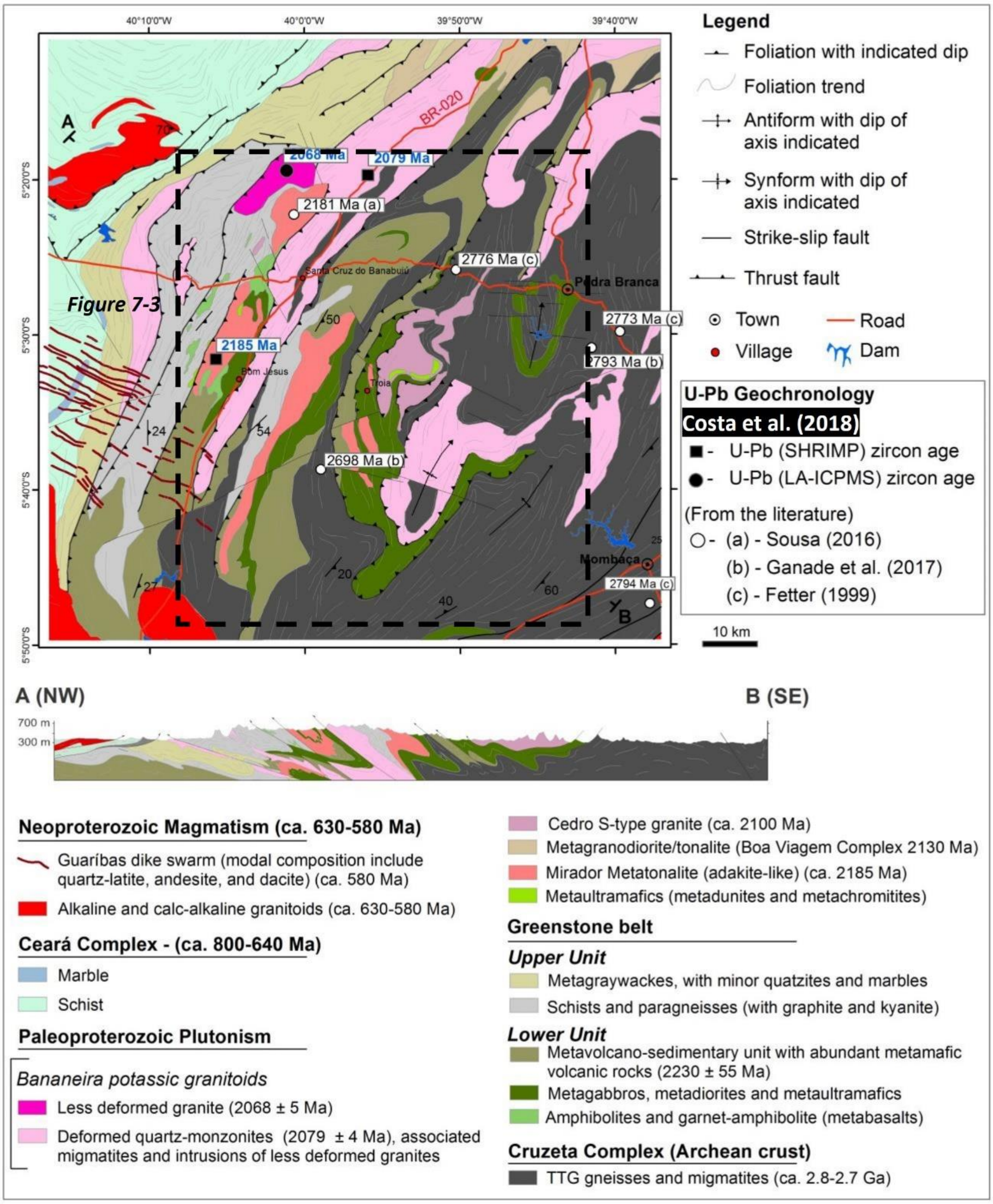


Figure 7-2: Geological Map and Sross Section of the Tróia Massif Region with Location for U–Pb Zircon Ages of Costa et al. (2018) and Previous Studies. Modified from Costa et al. (2018).

In the Pedra Branca project region, the Tróia Unit consists of a succession of metadunites, metaperidotites, and serpentinites, in addition to metamafic lithotypes, such as hornblendites, metagabbros and metadiorites. PGE mineralization is largely restricted to metachromitites, and chromite-bearing metaperidotites, metadunites and serpentinites.

In general, the mafic to ultramafic sequence of the Tróia Unit is emplaced within well-banded orthogneisses of the Archean TTG Cruzeta Complex, which represent the footwall sequence, and amphibole-chlorite-biotite-quartz schists (metavolcano-sedimentary portion of the Tróia sequence) which represent the hanging wall sequence.

The mafic-ultramafic bodies, TTG gneisses and upper metavolcano-sedimentary sequences are interlayered by Paleoproterozoic syn-tectonic S-type granites of the Cedro Suite, which are predominant as the footwall rock at the Esbarro and Cedro deposit regions.

The local geology is presented in the map of Figure 7-3, with the location of ValOre's exploration licenses and the seven NI 43-101 deposit areas which comprise the 2022 NI 43-101 mineral resource estimate.

Figure 7-4 shows general core and outcrop pictures of the main country rock lithotypes occurring in the property.

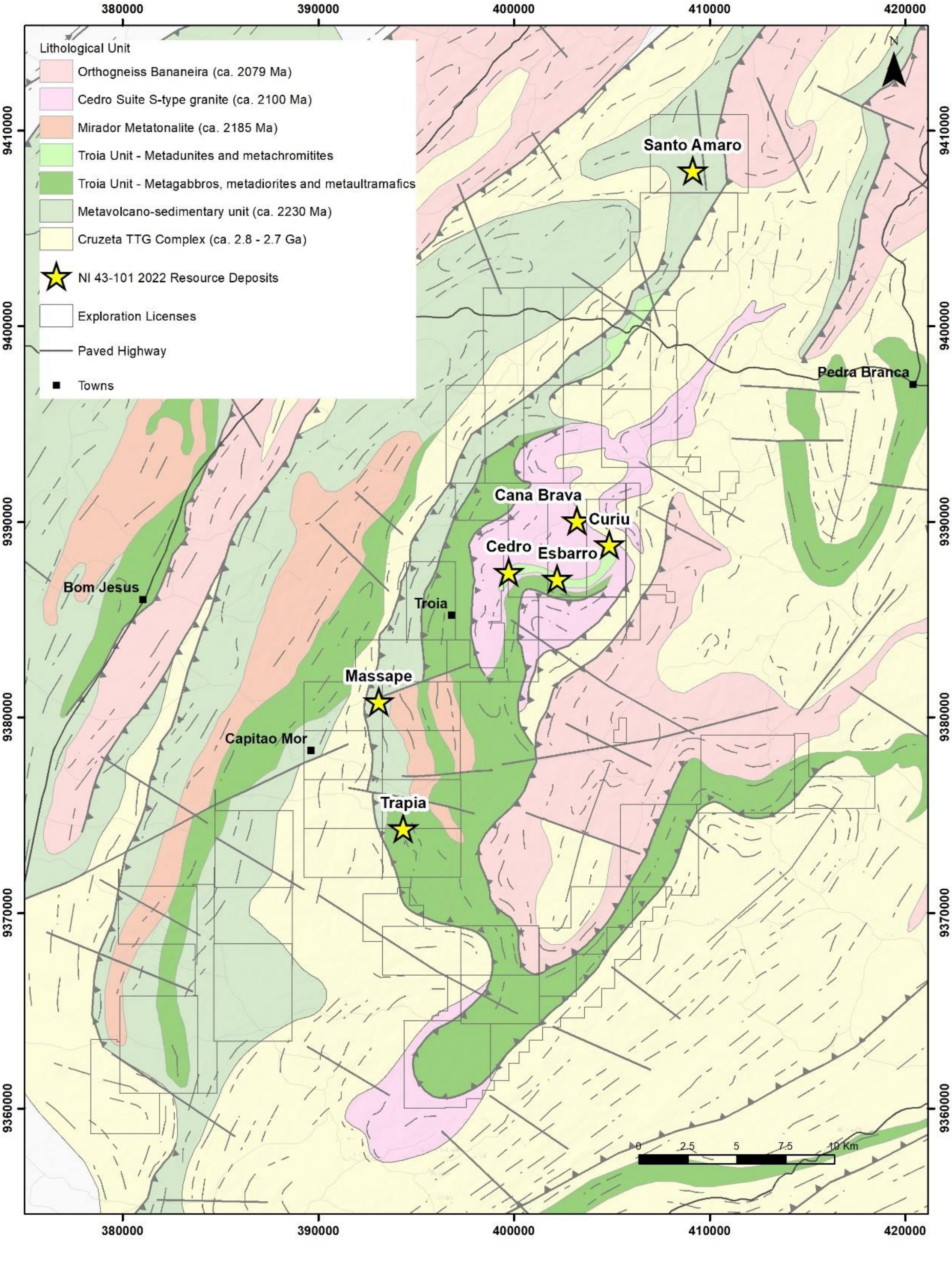


Figure 7-3: ValOre Property Local Geological Map (Source: Thiago Diniz, P.Geo – ValOre).

Figure 7-4: A and B. Metagabbros of the upper portion of the Mafic Ultramafic Tróia Unit, outcropping in the Trapiá deposit area. C. Metasediments (quartz schists) of the hanging wall sequence of the Tróia intrusions in the Trapiá area. D and E. Well banded gneisses from the footwall sequence. Trapiá area. F. Cedro pegmatites, Esbarro footwall sequence (Source: Thiago Diniz, P.Geo – ValOre).

7.3 Mafic and Ultramafic Rocks of the Tróia Unit

In the Pedra Branca project region, the Tróia Unit consists of a succession of metadunites, metaperidotites, serpentinites, in addition to metamafic lithotypes, such as hornblendites, metagabbros and metadiorites. The ultramafic package of the Tróia Unit is typically defined by the layered occurrences of metadunites and metaperidotites. The metadunites often occur as the basal portion of the package, with the metachromitites often marking a transition between the lower metadunites to the upper peridotite domain. Metapyroxenites and metagabbroic lithotypes commonly overlay the ultramafic portion but also occur interlayered by the ultramafic rocks

Mafic rocks represent the most abundant outcropping lithology at Pedra Branca, typically occurring as thick packages of metagabbros and hornblendites. The metagabbros are primarily composed of hornblende and plagioclase and commonly exhibit features of high strain, such as strong foliation and stretching lineation (Figure 7-4 A). Well preserved primary textures are locally observed in large outcropping bodies to the west of Trapiá 1 deposit area (Figure 7-4 B).

Primary ultramafic rocks at Pedra Branca include metadunites, metaperidotites and localized metapyroxenites, and are best observed in drill core samples (less exposure to tropical weathering).

At a deposit and drill core scale, metadunites typically occur in the basal zones of ultramafic intrusions. Moving up-sequence in the intrusion, the ultramafics become progressively peridotitic in composition, and commonly with increasing serpentinization (Figure 7-5). Metapyroxenites occur as metric to locally decametric lenses typically on top or within the margins of the dunitic to peridotitic intrusions (Figure 7-5 C).

Metadunites and metapyroxenites display well-preserved cumulate textures, with typically medium to coarse-grained, and rounded, olivine crystals surrounded by a serpentine-chlorite rich groundmass. Olivine crystals are variably altered to serpentine. Chromite disseminations are better observed within the cumulate groundmass, surrounding the olivine crystals (Figure 7-5).

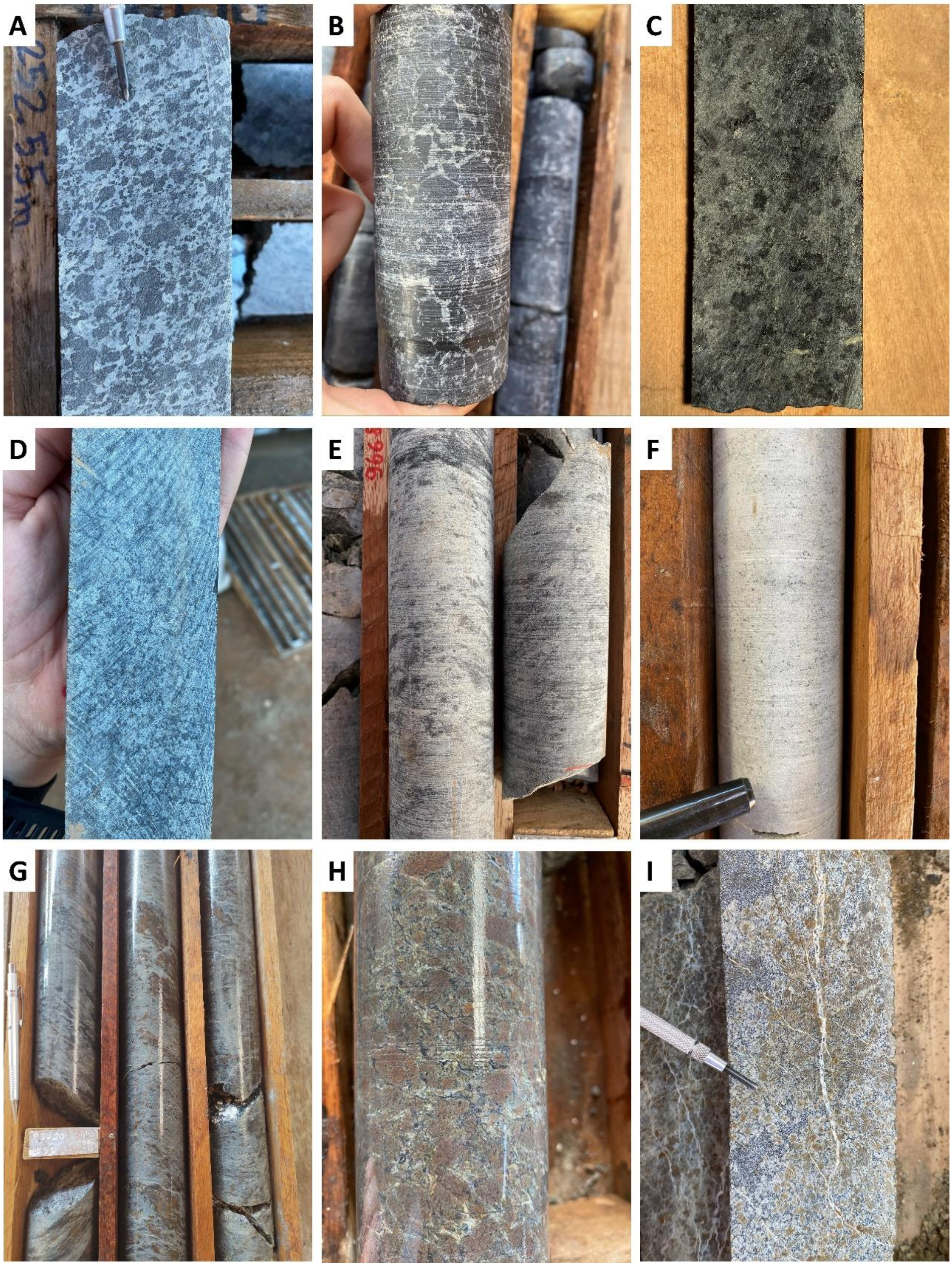


Figure 7-5: Core Photographs of Ultramafic Lithotypes Occurring in the Property Area (ValOre Drilling – 2020 and 2021). A. Metaperidotites, with dark olivine crystals within a gray serpentine-chlorite chromite bearing groundmass. B. Coarse-grained metadunites, with well-preserved cumulate textures. C. Metapyroxenites. D. Serpentinized, PGE barren peridotites from Marker Horizon at Trapiá 1 deposit. E and F. Mineralized intensely serpentinized metaperidotites. G, H and I. Intensely weathered metaperidotites and metadunites, with chromite mineralization. All core pieces are NQ diametre (Source: Thiago Diniz, P.Geo – ValOre).

The Tróia stratigraphy shows several similarities among the seven NI 43-101 deposit areas here reported, although a few particularities can be noted.

Esbarro Trend

The Esbarro, Cedro, Curiú and Cana Brava PGE deposit areas are located along the same geological trend referred to as the "Esbarro Trend". They share a similar stratigraphy and structure, with the Tróia Unit folded on a northwest-southeast striking fold axis which segregates three distinct blocks:

- Cedro – occurring in the western portion of the Esbarro Trend, and composed of several dismembered lenses of ultramafic intrusion, elongated north-south, and gently to moderately dipping to the east;
- Esbarro – located in the central portion of the Esbarro Trend, lying in the west-east direction and gently dipping to the south-southeast, and;
- Curiú and Cana Brava – occurring in the eastern portion of the Esbarro Trend, along a continuous northwest-southeast belt of Tróia Unit.

Average thickness of the ultramafic bodies at Esbarro and Cedro is 50 to 75 m. The intrusion thins towards Curiú and Cana Brava (to the east and northeast), which have average intrusion thicknesses of 50 m and 30 m, respectively.

The footwall sequence in this region is well marked by the Cedro granites and pegmatites, which are characterized by coarse to locally pegmatitic white to light pink feldspar crystals.

Metachromitites from the Esbarro and Curiú deposits, which typically host high-grade PGE mineralization (5 g/t to over 100 g/t 2PGE+Au), are typified by lateral, horizon-like continuity that can be correlated over a distance of approximately 1000 m (Esbarro deposit - 900 m x 300 m, Figure 7-6), and reach up to 6 m in thickness locally (drill hole DD21ES15C). Curiú represents the highest average grade of all seven 43-101 deposit areas (2.2 g/t 2PGE+Au) and hosts a contiguous metachromitite horizon spanning approximately 400 m (long axis),

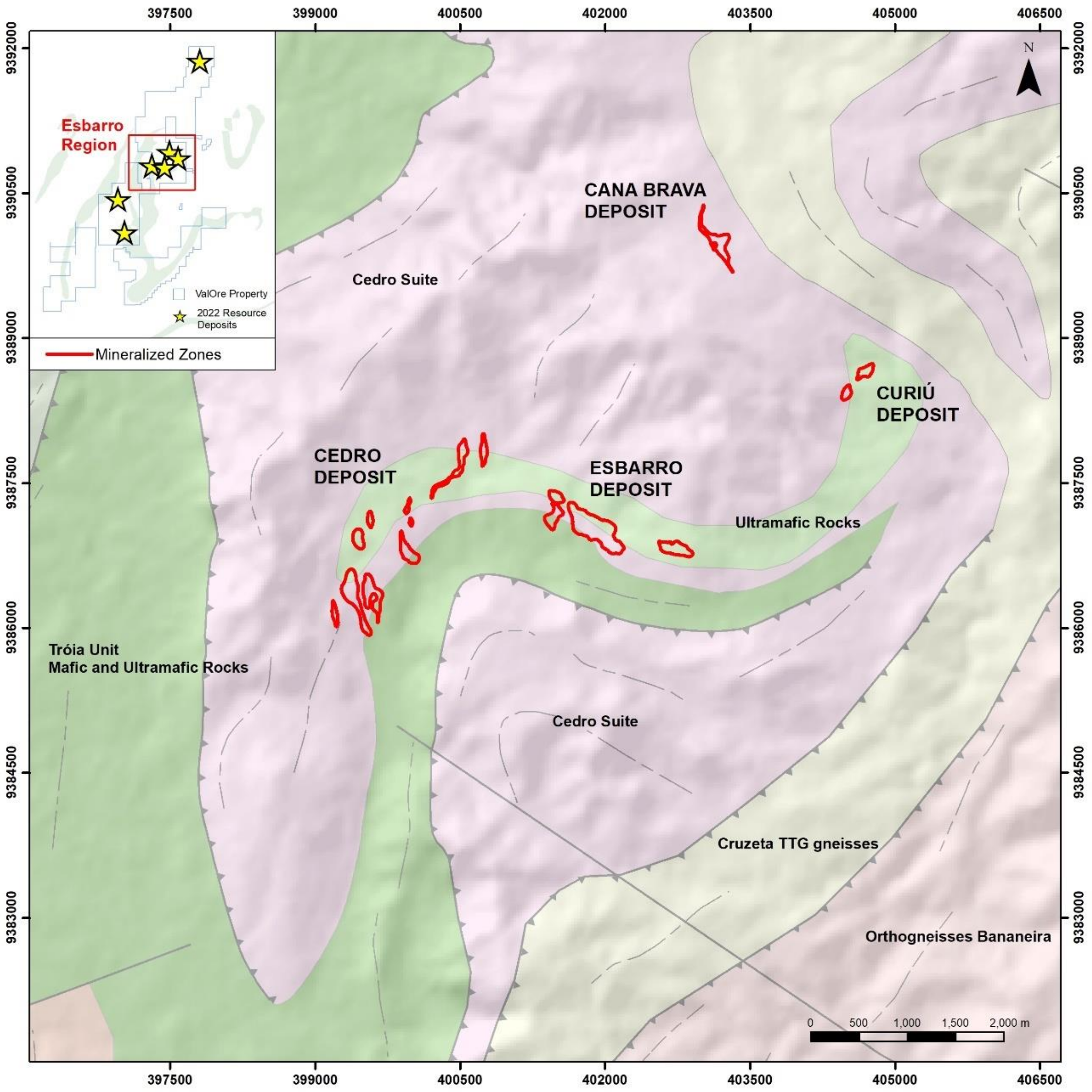


Figure 7-6 Local Geological Map of the Cedro, Esbarro, Curiú and Cana Brava PGE deposits, and Approximate Areas of Deposit Outcrops Shown by the Red Polygons (Source: Thiago Diniz, P.Geo – ValOre).

Trapiá – Massapê Trend

The Massapê and Trapiá deposit areas occur approximately 10 and 15 km to the south-southwest of the Esbarro Trend, respectively, along a consistent north-south trending belt of Tróia Unit which moderately dips (30-45°) to the east.

The Trapiá region comprises four PGE deposits: Trapiá 1, Trapiá 2, Trapiá West and Trapiá South (Figure 7-7).

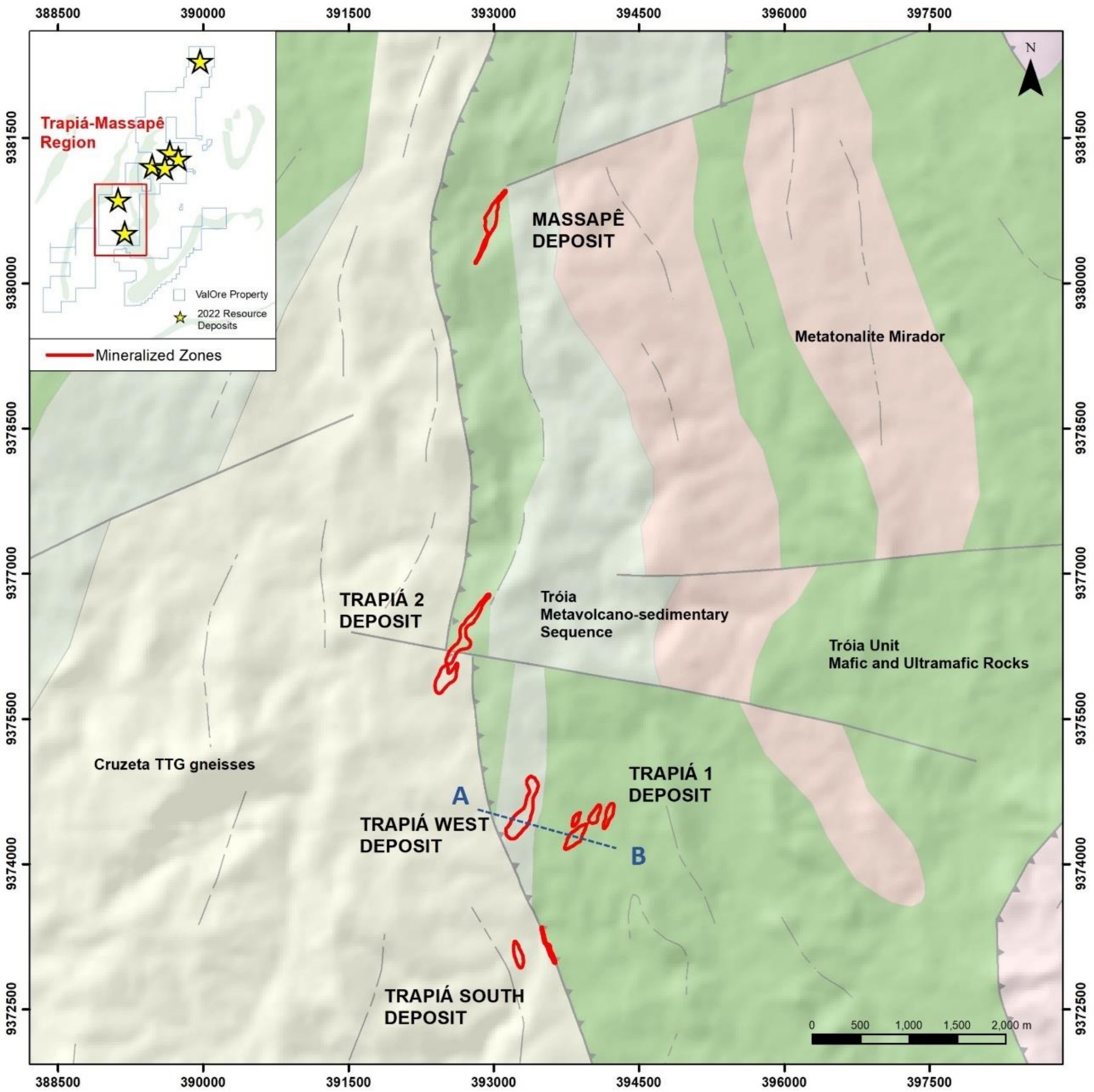


Figure 7-7: Local Geological Map of the Trapiá – Massapê Region, with the Location of the Cross Section Presented in Figure 7-8, and Approximate Areas of Deposit Outcrop Shown by the Red Polygons (Source: Thiago Diniz, P.Geo – ValOre).

Evidence of thrusting and tight, isoclinal, folding is often present at both outcrop and core scale along this trend. Most of the ValOre and historical drill holes drilled at 50 to 70° dips to the west or west-northwest and are interpreted to represent 90 to 100% of the true ultramafic intrusion thickness. Trapiá has returned the thickest mafic-ultramafic intrusion drill hole intercepts in the project, with the ultramafic sequence reaching up to 100 m of thickness in the main ore zones, i.e. Trapiá 1 deposit drill holes DD20TU12, DD20TU20, DD21TU21.

The main ultramafic package at Trapiá 1 deposit is dominantly peridotitic in composition, with an intense serpentinization towards the intrusion borders, and a predominantly dunitic core. Narrow but continuous chromitite reefs (0.5 to 1 m thick) can be laterally traced over a 3500m along trend, and show the highest PGE grades in the area (>20 g/t 2PGE+Au); however, the dominant mineralization style at Trapiá characterized by disseminated chromitites which occur within the serpentine-chlorite matrix of the olivine-pyroxene cumulates. Average PGE grades at Trapiá (0.96 g/t 2PGE+Au, in the 2022 NI 43-101 resource estimate) are lower than the Esbarro and Curiú deposits (1.16 and 2.20 g/t 2PGE+Au, respectively, in the 2022 NI 43-101 resource estimate); however, Trapiá represents the largest contributor (>40%) to the global resource at 885,000 ounces 2PGE+Au out of the 2.196 Moz total.

In addition to the main mineralized ultramafic package at Trapiá 1, a second ultramafic intrusion was identified in the upper portion of the sequence, systematically occurring 40 to 50 m above the main mineralized horizon. This horizon was defined as a “Marker Horizon” by ValOre geologists and helped guide drilling and target mineralization throughout the 2020 and 2021 drilling campaigns. The Marker Horizon is predominantly composed of a serpentinized peridotite, with olivine crystals commonly deformed and elongated parallel to the main local foliation, which is well defined in the country rocks. The marker horizon outcrops to the west of the Trapiá 1 deposit area, where it is predominantly represented by thick (50-100 m) packages of pyroxenites. This horizon has been systematically assayed by ValOre and previous operators and is barren of PGE mineralization, suggesting a different magmatic event.

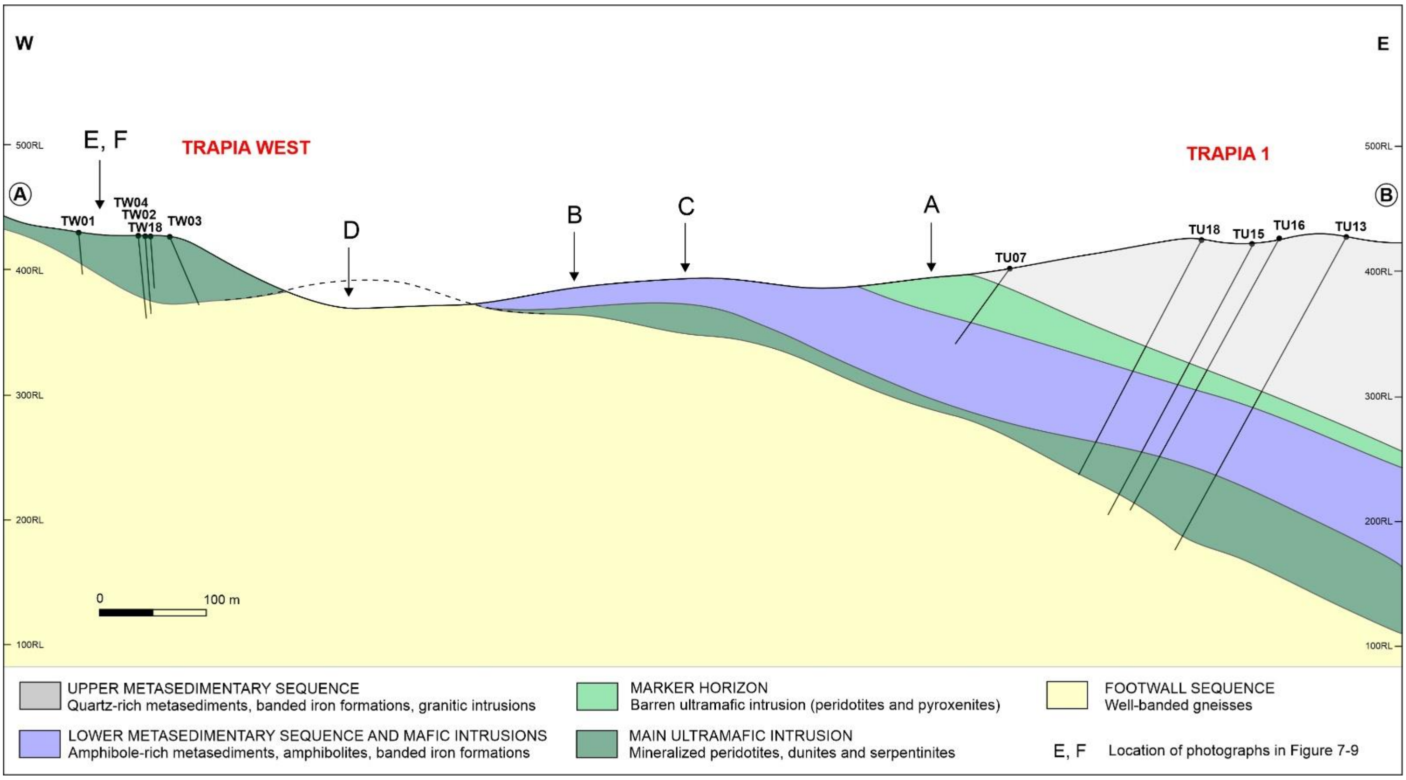


Figure 7-8 Schematic West-East Cross Section in Trapiá 1 and Trapiá West Deposit Areas. A to F Showing Locations of the Photographs in Figure 7-9 (Source: Thiago Diniz, P.Geo – ValOre).

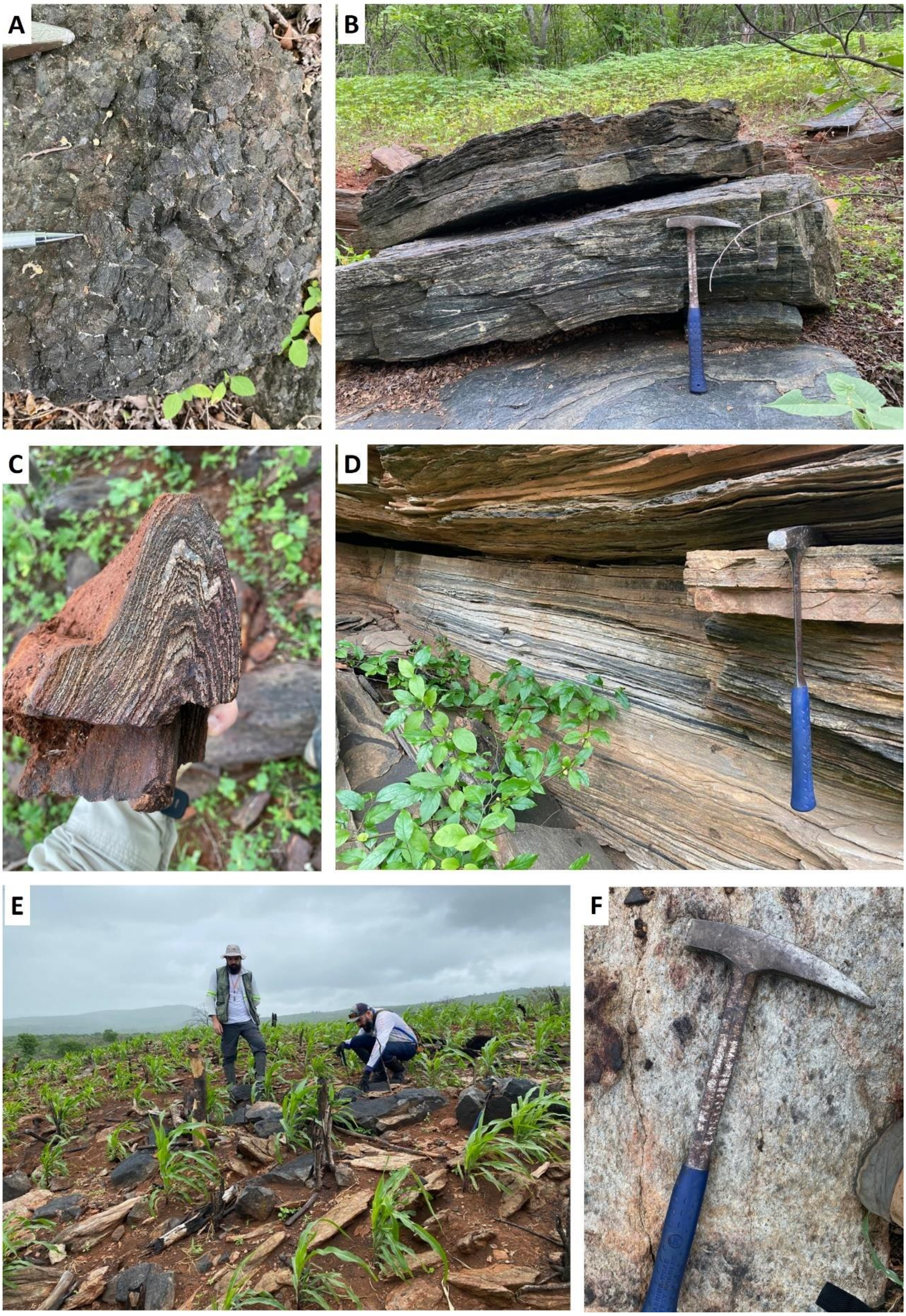


Figure 7-9 Lithological Sequence Observed from East to West in Trapiá Area. A. Metagabbros - Marker Horizon. B. Amphibole schists. C. Folded banded iron formation. D. Footwall well-banded gneisses. E and F. Chromitites and serpentinized ultramafic rocks at Trapiá West deposit (Source: Thiago Diniz, P.Geo – ValOre).

The Massapê deposit is located 5 km north of Trapiá along trend, and shares strong geological, structural, stratigraphic similarities to Trapiá, with slightly higher average PGE grades (1.21 g/t 2PGE+Au in the 2022 NI 43-101 resource estimate). Massapê is one of two new PGE deposits added to the updated mineral resource estimate (the other deposit being Cana Brava), and remains open along strike in both directions, and at depth.

Santo Amaro Trend

The Santo Amaro and Santo Amaro South deposit areas occur in the northern region of the Pedra Branca project and host some of the highest-grade (and grade*thickness) PGE drill holes in the property, including DD02SA02, which assayed 106.14 m grading 1.37 g/t 2PGE+Au from 2 m depth. Santo Amaro is hosted within an east-west shear zone that crosscuts the regional northeast-southwest trend and is characterized by an intense serpentinization and alteration of the ultramafic package extending up to 60 m downhole. The weathering is typified by lenses of phlogopite schists, serpentinites, and tremolite schists within metadunites and metaperidotites.

7.3.1 Alteration

Four main types of alteration have been recognized:

An early pervasive alteration has altered the olivine to serpentine and the pyroxenes to tremolite. This alteration is generally pervasive although petrographic work often shows that relic olivine and pyroxene are present in small amounts. Locally light coloured pyroxenite layers have been only partially altered. The alteration of olivine to serpentinite was accompanied by the development of magnetite.

The second phase of alteration is the development of chlorite tremolite schist from peridotitic rocks. This alteration is often accompanied with a distinct texture designated corona texture. This texture is comprised of serpentinite after olivine altering to chlorite but with a rim of tremolite around the olivine.

A third phase of alteration is tremolitization of the serpentinized olivine. This occurs both as pervasive alteration with very sharp boundaries (alteration front) and as a non-pervasive mottling fabric parallel to foliation and generally near shear zones or the margins of the ultramafic bodies. This type of alteration is strongly structurally controlled and is generally accompanied with partial magnetite destruction.

A fourth type of alteration is associated with brittle fractures, quartz veins and/or felsic intrusive rocks. It is generally restricted to structures and fracture selvedges. The mineralogy is often zoned from a central zone of phlogopite schist outward to chlorite phlogopite schist, chlorite actinolite schist and tremolite schist. Structures associated with this alteration are commonly steeply dipping, and generally accompanied with partial magnetite destruction (similar to the third phase of alteration, described above).

7.4 Structural Geology

The Tróia Unit had historically been interpreted to represent a previously continuous ultramafic sill structure that has been dismembered into discrete bodies by tectonic activity, with primary mechanisms being unrooted folding (x-folding). The resultant bodies are in boudinage form, with elongated lenses commonly orientated between 70 and 110°, with a typical length:width:thickness of 4:2:1. This characteristic may be useful in the screening of magnetic anomalies for those most likely to be caused by mineralized ultramafic bodies during high-grade dynamic and thermal metamorphism.

The ultramafic bodies are generally overlain by a sequence of amphibolite rock interlayered with granitoids, with the footwall represented by a diverse suite of generally well-layered gneisses, granitoid and amphibolites. Where observed, contacts of the ultramafic bodies with their host rocks are sheared. The ultramafic bodies themselves are variably cut by altered shear zones. These shears are most often at low to moderate angles; however, late steep shears sometimes associated with quartz or pegmatite veins are locally present.

Tectonic reworking of these terranes created a 70-km-long almond-shaped mega-sigmoidal structure with a northeast-southwest trend delimited by subparallel, deep-seated crustal shear zones of extensive proportions (Figure 7-10). The principal strands of shearing are the Sabonete-Inharé Fault, the Senador Pompeu Lineament and the more distal Tauá Fault.

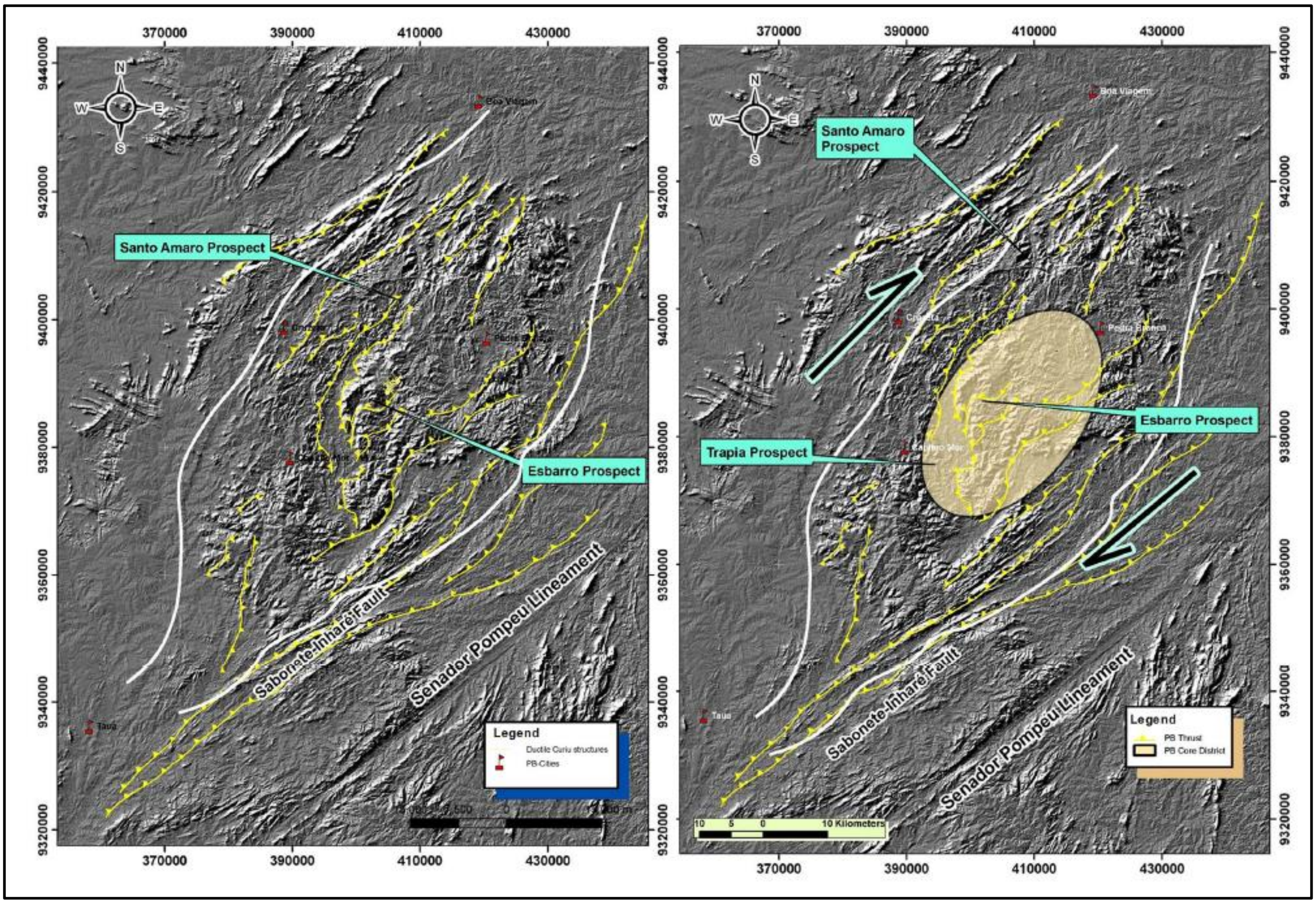


Figure 7-10 The Mega-Sigmoidal Structure that Defines the Regional Structure at Pedra Branca (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

Figure 7-11 presents a detailed structural geological map in the property area and highlights the structural trends along which most target areas at Pedra Branca are located, namely the Santo Amaro, Esbarro and Trapiá Trends.

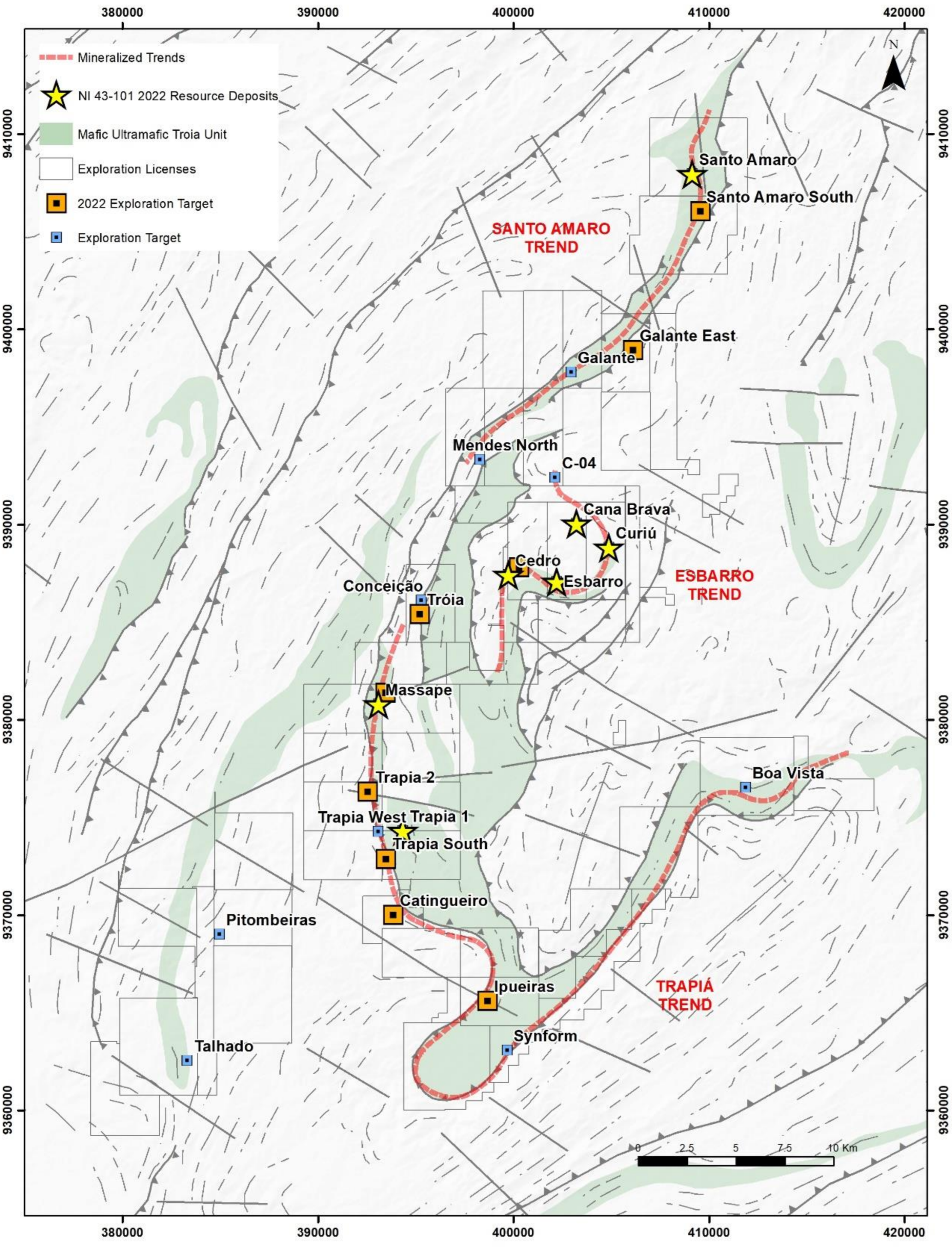


Figure 7-11: Structural Geology Map – Tróia Unit, Pedra Branca Project Area – and Santo Amaro, Esbarro and Trapiá Trends (Source: Thiago Diniz, P.Geo – ValOre).

7.5 Mineralization

PGE and gold mineralization at Pedra Branca is predominantly associated with areas of chromite enrichment in the ultramafic package of the Tróia Unit, with localized base metal sulfides (“BMS”) which correlate directly with Cu, Ni, S and Au concentrations.

Chromite mineralization occur as two main types in all seven 43-101 deposit areas:

- Disseminated chromite mineralization – characterized by fine-grained chromite within the olivine cumulate groundmass, in association with chlorite-serpentine, as typically represented in the Trapiá deposit (Figure 7-12);
- Massive metachromitites – characterized by generally homogeneous reef-like horizons, containing 30 to 60% chromite crystals (euhedral octahedral grains from 0.3 mm to 1 mm), hosted in a gray to light green groundmass of chlorite, tremolite and serpentine. This type of mineralization show the highest PGE grades (often >10 g/t 2PGE+Au, and locally reaching >100 g/t 2PGE+Au) and is best represented in the Esbarro, Curiú and Trapiá deposit areas. Thicknesses vary from 30 cm to 6 m thick, with lateral continuity up to 400 m, and the reef horizons often representing a transitional facies within layered ultramafic complexes (Figure 7-13).

The massive chromitites locally show crosscutting finer- or coarser-grained chromite grains, that could represent injection of different chromite- and PGE-bearing pulses of ultramafic magma.

Figure 7-12: Typical Cumulate Textures in Mineralized Metaperidotites and Metadunites from the Trapiá Deposit. (Source: Thiago Diniz, P.Geo – ValOre).

Chromitite-reef at DD21ES15C: 16.92 g/t 2PGE+Au over 6.35m

Chromitite-reef (41.16 g/t 2PGE+Au over 0.55m sample)

Chromitite-reef: 24.24 g/t 2PGE+Au, 0.73 g/t Rh over 1.00m sample

Figure 7-13: Mineralized Chromitites from the Esbarro Deposit - Drill Hole DD21ES15C (Source: Thiago Diniz, P.Geo – ValOre).

Advanced mineralogical studies performed by ValOre in selected chromitite samples from the Curiú deposit has shown a bulk mineralogy consisting of chlorite (50.8%), followed by chromite (29.7%), amphibole (10.2%), olivine (2.8%), quartz (2.7%), and other minerals typically in trace to minor amounts (<1%). Sulfides are present in trace amounts and include Cu-sulfides, mainly chalcopyrite and covellite, and Fe-sulfides including pyrite and pyrrhotite, and pentlandite (SGS, 2021).

Platinum mineralization predominantly occurs as sperrylite ($PtAs_2$), and the palladium is hosted in a combination of Pd-Bi-Te-As and Cu species. The platinum-based phases (sperrylite) are generally coarser than the palladium-based. Most of the sperrylite by mass (29%) occurs in the 70-75 µm, while the remainder occur below the 20-25 µm class. Palladium based PGM occur mainly in the 35-40 µm class (36% by mass), and the rest below the 15-20 µm size classes. Sperrylite appears to have a wider bimodal distribution than the palladium phases (SGS, 2021). The average palladium to platinum ratio in all seven deposits is approximately 2:1.

Significant PGE mineralization discovered historically at the Pedra Branca was confined to 5 main deposits: Trapiá, Esbarro, Cedro, Curiú and Santo Amaro. Two historical exploration targets, Massapê (5 km along trend to the north of Trapiá resource), and Cana Brava (5 km north of Curiú deposit), were historically underexplored, and identified by ValOre as high-priority targets. Subsequent exploration and drilling by ValOre in 2020 and 2021 (described in Sections 9 and 10) delineated near-surface PGE-bearing ultramafic intrusions that are now included in the 2022 resource update. Massapê remains fully open in all directions, with the potential expand into one of the main deposits at Pedra Branca with additional drilling along-strike and at depth.

ValOre's 2020 and 2021 drill programs successfully extended PGE mineralization outside of the 2019 NI 43-101 inferred resource and confirmed historical drilling averages within the original deposits.

Highlight mineralized intersections include:

- Esbarro: 77 m at 2.95 g/t 2PGE+Au from surface, incl. 45 m at 4.76 g/t 2PGE+Au, 0.1 g/t Rh from 16 m, and 6.4 m at 16.92 g/t 2PGE+Au and 0.52 g/t Rh from 30 m in drill hole DD21ES15C (Figure 7-14);
- Curiú: 49 m at 2.03 g/t 2PGE+Au from 19 m, incl. 4.6 m at 12 g/t 2PGE+Au, 0.25 g/t Rh from 24 m in drill hole DD21CU12A;
- Trapiá 1: 77 m at 1.25 g/t 2PGE+Au from 177 m in drill hole DD20TU20;
- Trapiá 1: 72 m grading 1.29 g/t 2PGE+Au from 135 m; incl. 1.6 m grading 10.82 g/t 2PGE+Au from 168 m; in drill hole DD21TU21 (Figure 7-15);

Figure 7-14 and Figure 7-15 present core photographs of high-grade PGE mineralization reported during the 2021 drilling campaign at Esbarro and Trapiá deposits.

Figure 7-14: Esbarro Deposit. High-Grade PGE Interval Associated with 6.35-m-Thick Chromitite Reef Horizon in Twin Hole DD21ES15C, Drilled During the 2021 Program. (Source: Thiago Diniz, P.Geo – ValOre).

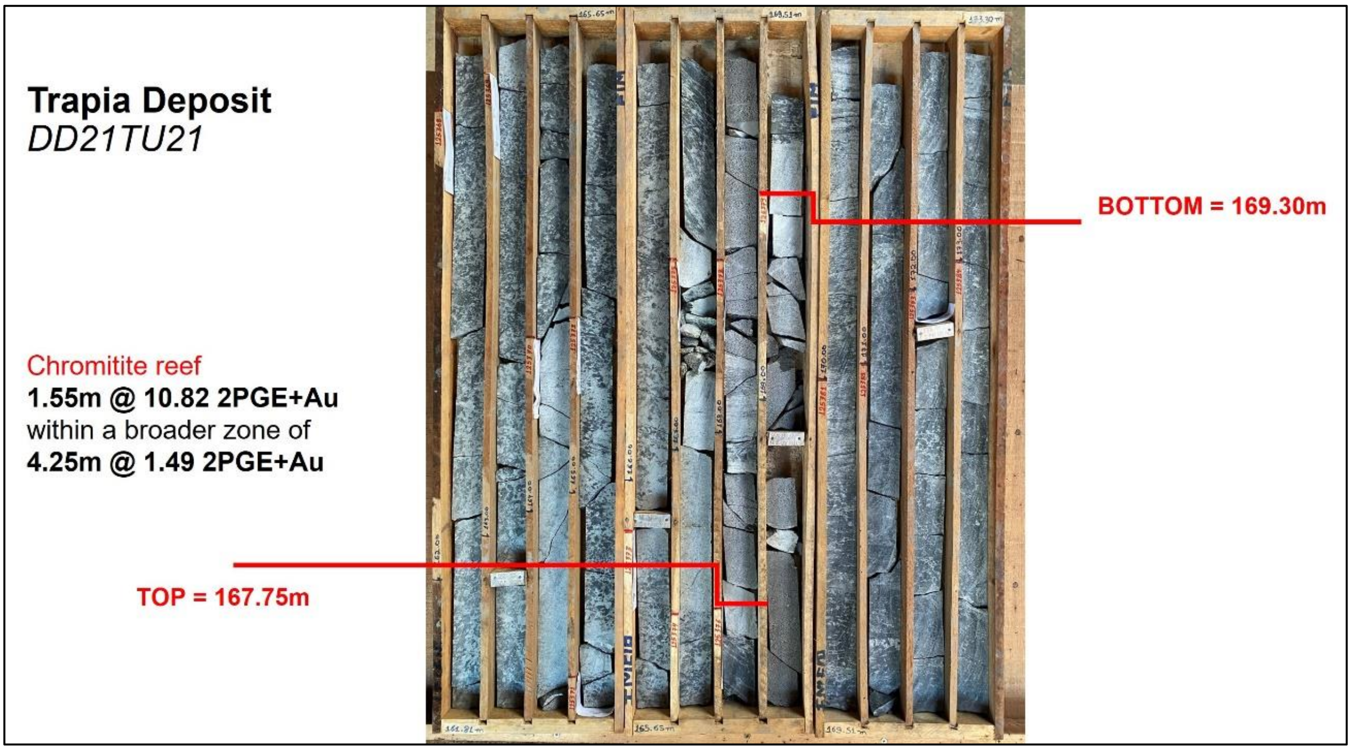


Figure 7-15: Typical PGE Mineralization Associated with Chromitite Reefs and Chromite-Bearing Serpentinized Peridotites at Trapiá Deposit, in Drill Hole DD21TU21. (Source: Thiago Diniz, P.Geo – ValOre).

8 Deposit Types

Layered, and zoned ultramafic to mafic intrusions are uncommon in the geologic record but host magmatic ore deposits containing most of the world's economic concentrations of platinum-group elements ("PGE"). These deposits are mined primarily for their platinum, palladium, and rhodium contents.

Magmatic ore deposits are derived from accumulations of crystals of metallic oxides, or immiscible sulfide, or oxide liquids that formed during the cooling and crystallization of magma, typically with mafic to ultramafic compositions, according Zientek, M.L., (2012).

"PGE reefs" are stratabound PGE-enriched lode mineralization in mafic to ultramafic layered and zoned intrusions. The term "reef" is derived from Australian and South African literature for this style of mineralization and used to refer to (1) the rock layer that is mineralized and has distinctive texture or mineralogy (Naldrett, 2004), or (2) the PGE-enriched sulfide mineralization that occurs within the rock layer. For example, Viljoen (1999) broadly defined the Merensky Reef as "a mineralized zone within or closely associated with an unconformity surface in the ultramafic cumulate at the base of the Merensky Cyclic Unit."

PGE-enriched sulfide mineralization is also found near the contacts or margins of layered mafic to ultramafic intrusions (Iljina and Lee, 2005). This contact-type mineralization consists of disseminated to massive concentrations of iron-copper-nickel-PGE-enriched sulfide mineral concentrations in zones that can be tens to hundreds of metres thick. The modes and textures of the igneous rocks hosting the mineralization vary irregularly on the scale of centimetres to metres. Mineralization occurs in the igneous intrusion and in the surrounding country rocks. Mineralization can be preferentially localized along contact with country rocks that are enriched in sulfur-, iron-, or CO_2-bearing lithologies.

Reef-type and contact-type deposits, in particular those in the Bushveld Complex, South Africa, are the world's primary source of platinum and rhodium. Reef-type PGE deposits are mined only in the Bushveld Complex (Merensky Reef and UG2), the Stillwater Complex (J-M Reef), and the Great Dyke (Main Sulfide Layer). PGE-enriched contact-type deposits are only mined in the Bushveld Complex.

About the commodities (and by-products) for those two deposit types:

- Reef-type PGE deposits: primarily platinum, palladium, and rhodium; copper, nickel, ruthenium, iridium, osmium, and gold will be recovered as by-products;
- Contact-type Cu-Ni-PGE deposits: polymetallic, with variable proportions of copper, nickel, and platinum-group elements, and by-product gold.

The Reef-type PGE deposits consist of stratabound disseminated iron-, copper-, nickel- and PGE-bearing sulfide minerals that are associated with one or more layers within a layered igneous intrusion. The host rocks for the disseminated sulfide minerals include silicate cumulates such as (1) plagioclase-olivine cumulates that host the J-M Reef in the Stillwater Complex, (2) orthopyroxene cumulates that are associated with the Merensky Reef in the Bushveld Complex, and (3) pyroxene cumulates that host the Main Sulfide Zone in the Great Dyke, as well as oxide cumulates such as (4) the UG2 chromitite in the Bushveld Complex, and (5) the iron-titanium oxide layers in the Stella Intrusion in South Africa. The interval hosting PGE reefs may also mark the position where the magmas achieved sulfur saturation in the stratigraphic column. This is indicated by the presence of disseminated sulfide minerals or changes in metal ratios, such as Pd/S (Barnes, 1993; Miller et al., 2002; Maier et al., 1996, 2003; Maier, 2005; Maier and Barnes, 2010, in Zientek, 2012). Sulfur saturation may be associated with iron rich cumulate layers, such as chromitites and iron- and titanium-rich magnetite seams, or with iron-rich silicate rocks resulting from the end-stages of fractional crystallization.

The Copper-nickel-PGE-gold contact-type deposits consist of disseminated, net-textured, and massive copper-nickel-PGE-enriched sulfide minerals found near the lower contact or margin of mafic to ultramafic layered intrusions. The host rocks for the disseminated sulfide minerals include both the igneous rocks and contact metamorphosed country rocks. The sulfide mineralization is found adjacent to or along strike with country rocks that are enriched in sulfur-bearing, iron-bearing, and (or) carbonate minerals. The mineralization can be laterally persistent, commonly extending the strike length of the layered igneous intrusion. However, the mineralized interval is generally tens to hundreds of metres in thickness. The proportion of sulfide minerals varies along strike; using economic cut-offs, areas with higher proportions of sulfide minerals and metals are defined as deposits along the contact zone. Sulfide abundance is typically about 3 to 5 volume percent, but matrix and massive sulfide ores may be present. Erratic variation in the distribution of sulfide minerals is typical, although, the concentration of sulfide minerals within the intrusion generally increases towards its margins and in the adjacent country rocks. Associated deposit types include stratiform chromitite (Schulte et al., 2010), stratiform titanium-vanadium (Force, 1991 in Zientek, 2012), and magmatic sulfide-rich nickel-copper deposits related to picrite and (or) tholeiitic basalt dike-sill complexes (Schulz et al., 2010).

According to Naldrett et al. (1990 in Naldrett, 1999), PGE mineralization also can belong to two major groups, those that are richer in sulfide, and that are of interest primarily because of their contained Ni and Cu, and those that contain much less sulfide and for which the PGE content is the principal economic interest.

Other authors as Xiao et al. (2005) refers to three types of deposits but considering the same criteria of differentiation between (1) PGE’s dominant ores: (2) Ni–Cu dominant ores and (3) Miscellaneous ores that contain very low PGE concentration compared to the previous two types of ores, Figure 8 1.

The (2) Ni–Cu dominant sulfides ore in terms of their petro-tectonic setting also can be divided in four settings or classes account for more than 95% of known Ni–Cu ores:

- Class I: Noritic rocks associated with an astrobleme (scar resulting form meteorite impact). The only known example of this type is the Sudbury mining camp in Canada;
- Class II: Intrusive equivalents of flood basalts associated with intracontinental rifting. The most important example of this ore type is the Norilsk deposit in Russia. The Duluth complex in Minnesota is another example of this class of ore;
- Class III: Magmatic activity accompanying the early stages of formation of Precambrian greenstone belts;
- Class III can be subdivided into two further classes. Examples of this Class deposits include the Kola Peninsula, Lyn Lake, and Thompson and the Northern tip of the Ungava Peninsula in Canada;
- Class IV: Tholeiitic intrusions, generally synchronous with orogenesis in Phanerozoic orogenic belts.

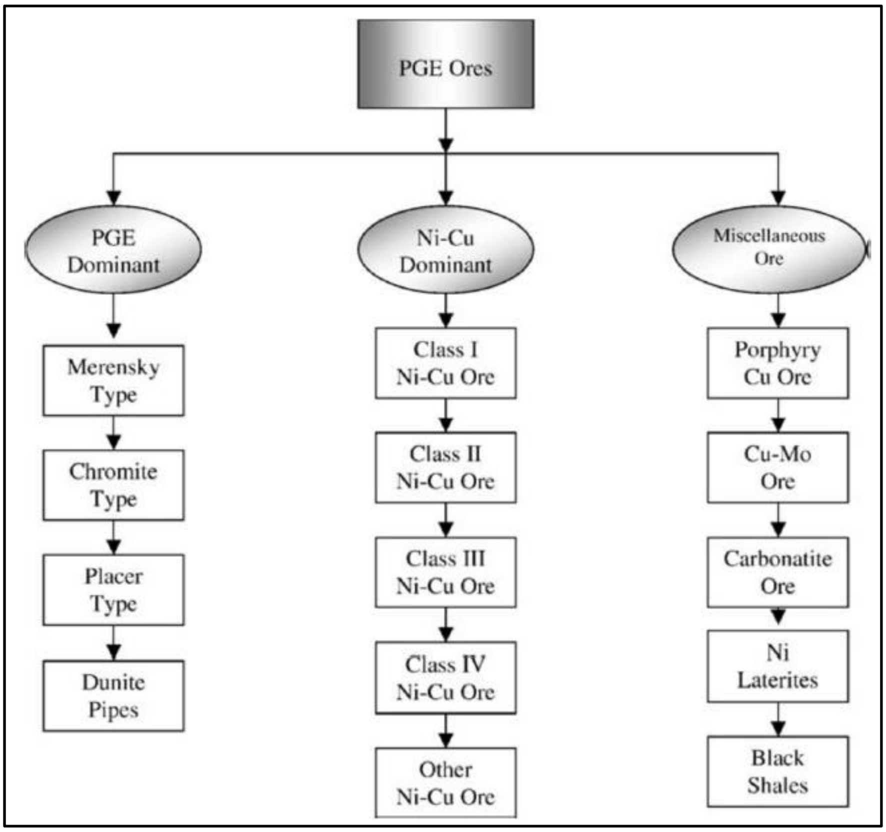


Figure 8-1: PGM Ore Type Classification According to Xiao et al., 2008 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

Mafic and ultramafic bodies are abundant in Brazil, and several favourable geological settings for PGE-Ni-Cu deposits occur in the country. These include numerous large, layered intrusions in cratonic areas, several clusters or lineaments of mafic and mafic-ultramafic intrusions, including examples where feeder dykes and the lowermost parts of layered intrusions are exposed, a continental scale event of flood basalts, and several areas of extensive komatiitic magmatism in Precambrian greenstone belts. The abundance of mafic and ultramafic bodies in Brazil has not reflected so far in the number and magnitude of PGE-Ni-Cu deposits (Ferreira Filho, 2010).

Pedra Branca PGE mineralization occurs within zoned ultramafic bodies. The deposit characteristics, mineral associations and style of mineralization is believed to be related to the “reef-type” PGE ores, although in the Pedra Branca deposits the bulk of the PGE mineralization occurs not only with narrow discrete chromite-rich lenses, but more commonly with disseminated chromite over metres to many tens of metres thicknesses. PGE association at Pedra Branca is primarily with chromite and only secondarily with base metal sulfides as is the case with the Merensky reef’s chromite stringers and cumulate column respectively. The mechanical emplacement mechanisms appear to have been more turbulent with more filter-pressing than gravity settling, post fractional crystallization. This distinguishes the Pedra Branca reef from the narrow Merensky reef by its expression of thick, disseminated mineralization up to 100 m in thickness.

9 Exploration

The exploration and development history of the project is described in Section 6.

9.1 Introduction

Since acquisition of the project in 2019, ValOre re-processed and re-compiled over 40 years of historical data and carried out extensive field mapping and prospecting programs at over 20 property-wide targets. Additionally, ValOre has completed more than 17,000 metres of diamond drilling and RC drilling, as described in Section 10.

Several historical target areas have been revisited, remapped and relogged, with successful reinterpretations that resulted in the inclusion of new deposit areas to the 2022 resource estimate, such as Massapê, Santo Amaro South, Cana Brava and Trapiá South. ValOre continues to work multiple additional targets with resource potential throughout the exploration tenements.

Table 9-1 below presents a summary of the field exploration work and drilling completed by ValOre in the property since acquisition.

Table 9-1: Summary Exploration Work performed by ValOre from 2020 to April 2022.

Exploration Work	2020			2021			2022		
	length (m)	holes & trenches	samples	length (m)	holes & trenches	samples	length (m)	holes & trenches	samples
Diamond Drilling	6,315	48	3,398	9,292	70	4,336	-	-	-
RC Drilling	-	-	-	1,828	38	1,906	-	-	-
Auger Drilling	-	-	-	723	202	763	508	176	541
Rock Sampling	-	-	175	-	-	307	-	-	45
Soil Sampling	34,160	-	1,708	8,340	-	417	20,000	-	1,021
Trenching	131	2	187	713	11	473	189	4	189

Figure 9-1 shows location of historic and ValOre drilling performed to date throughout the property, and Figure 9-2 highlights Rock, Trado®, Soil and Trenching work completed by ValOre since acquisition in 2019.

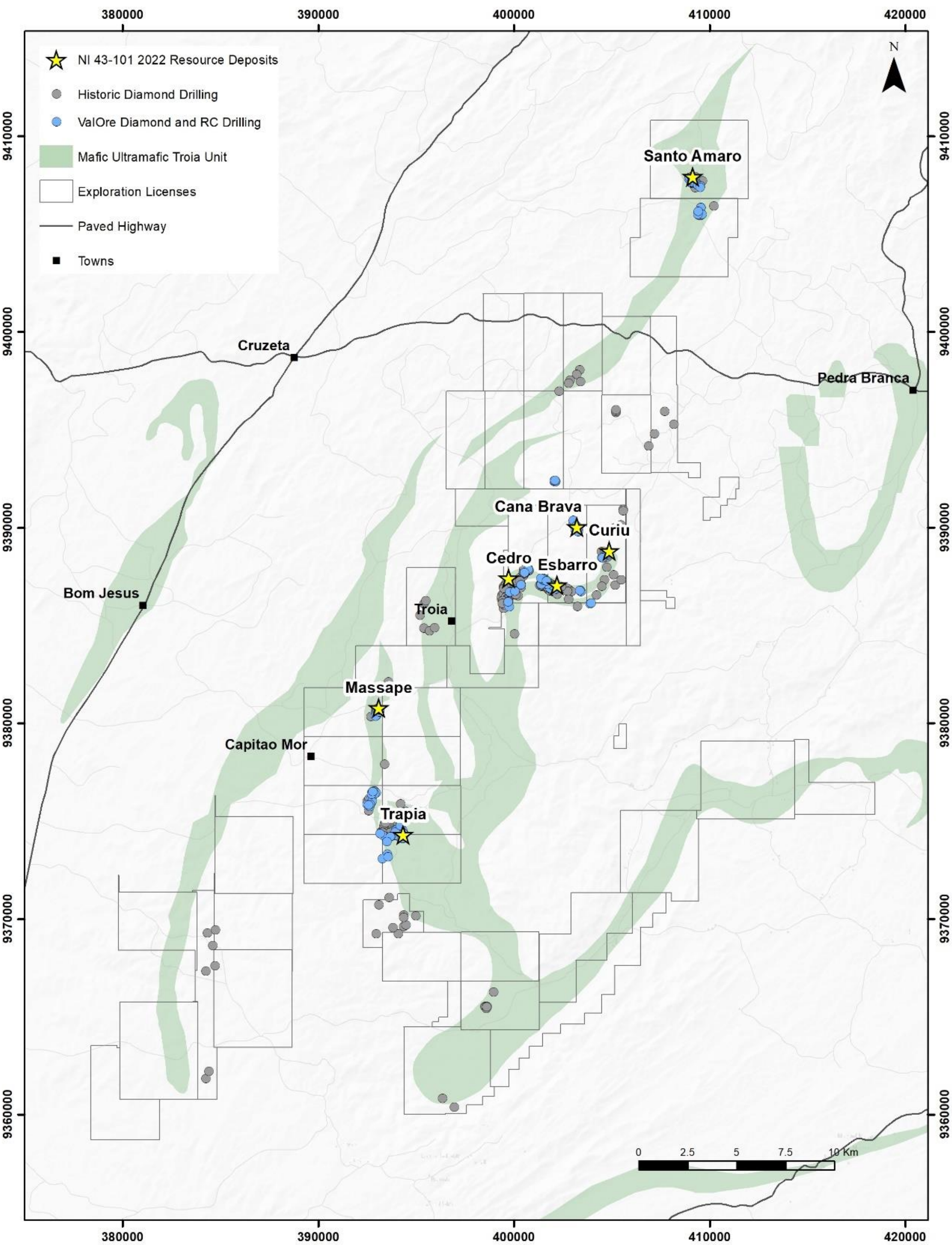


Figure 9-1: Location of Historic and ValOre Diamond and RC Drilling Property-Wide (Source: Thiago Diniz, P.Geo – ValOre).

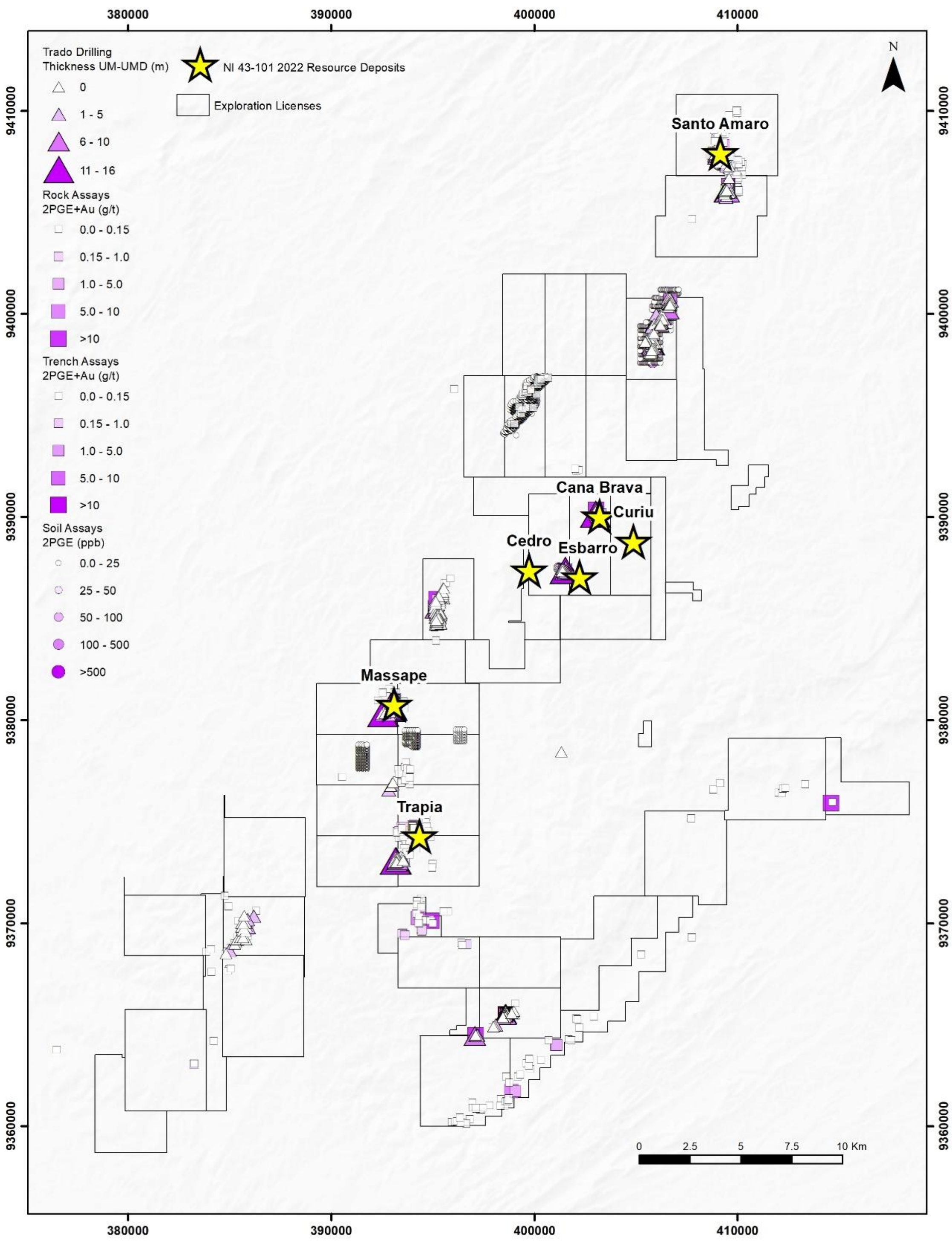


Figure 9-2: Field Exploration Work Developed by ValOre Property-Wide, Since Acquisition in 2019, Including Trado®, Rock, Trench and Soil Sampling (Source: Thiago Diniz, P.Geo – ValOre).

9.2 Data Compilation and Exploration Review

Immediately following acquisition of the project in mid-2019, ValOre conducted a comprehensive review of the historical records which resulted in the identification of approximately 100 historical trenches (many of them mineralized) that were not originally included in the project database. In addition, an increased understanding of geology, targeting methodologies and prospective exploration signatures was defined, with the main objective of expanding known PGE resources, advancing previously work but underexplored targets, and generating new “greenfields” discoveries.

WorldView Hi-Resolution Imagery and Spectral Data: acquisition of enhanced and modeled digital satellite imagery (2019 and 2021) from the highest-resolution commercially available satellite in the world, focused on supporting exploration fieldwork with mineral modeling targeted to define host ultramafic intrusions, as well as providing high-spatial resolution true-color imagery for the project area.

Geophysics: re-processing the district-scale, detailed (50 m line-spacing) 2013 aeromagnetic survey collected by Anglo American by means of a 3D magnetic-susceptibility model to help define the geometry, dip and approximate dimensions of the target ultramafic intrusions and ultimately assist in drill targeting.

SGDS Hive: consultancy performing a full drill hole database verification program and supporting ValOre in the development and refinement of an accurate, organized and synthesized exploration database.

Data compilation: upon completion of the above-mentioned database verification and organization, authenticated historical data was synchronized with newly acquired exploration data to facilitate and accelerate the path to discovery and resource expansion.

9.2.1 C-04 Target

C-04 was discovered during the first ground-truthing exercise testing the pairing of WorldView spectra data and discrete reduced to pole (“RTP”) magnetic anomalies from re-processed Anglo American airborne magnetics. The pairing of these two datasets led to the field identification of chromitite mineralization and other coarse-grained cumulate ultramafic rocks which graded up to 7.9 g/t Pt at surface, approximately 5 km north of the Esbarro deposit in rolling brush-covered terrain. C-04 was subsequently defined for diamond drill testing in the 2020 and 2021 drilling campaigns, which confirmed PGE mineralization at depth.

There were no mapped ultramafic rocks, and no historical soil, rock or stream sediment data over either target, the efficacy of pairing RTP magnetics with WorldView spectral data. This methodology has bene subsequently applied in target identifications and rankings property-wide.

ValOre broadened its geophysical dataset by procuring and re-processing raw data from 39 historical ground magnetics surveys. This included multiple target areas outside of the airborne block and facilitated the merging of airborne and ground magnetic datasets to yield a highly refined geophysical targeting product.

ValOre received detailed 3D magnetic inversion models for all five 2019 NI 43-101 deposit areas. High-quality merged airborne and ground magnetic data facilitated modeling and interpretation to a 10m x 10m x 10m cell size, and multiple un-drilled resource expansion targets have been identified at all five deposits. Fifteen additional high-priority exploration targets (external to the NI 43-101 resource) were selected for detailed 3D magnetic inversion modelling, and all models were completed.

9.2.2 Mendes North Target

ValOre identified 3 regional WorldView-magnetic targets collectively called “Mendes North”. Mendes North is situated in a broad area of radiometric low, indicative of prospective regional mafic to ultramafic Tróia Unit, with strong WorldView spectral signatures that coincided with three 1-km-long magnetic anomalies. Furthermore, the prospective ultramafic areas were evident in the raw WorldView imagery, as anomalously dark brown coloured outcrops and altered soils. There was no record of historical exploration in the Mendes North area, and all three targets at Mendes North were followed up with soil sampling and prospecting campaigns by ValOre.

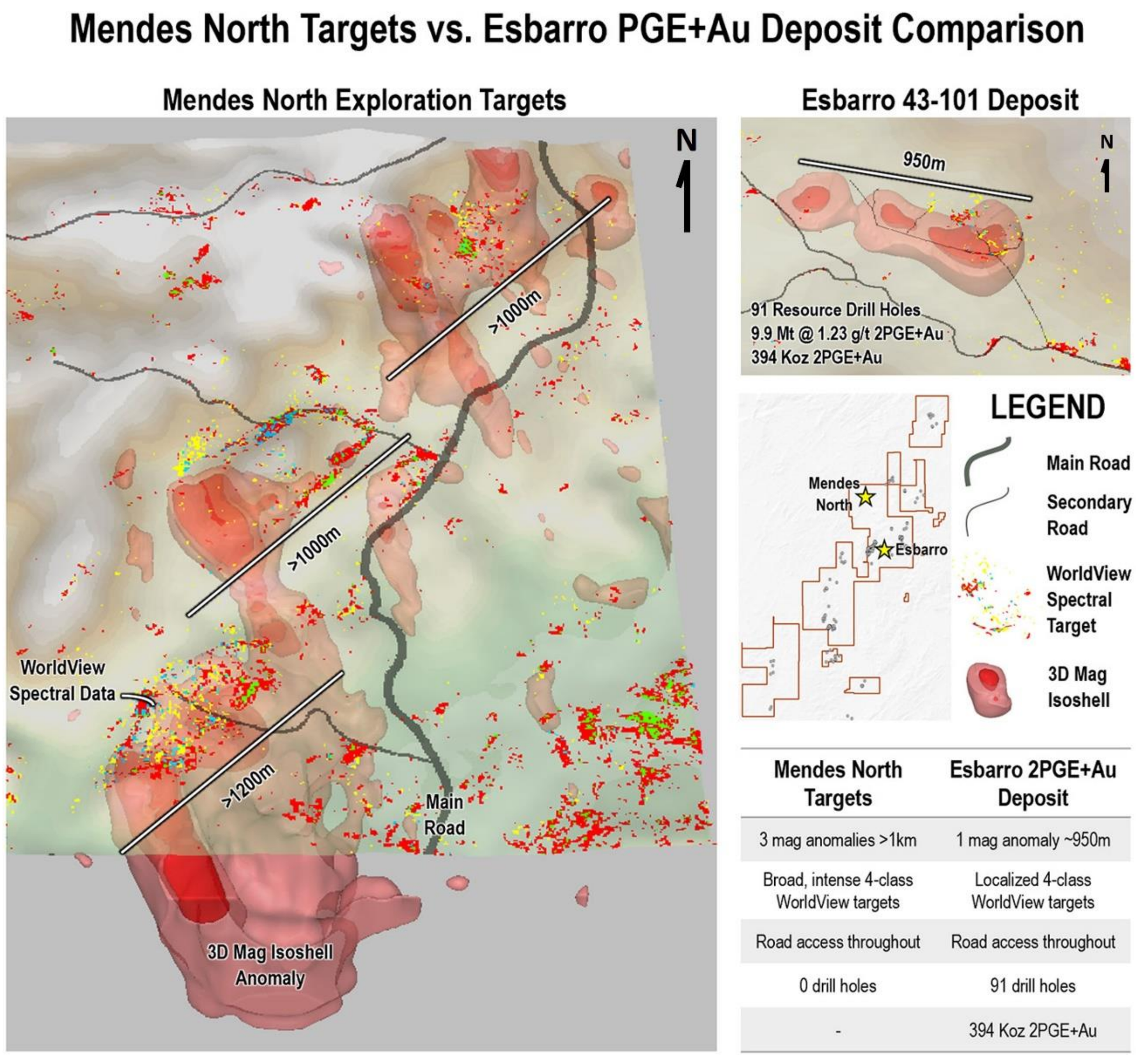


Figure 9-3 Summary of Mendes North Exploration Targets, with Comparison to the NI 43-101 2PGE+Au Esbarro Deposit (Source: Thiago Diniz, P.Geo – ValOre).

Soil sample assays from the three >1 km Mendes North WorldView-magnetic targets returned well-defined, regional (each >750 metres in length) NE-SW-trending linear PGE anomalies. The anomalies remain open between targets, suggesting potential continuity of a >3 km PGE-bearing belt. Follow-up sampling, mapping, and prospecting was subsequently carried on expanding and delineate the unconstrained PGE-in-soil anomalies. Mendes North remains undrilled.

9.3 2020 to 2021 Exploration Program

Extensive regional exploration work Q1 2020 and included property-wide grab sampling and prospecting, with multiple high-grade rock samples collected from widely spaced exploration targets spanning the project, including Trapiá 1 North, Massapê, and Esbarro West. Furthermore, several target areas slated for 2020 core drilling returned strong 2PGE+Au rock assay results, including Esbarro East, Cana Brava and Santo Amaro.

9.3.1 Trapiá 1 North Trench Mapping and Sampling

Two historical trenches in the highly anomalous area north of the Trapiá 1 resource were mapped and sampled to better understand the geological environment and potential for a northern extension to PGE mineralization. A prospective easterly-dipping 10-12 m interval of ultramafic rocks was encountered towards the west end of both trenches, suggesting continuity of favorable geology north of the Trapiá 1 resource area.

9.3.2 Santo Amaro Geological Mapping and Prospecting

The Santo Amaro region, in the far north of the project area, was identified as a highly prospective and underexplored belt of ultramafic rocks, and selected for detailed geological mapping, prospecting, Trado® auger drilling and trenching.

Multiple high-grade PGE assay results from rock and soil samples collected outside 2019 Santo Amaro NI 43-101 inferred resource area were defined, including north-south trending PGE-in-soils anomalies (500 and 600 m trends) and a northwest trend of high- to medium-grade PGE rock samples (450 m trend), that were subsequently tested by Trado® auger drilling and trenching to further define these multiple PGE anomalies.

A north-south trending PGE-in-soils anomaly that connect Santo Amaro resource to the Santo Amaro South target, situated 1.5 kilometres ("km") to the south, were also defined during ValOre's Santo Amaro field program. Santo Amaro and Santo Amaro South were subject to diamond and/or RC drilling in 2020 and 2021 and Santo Amaro South was subsequently included as a new zone in the 2022 NI 43-101 resource.

9.3.3 ValOre's Exploration Methodology

ValOre's proven exploration methodology served to rapidly evaluate and advance targets to a drill-ready stage, utilizing 3D inversion of aeromagnetic and ground magnetic data, WorldView spectral imagery, and radiometrics. Targets which met these criteria were selected for detailed geological mapping and prospecting to identify prospective regional ultramafic trends, followed by systematic Trado® auger drilling to establish near-surface geological continuity, and later trenching to confirm the presence of in-situ PGE mineralization. Positive trenching results were followed up by core and/or RC drilling to test at depth and along trend.

ValOre's proven exploration methodology led to multiple near-surface PGE drill intercepts at Massapê, Cana Brava, Esbarro NW and Santo Amaro South, all of which now comprise new zones in the 2022 resource estimate.

Santo Amaro South (New Resource Zone)

Santo Amaro South was identified as a highly prospective and underexplored target based on extensive historical soil and geophysical anomalies, and the presence of multi-class WorldView spectral signatures. Detailed 2021 field mapping and prospecting defined a greater than 1-km-long belt of target ultramafic rocks associated with strong magnetic and geochemical anomalism.

Systematic Trado® auger drilling was performed along-trend, with 19 vertical holes (71 total samples), confirming the presence target ultramafics and continuity of surface PGE mineralization. Five linear east-west trenches (398 m total) were subsequently excavated, with channel sample assays confirming surface in-situ PGE mineralization in 4 out of the 5 trenches.

Trado® hole logging, trench mapping, and subsequent assay results served to define multiple un-drilled, north-south-trending mineralized ultramafic packages which exceeded 400 m in length and remain open along both directions of geological trend.

Santo Amaro South was tested with five 2021 vertical RC drill holes (totaling 282 m), with all 5 holes returning PGE-mineralized assays over a geological trend of 400 m. A broad, surface PGE discovery was made in RC drill hole RC21SAS03, which assayed 32 m grading 1.65 g/t 2PGE+Au from surface, including 6 m grading 3.07 g/t 2PGE+Au from 2 m.

Follow-up diamond drilling was carried out in 2021, with 4 holes drilled totaling 300 m, with all 4 intercepting the target PGE-bearing UM intrusion, including the following highlights:

- 22 m at 1.40 g/t 2PGE+Au from 13 m in drill hole DD21SAS05;
- 18 m at 1.46 g/t 2PGE+Au from 51 m, incl. 9.8 m at 2.42 g/t 2PGE+Au from 58 m in drill hole DD21SAS04;
- 13 m at 1.29 g/t 2PGE+Au from 69 m in drill hole DD21SAS07.

Drill-confirmed PGE mineralization established along a 200 m trend that is open in all directions.

Massapê Target (New Resource Zone)

Compilation and review of historical data from Massapê revealed considerable geochemical, geophysical, and geological similarities to the PGE deposits at Pedra Branca, and consequently designated the target as high priority. The application of ValOre's systematic exploration methodology was deployed and served to rapidly advance Massapê to drill-ready stage in 2021.

The Massapê target area is characterized by strong historical PGE-in-soil anomalies, high-grade historical and ValOre surface grab samples (including 13 samples >10 g/t 2PGE+Au over 800 m of geological trend), a compelling >1-km-long magnetic anomaly, strong local WorldView spectral signatures, and PGE mineralization in 4 of 5 historical core holes.

ValOre conducted detailed geological mapping and prospecting of the 1-km-long trend and followed-up with 25 Trado® auger holes (122 m total, equating to 129 samples) and 5 trenches (216 m total). At-surface, PGE-bearing ultramafic or ultramafic-derived rocks were intercepted in 15 of 25 Trado® holes, and in all 5 trenches, confirming the presence of in-situ surface PGE mineralization along a geological trend of approximately 800 m.

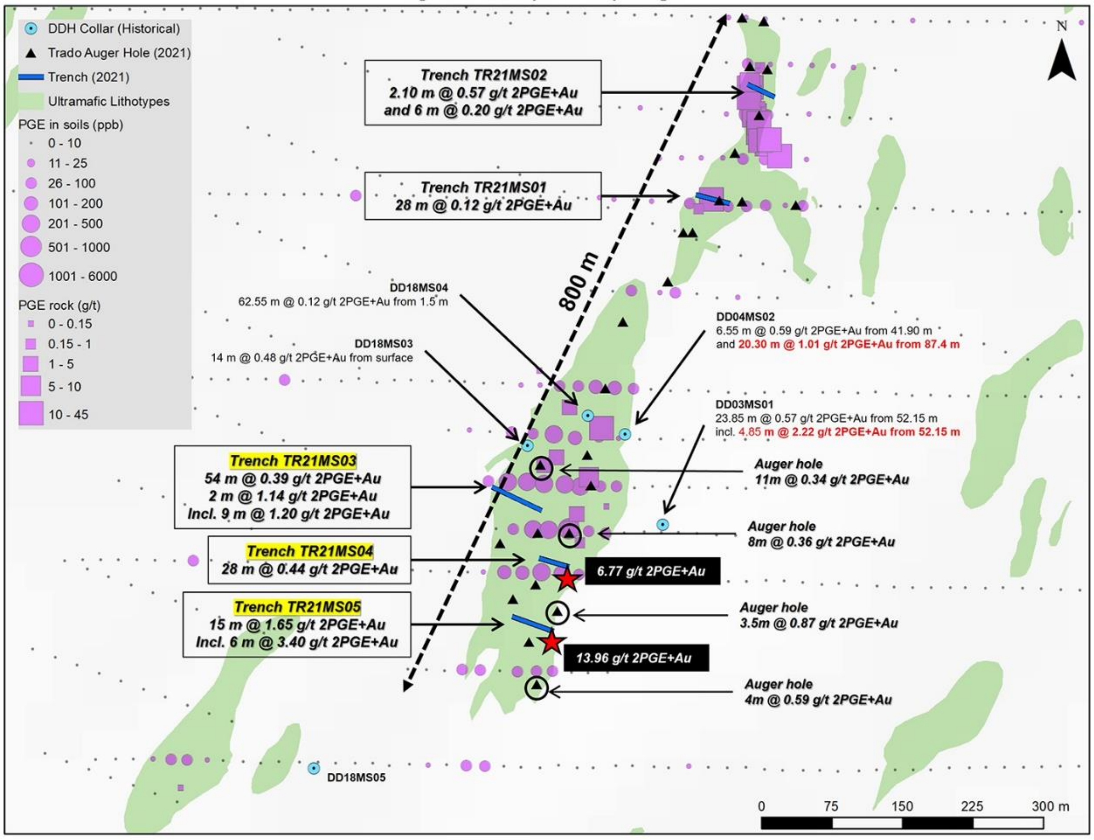


Figure 9-4: Massapê Target Plan Map, Before Diamond Drilling Program Executed by ValOre in 2021 (Source: Thiago Diniz, P.Geo – ValOre).

Trench channel sample assay highlights include multiple high-grade PGE results from the three southernmost trenches, including:

- TR21MS05: 15 m at 1.65 g/t 2PGE+Au, including 6 m at 3.4 g/t 2PGE+Au;
- TR21MS03: 54 m at 0.39 g/t 2PGE+Au, including 2 m at 1.14 g/t 2PGE+Au and 9 m at 1.2 g/t 2PGE+Au;
- TR21MS04 : 28 m at 0.44 g/t 2PGE+Au.

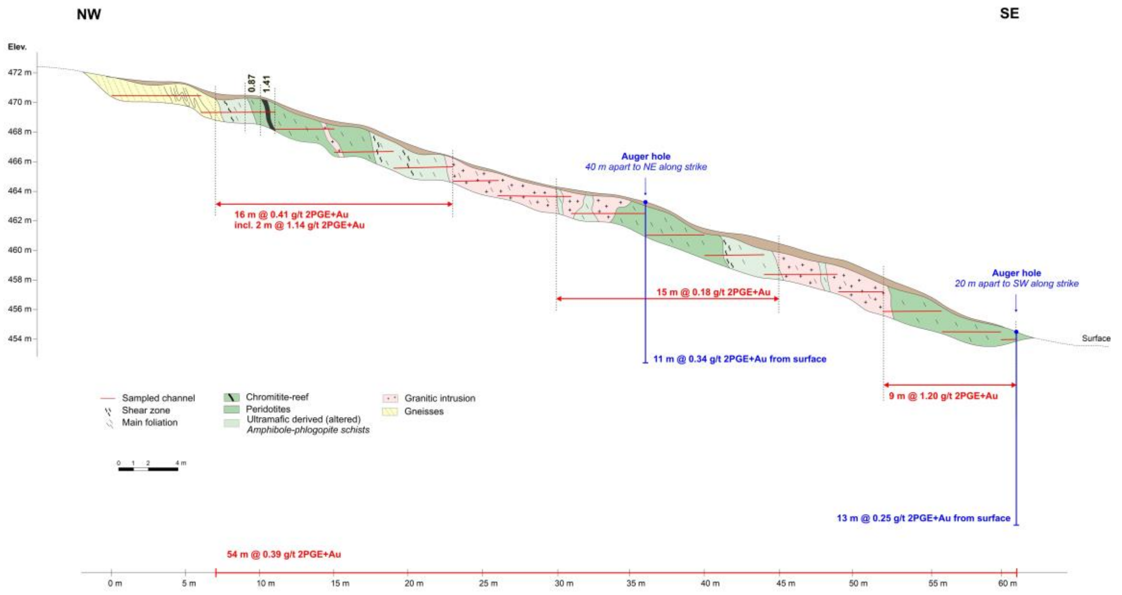


Figure 9-5: Trench TR21MS03 Cross Section (Source: Thiago Diniz, P.Geo – ValOre).

High-grade PGE assays (13.96 g/t 2PGE+Au and 6.77 g/t 2PGE+Au) were returned from two samples collected from correlative chromitite reefs exposed in trenches TR21MS04 and TR21MS05, extending known PGE mineralization for an additional 200 m to the south of the existing historical core drilling area.

Trado® auger assay highlights include holes AD21MS19, which returned 3.5 m at 0.87 g/t 2PGE+Au from surface, including 1.5 m at 1.3 g/t 2PGE+Au from 2 m, and hole AD21MS14 which returned 11 m at 0.34 g/t 2PGE+Au from surface.

Follow-up diamond drilling was conducted in 2021, with 11 core holes drilled totaling 1,510 metres, with all 11 intercepting the target PGE-bearing ultramafic intrusion, that are included in the current Resource Update objective of this report. Mineralization and the host ultramafic intrusion remains open in all directions.

PGE intervals returned in 10 of 11 core holes, with highlights including:

- 21 m at 1.82 g/t 2PGE+Au from 73 m, incl. 9.1 m at 3.0 g/t 2PGE+Au from 84 m in drill hole DD21MS09;
- 21 m at 1.67 g/t 2PGE+Au from 27 m, incl. 6.6 m at 3.22 g/t 2PGE+Au from 29 m in drill hole DD21MS13;
- 23 m at 1.19 g/t 2PGE+Au from 101 m, and 14 m at 0.99 g/t 2PGE+Au from 137 m incl. 5.4 m at 2.26 g/t 2PGE+Au from 136.6 m in drill hole DD21MS12.

Trapiá South (New Resource Zone)

RC drilling discovery located 1.5 km southwest and on-trend from the Trapiá 1 deposit, with PGE-mineralized ultramafic rocks intercepted at or near surface in 3 of 3 RC drill holes, including:

- Drill hole RC21TS02: 21 m grading 0.72 g/t 2PGE+Au from surface, including 3 m grading 1.57 g/t 2PGE+Au, 0.21% Cu, 0.78% Ni from 11 m;
- Drill hole RC21TS03: 8 m grading 0.89 g/t 2PGE+Au, 0.14% Cu, 0.55% Ni from 3 m.

Trapiá South is characterized by a strong 0.5 km by 0.5 km magnetic anomaly, deposit-signature historical PGE-in-soil anomalies, and multiple grab samples collected from the magnetic high >1.0 g/t 2PGE+Au (high of 2.3 g/t 2PGE+Au). Geological mapping confirmed the presence of extensive contiguous ultramafics at surface, and the target was subsequently tested with 3 initial RC drill holes. All 3 holes intercepted PGE-mineralized ultramafic rocks.

Esbarro NW (New Resource Zone)

Located 200 m northwest of the Esbarro Deposit (403,000 ounces in 10.8 Mt grading 1.16 g/t 2PGE+Au), Esbarro NW was first tested by ValOre in 2021 with soil sampling program which delineated a 600-m-long PGE-in-soils anomaly. In addition, a vertical test pit was discovered (not present in the historical database), and subsequently channel sampled vertically from surface, returning a grade interval of 6.50 m grading 2.17 g/t 2PGE+Au from surface, including 2.0 m grading 5.19 g/t 2PGE+Au from 4.50 m. A 19-hole Trado® auger follow-up program was completed with 17 of 19 holes intercepting PGE-bearing ultramafic rocks, including hole AD21ES03 which returned 12.0 m grading 1.73 g/t 2PGE+Au from surface.

Esbarro NW was subsequently tested with vertical 9 vertical RC drill holes (191 m), with 5 holes returning mineralized PGE assays over a geological trend of 250 m. Assay highlights include:

- Drill hole RD21ES01: 10 m grading 1.69 g/t 2PGE+Au from surface;
- Drill hole RD21ES09:8 m grading 1.22 g/t 2PGE+Au from surface;
- Drill hole RD21ES05: 5 m grading 0.97 g/t 2PGE+Au from surface.

9.4 2022 Exploration Program

Three regional targets areas were selected for regional exploration in 2022, on the basis of strong historical geochemical and geophysical anomalism, including: (1) Ipueiras and Catingueiro targets, located south of the Trapiá resource area; (2) Tróia target, located north of Massapê and west of Cedro-Esbarro resource areas, and (3) Galante East target, southwest of Santo Amaro resource area.

ValOre completed detailed geological mapping and prospecting at all 4 targets, with extensive soil and rock geochemistry, Trado® auger drilling and trenching.

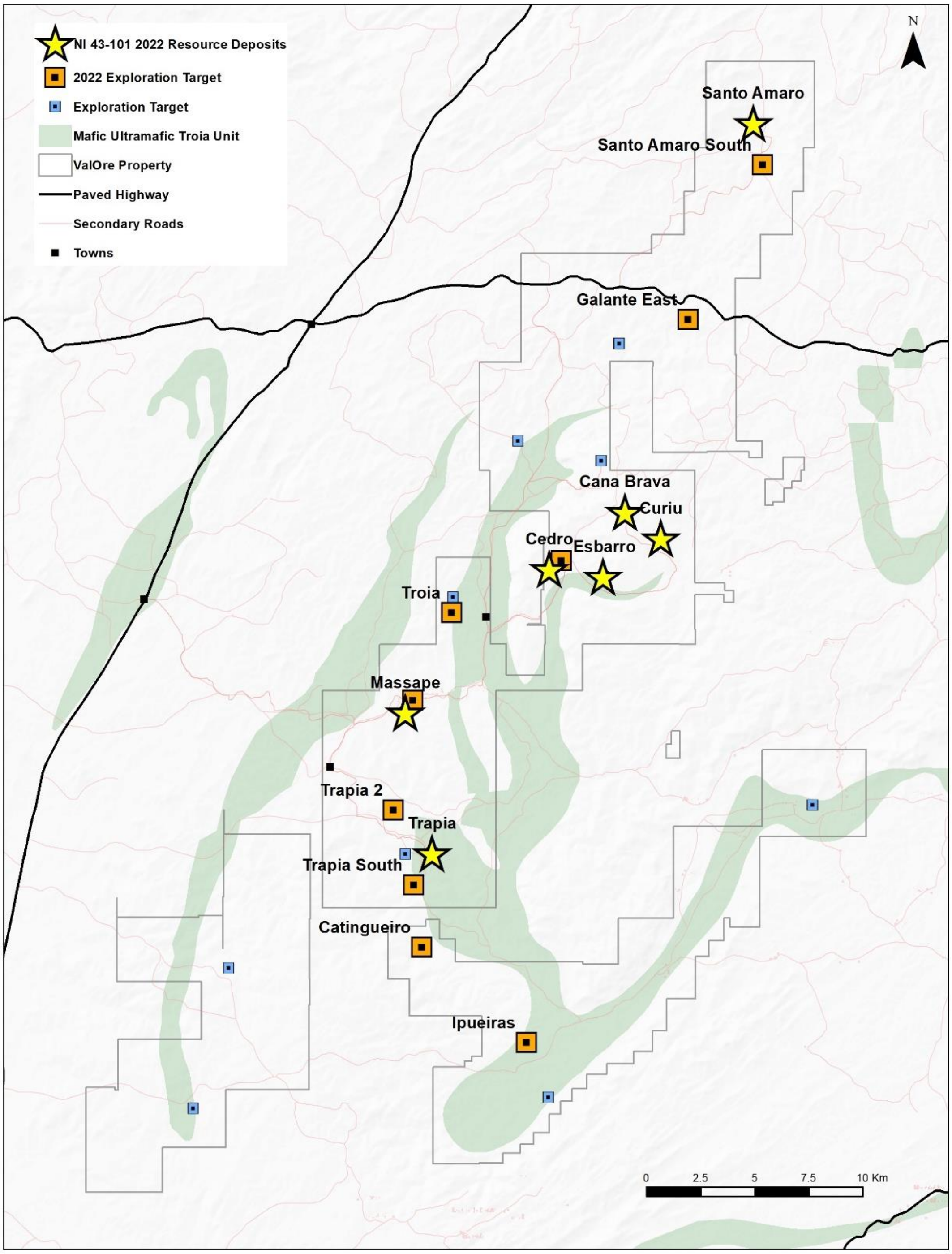


Figure 9-6: Location of the PGE-Au Deposits and 2022 Exploration Targets at the Pedra Branca Project (Source: Thiago Diniz, P.Geo – ValOre).

10 Drilling

Since 1987, there have been several drilling programs completed on the property. ValOre completed 17,340 m of drilling in 2 campaigns (2020 and 2021) since acquisition, focusing on drilling for resource expansion, pre-resource target advancement, new discovery, and metallurgy.

Description of drill methods and logging for all historical drilling campaigns completed prior to ValOre's acquisition was modified and updated in the LGGC (2019) report.

Core for all drill holes completed from 1999 to 2021 is stored and available at the project's core yard and logging facility in Capitão Mor, Ceará State, Brazil. Core from the 1987 drill campaigns, prefixed with PBE or BR, is not available for review due to a motor vehicle accident which reportedly dumped all of the drill core out of a truck. Following recommendation from LGGC (2019), some BR and PBE holes were twined by ValOre at the Trapiá and Esbarro deposits. Both the lithological sequences and grade distribution records of the original holes were satisfactorily reproduced, certifying that the analytical results reasonably represent the tenor of mineralization at those deposits.

Drilling campaigns at Pedra Branca project are summarized in Table 10-1, and Figure 10-1 to Figure 10-3 locate diamond drilling and RC drilling completed on the main mineralized zones of the Pedra Branca project to date.

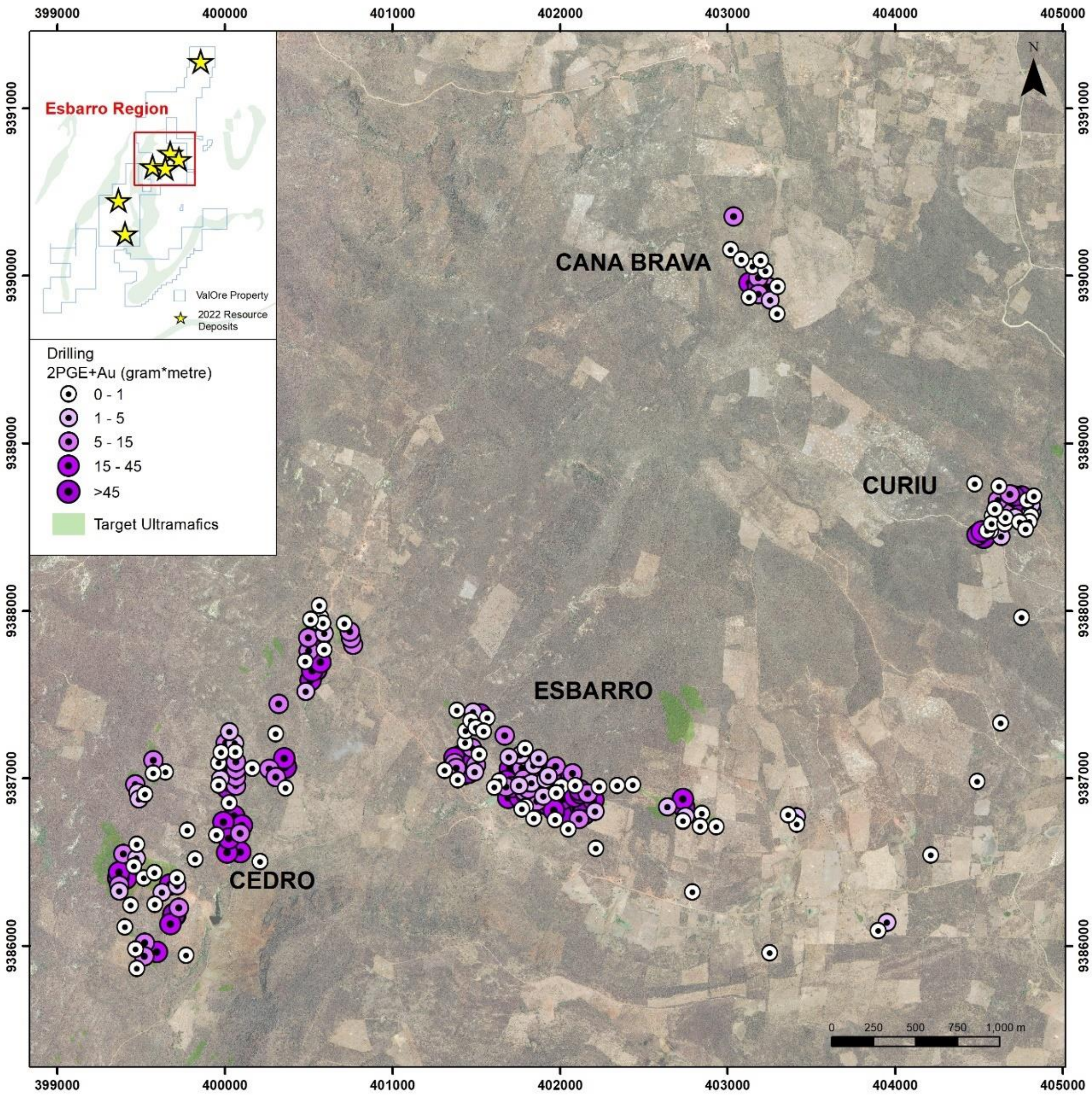


Figure 10-1: Esbarro, Cedro, Curiú and Cana Brava Resource Region, Drilling Location Map. Diamond and RC Drill Holes Categorized by Gram*Metre Values of Pd+Pt+Au (“2PGE+Au”). (Source: Thiago Diniz, P.Geo – ValOre).

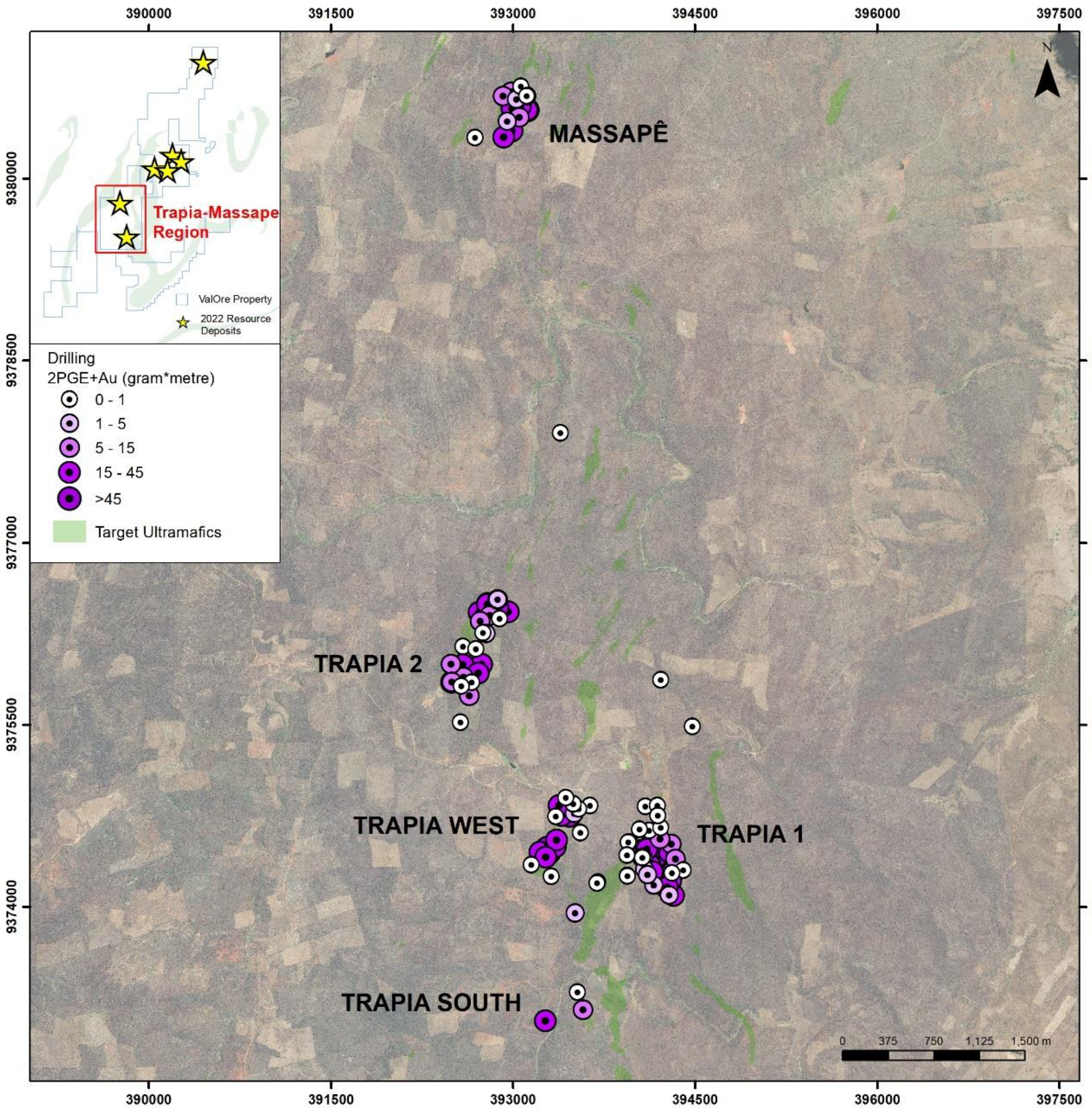


Figure 10-2: Trapiá – Massapê Resource Region, Drilling Location Map. Diamond and RC Drill Holes Categorized by Gram*Metre Values of Pd+Pt+Au (“2PGE+Au”). (Source: Thiago Diniz, P.Geo – ValOre).

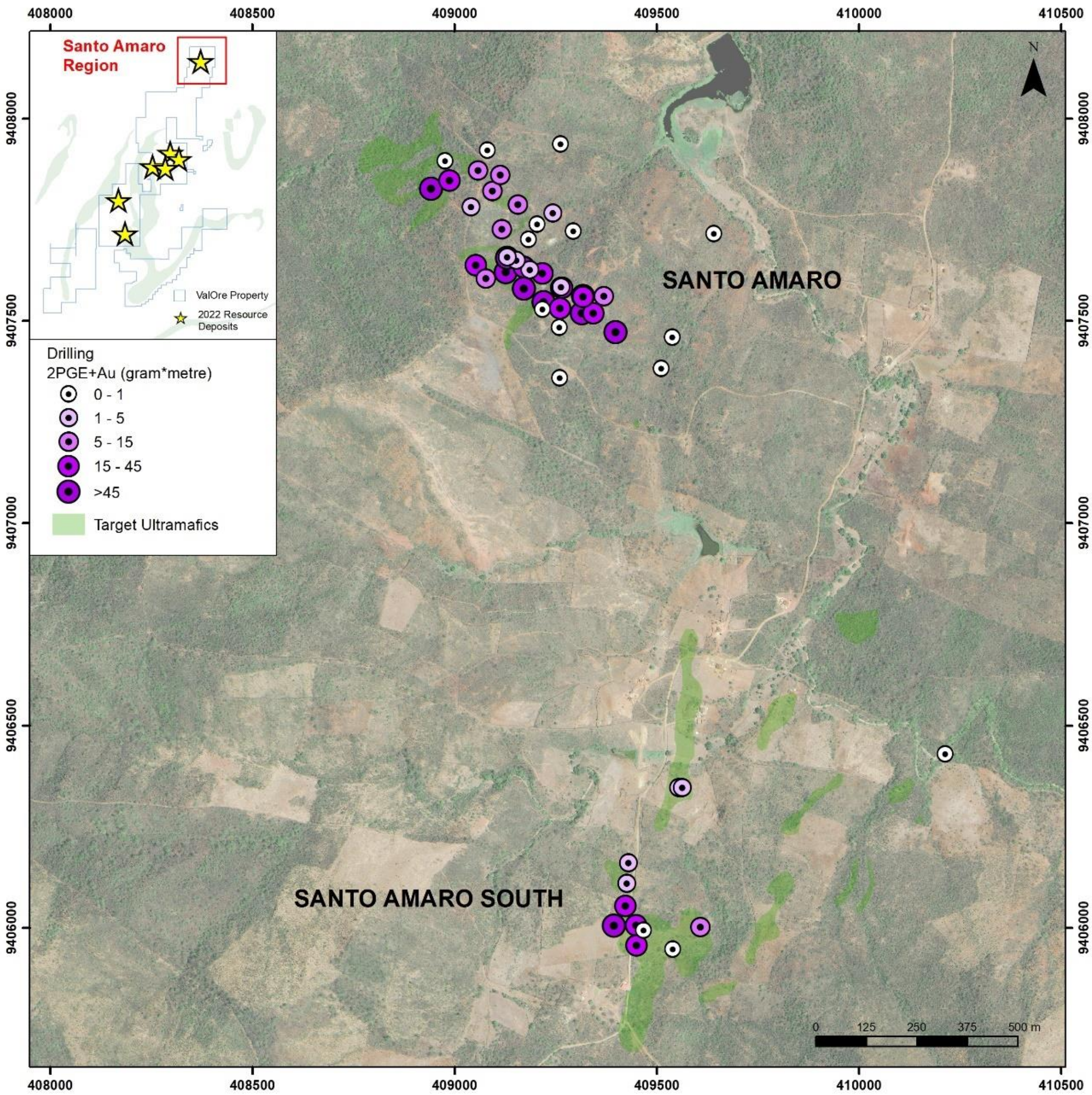


Figure 10-3: Santo Amaro Resource Area, Drilling Location Map. Diamond and RC Drill Holes Categorized by Gram*Metre Values of Pd+Pt+Au (“2PGE+Au”). (Source: Thiago Diniz, P.Geo – ValOre).

Table 10-1: Summary of Drilling Programs at the 43-101 Deposit Areas and Other Exploration Drillholes Property-Wide

Area	Year	No. Holes	No. Metres	Company	Prefix	Drilling Type
Esbarro	1987	42	2,525.60	RTZ	PBE	DD
	1999	8	583.90	Altoro	DD99	DD
	2001	24	1,613.40	Rockwell	RW	DD
	2003	25	1,792.50	Solitario	DD03	DD
	2004	5	316.10	Solitario	DD04	DD
	2007	2	318.20	Anglo Platinum	DD07	DD
	2012	3	462.90	Anglo Platinum	DD12	DD
	2020	3	146.40	ValOre	DD20	DD
	2018	7	360.5	Jangada	DD18	DD Twin/Metallurgy
	2021	6	377.45	ValOre	DD21	DD Twin/Metallurgy
	2021	9	191.00	ValOre	RC21	RC
		127	**8,327.45**			
Curiú	2001	2	146.50	Rockwell	RW	DD
	2001	1	38.50	Solitario	DD01	DD
	2003	12	622.70	Solitario	DD03	DD
	2004	6	225.70	Solitario	DD04	DD
	2008	8	360.40	Anglo Platinum	DD08	DD
	2009	15	880.30	Anglo Platinum	DD09	DD
	2010	6	360.60	Anglo Platinum	DD10	DD
	2012	3	475.30	Anglo Platinum	DD12	DD
	2021	4	212.75	ValOre	DD21	DD Twin/Metallurgy
		57	**3,322.75**			
Cedro	2001	7	603.30	Solitario	DD01	DD
	2002	8	876.20	Solitario	DD02	DD
	2003	2	146.30	Solitario	DD03	DD
	2004	6	502.30	Solitario	DD04	DD
	2007	8	596.70	Anglo Platinum	DD07	DD
	2008	19	1,481.60	Anglo Platinum	DD08	DD
	2009	24	1,824.10	Anglo Platinum	DD09	DD
	2010	20	1,324.50	Anglo Platinum	DD10	DD

Area	Year	No. Holes	No. Metres	Company	Prefix	Drilling Type
	2020	4	379.05	ValOre	DD20	DD
	2021	4	331.45	ValOre	DD21	DD Twin/Metallurgy
		102	**8,065.50**			
Trapiá 1	1987	4	299.20	Unamgen	BR	DD
	1999	1	86.30	Altoro	DD99	DD
	2001	2	221.00	Rockwell	RW	DD
	2001	2	333.10	Solitario	DD01	DD
	2004	3	358.10	Solitario	DD04	DD
	2007	1	79.00	Anglo Platinum	DD07	DD
	2009	2	171.20	Anglo Platinum	DD09	DD
	2020	12	2,520.30	ValOre	DD20	DD (incl. Twins)
	2021	11	2,762.65	ValOre	DD21	DD
	2021	6	463.00	ValOre	RC21	RC (incl. Twin)
		44	**7,293.85**			
Trapiá 2	1987	4	478.70	Unamgen	BR	DD
	2003	1	166.20	Solitario	DD03	
	2004	1	106.80	Solitario	DD04	
	2009	3	182.90	Anglo Platinum	DD09	
	2020	8	1,098.75	ValOre	DD20	
	2021	6	1,142.50	ValOre	DD21	
	2021	1	63.00	ValOre	RC21	RC Twin
		24	**3,238.85**			
Trapiá West	1999	7	451.00	Altoro	DD99	DD
	2001	3	277.00	Solitario	DD01	DD
	2002	1	103.10	Solitario	DD02	DD
	2007	3	253.00	Anglo Platinum	DD07	DD
	2009	4	244.00	Anglo Platinum	DD09	DD
	2021	2	102.00	ValOre	RC21	RC
		20	**1,430.10**			

Area	Year	No. Holes	No. Metres	Company	Prefix	Drilling Type
Santo Amaro	2002	7	562.70	Solitario	DD02	DD
	2004	2	307.90	Solitario	DD04	DD
	2007	3	382.90	Anglo Platinum	DD07	DD
	2020	12	1,370.40	ValOre	DD20	DD
	2021	20	2,315.65	ValOre	DD21	DD
		44	**4,939.55**			
Santo Amaro South	2004	1	62.70	Solitario	DD04	DD
	2007	2	129.80	Anglo Platinum	DD07	DD
	2021	4	299.80	ValOre	DD21	DD
	2021	5	282.00	ValOre	RC21	RC
		12	**774.30**			
Massapê	2003	1	85.70	Solitario	DD03	DD
	2004	1	113.30	Solitario	DD04	DD
	2018	3	200.10	Jangada	DD18	DD
	2021	11	1,509.85	ValOre	DD21	DD
		16	**1,908.95**			
Cana Brava	2010	2	71.40	Anglo Platinum	DD10	DD
	2020	4	199.65	ValOre	DD20	DD
	2021	9	351.00	ValOre	RC21	RC
		15	**622.05**			
Other Exploration targets	1987 - 2021	**73**	**8,272.15**	Various	Various	DD & RC
43-101 DEPOSITS TOTALS		**461**	**39,923.35**			
EXPLORATION TOTALS		**73**	**8,272.15**			
GRAND TOTAL		**534**	**48,195.50**			

10.1 Historical Drilling Campaigns

10.1.1 1987 Diamond Drilling – RTZ and Gencor

Drill holes are all either NQ or HQ core sizes.

Drilling was done by Rio Tinto Zinc ("RTZ") and Gencor (Unamgen Subsidiary) in 1987. There is no core remaining from the 50 diamond drill holes, 8 were drilled at the Trapiá Deposit by Gencor and 42 were drilled at the Esbarro Deposit by RTZ.

10.1.2 1999 Diamond Drilling – Altoro

Drill holes are all either NQ or HQ core sizes.

Eighteen diamond drill holes were completed by Altoro with 8 drilled at the Esbarro Deposit, 8 drilled at the Trapiá Deposit and 2 drilled on property exploration targets. There are no details of the drilling, core handling or logging procedures available from this drilling campaign.

10.1.3 2001 Diamond Drilling – Rockwell

Drill holes are all either NQ or HQ core sizes.

Thirty-one diamond drill holes were completed by Rockwell with 2 drilled at the Curiú Deposit, 24 at the Esbarro Deposit, 2 drilled at the Trapiá Deposit and 3 drilled on property exploration targets. There are no details of the drilling, core handling or logging procedures available from this drilling campaign.

10.1.4 2001 to 2004 Diamond Drilling - Solitario

Drill holes are all either NQ or HQ core sizes.

One hundred and forty diamond drill holes were completed by Solitario with 9 drilled in Santo Amaro19 drilled at the Curiú Deposit, 30 at the Esbarro Deposit, 23 at the Cedro Deposit, 11 drilled at the Trapiá Deposit and 18 drilled on property exploration targets. There are no details of the drilling, core handling or logging procedures available from this drilling campaign.

10.1.5 2007 to 2011 Diamond Drilling – Amplats

All Amplats drill holes were drilled with a BQ core size.

One hundred and forty-three diamond drill holes were completed by Amplats with 3 drilled in Santo Amaro, 32 drilled at the Curiú Deposit, 5 at the Esbarro Deposit, 71 at the Cedro Deposit, 13 drilled at the Trapiá Deposit and 20 drilled on exploration targets.

Amplats' exploration drilling standards and procedures were utilised on the project between 2007 and 2011. As per the Amplats drilling procedure, drilling instructions were presented to the contractor and included information related to the drill hole locations, dip, azimuth, expected depth, core size and core barrel type (single, double or triple tube).

Core was taken from the core barrel and immediately put into a core tray. Once the core was correctly packed it was cleaned with a degreaser and made ready for transport to the core yard in Capitão Mor.

All core trays were labelled with a hole number, a "from" and "to" depth after which the trays were sequentially numbered.

Drill run recoveries were logged on standard core recovery sheets, which are stored at the Capitão Mor office.

10.1.5.1 Drill Core Logging

ValOre has original copies of all the drill logging data for the drill holes at the Pedra Branca project at the Capitão Mor office. Upon review of the drill logs to core, the logging data appears to be of sufficient quality to support a mineral resource estimate.

The historical logging procedures were described in detail in the GE21 Technical Report of May 18, 2018 and are included below in their entirety.

Before logging commenced, the geologist inspected the core to ensure that the trays and core were correctly marked, the individual core pieces fit together, that depth hole markers were correctly inserted. Once core depth measurements and quality checks were completed, core logging commenced.

Core was logged wet to ensure accurate colour, mineralogy, texture and alteration. Logging was physically carried out by successively aligning a 1 m clinorule on the 1 m interval depth measurements and measuring and recording the depths of lithological contacts and the other aspects of interest, the fundamental purpose being to record as much geological information as possible. A clinorule is also useful for measuring layering angles (core bedding angles). Geological logs were generated utilising standardised rock codes.

All drillholes were logged at the core yard at Capitão Mor and captured on paper and then captured from hardcopy into MS Excel. All core was photographed, and metre blocks are checked prior to logging commencing. The original log sheets are filed on site. All core is neatly stored in an undercover shed in a functional set of core tray racks as demonstrated below in Figure 10-4.

Figure 10-4: Core Storage and Logging Facility at Capitão Mor (Source: Thiago Diniz, P.Geo – ValOre).

Geotechnical logging was conducted on all core at Pedra Branca in the form of logging industry standard rock quality designation ("RQD") with documented standards and procedures. In addition, the nature of the fracture fills and nature of discontinuity contacts were described.

Routine photographs were taken during drilling programmes prior to core splitting. The photos were pasted into MSWord™ documents and stored on the server.

10.1.6 2012 Diamond Drilling - Amplats

Ten drill holes were completed in the area between the Esbarro and Curiú Deposits testing for potential continuity at depth. Esbarro and Curiú are located 3.5 km apart along the Esbarro structural trend in the central preservation zone of the mega-sigmoidal structure at Pedra Branca.

The drilling did not intercept any significant occurrences of ultramafic bodies that would extend large segments of mineralization between these two zones. Geophysical data suggests there may be small ultramafic bodies occurring between Esbarro and Curiú, but the 2012 drilling campaign confirmed that there is no continuous connectivity between the two bodies. No sampling was completed on these drillholes.

10.1.7 2012 to 2013 Relogging and Sampling Campaign

Amplats implemented new logging and sampling standards during their tenure, and conducted significant relogging and core sampling program on all available core. This did not include the 1987 drill holes by RTZ and Gencor as no core was available. Amplats was also able to collect more bulk density measurements and standardize the lithological coding. The ½ core was cut into half again and so that ¼ of the core was put back in the core box and the other ¼ sample was put into a sample bag.

Of the 138 drill holes drilled at the 5 deposits between 1999 and 2004, Amplats relogged and resampled 127 of them.

LGGC has completed a comparison of the original assays against the re-assays and found the results for Pt, Pd and Au to be reasonably similar with no apparent bias resulting from the use of ½ core to ¼ core resampling. This work is included in section 12.4 of this report.

10.1.8 2014 Diamond Drilling –Amplats

Amplats drilled 14 exploration drill holes throughout the Pedra Branca project based on geophysical targets but did not intersect significant ultramafic units.

A total of 3000 m was completed through 14 reconnaissance holes.

10.2 ValOre Drilling Campaigns

10.2.1 2020 and 2021 Diamond Drilling

ValOre completed two drilling campaigns on the Property in 2020 and 2021, focused on three target classes: Resource Expansion, New Discovery (undrilled targets), and Target Advancement (following-up historical drill intercepts at pre-resource targets).

In 2020, ValOre engaged Brazilian drilling company Servitec Foraco Sondagem SA, based in the State of Goiás, and in 2021, DrillGeo Geologia e Sondagem was contracted. In both 2020 and 2021 drilling campaigns, most of the drill holes were initiated in HQ diameter (casing), and subsequently reduced and completed, in NQ core size. Some select shallow (<75 m deep) holes were entirely drilled in HQ core size.

10.2.1.1 Logging and sampling procedures

Core boxes were transported by the drilling contractors from drilling sites directly to ValOre’s core logging and storage facility, located in Capitão Mor, District of Pedra Branca, Ceará State. Core boxes were properly covered (lids), safely positioned in the pickup trucks and transported to Capitão Mor at least one time per shift for each drill rig in operation.

Upon arrival, core boxes were laid out in sequence and run blocks were checked for possible sum errors and checked again against the drilling company's shift report to verify information accuracy. The core was then aligned and measured, with depths marked every metre in the left side of the tray.

All drill holes have been photographed from surface to the final depth, three core boxes at time, with HQ and NQ sizes in separate photos. All photos were uploaded, renamed and saved to ValOre's database, so that the photo shows the name of the hole and depth interval.

Rock Quality Designation ("RQD") was calculated and recorded in a specific sheet for each hole, which contains all the basic information for a simplified classification.

Lithological logging was performed exclusively by ValOre's geologists, identifying and marking lithologies, contacts, mineralogy, mineralization, alteration, zones of interest, and structure. All lithological info was recorded in Microsoft Excel and uploaded to ValOre's server.

Following the core logging, sampling plan was created with definition of the sample intervals respecting QAQC criteria such as lithological contacts, major compositional or textural brakes, mineralization styles and concentration, hydrothermal alteration zones, and sample size. Core intervals to be sampled were identified and marked with wax pencil on the core or onto the core boxes tray.

All ultramafic lithotypes that are known to be the only host rocks for mineralization at Pedra Branca were fully sampled. Sampling also included a 3.00-metre buffer zone on each margin of the main host rocks layers, covering hanging-wall and footwall lithotypes.

Within the mineralized interval, sample intervals must range from 0.50 metres minimum to 1.50 metres maximum with preference given to 1.00 metre intervals. Non-mineralized samples, or samples that fall within out of a possible mineralized zone, can range from 0.50 metres minimum to 2.00 metres maximum, with preference given to 1.00 metre intervals.

Prior to core splitting, the drill core was marked by a line drawn along the core at high angles to the foliation, so that systematically the right side of the core is sampled. The other half core was retained for future reference.

For the weathered material a spatula or a machete should be used to equally split the sample into two subsamples along the direction of drilling. Fresh core is cut in half using a diamond saw, and the half core samples were sent to the SGS Laboratory, in Vespasiano, Minas Gerais, Brazil, where the samples are prepared and analyzed.

Holes for metallurgical purposes were sawn twice, with ¼ of the core sent for geochemical analysis and the other ¾ kept for future analysis.

After core splitting, core boxes are laid out once more in the logging facility tables, and prior to sampling, sample bags and sample cards are prepared, and identified according to the sampling plan and sample's identity number. Each sample will have 2 tags, one tag is attached on the core box at the end of each sample interval and the other tag is inserted at the same bag only after the sample is collected/bagged.

After sampling, sample bags are weighted and assembled in volumes with 20 kg maximum for transportation to SGS Laboratory. Each volume is marked with permanent pencil, indicating the sample interval and the submission form code. Added to that, a paper with the same information is attached to the volume.

A copy of the submission form is inserted at the first volume of the same submission form.

The volumes are transported by ValOre's team to the town of Crateús, located approximately 100 km from Capitão Mor, where Gontijo (Carrier Service) is responsible for the transport of the samples to Belo Horizonte.

A contractor based in Belo Horizonte picks up the samples at Gontijo garage in Belo Horizonte and drive them to SGS Laboratory in Vespasiano, where the conformity of samples and submission forms are checked by the Laboratory's team. If everything is normal, the Laboratory proceeds with the preparation and analysis of the samples.

Final assays are sent by e-mail and can only be accessed by ValOre geologists.

10.2.2 2021 Reverse Circulation Drilling

ValOre engaged Brazilian drilling company Servdrill Perfuração e Sondagem for 1,828 m of RC drilling, which tested six property-wide target areas.

RC holes were drilled in 4.5 inches diameter.

10.2.2.1 Logging and sampling procedures

One large sample was collected every metre-long run by the on-site drilling crew, dried out from the cyclone and deposited directly into previously labelled poly bags. If the material returned dry, the cyclone was cleaned every 3 metres with pressurized air. If humid, cyclone was cleaned at every metre, to avoid contamination of the subsequent drill sample.

Each sample was weighted at the drill site, with an average of 20-30 kg per obtained sample (for 100% recovery). A representative sample was then collected from the bag, sieved, and washed to remove excess dust, under the supervision of ValOre's geologist and/or mining technician. This sample was then stored in plastic chip case for logging procedures and future reference.

Magnetic susceptibility measurements were taken for each metre-long run with a KT-10 instrument at the drill site, by ValOre mining technicians. The large samples collected from the cyclone were transported to a sampling and splitting facility in Capitão Mor.

Every sample was passed through Jones Riffle Splitter, and 2 aliquots of approximately 2 kg (minimum of 500 g) were obtained. These 2 aliquots were bagged in new labelled poly sample bags. One sample was submitted for assay and the other was securely store in ValOre core logging and storage facility as an archive, while analytical procedures were in progress at the lab.

The splitter was cleaned before every new sample splitting, in a two-step procedure: (1) manually, initially, with a ‘paint brush’; and then (2) with pressurized air. The residual volume of each sample material was discarded.

10.2.3 Core Quality, Recovery and Mineralization Intersections

All drill core is kept on racks in the secure core storage and logging facility in Capitão Mor, protected from the elements, thus preserving the samples and boxes for an extended period of time.

Historical core recoveries are reported to be around 95%. ValOre collected and recorded core recovery measurements every drill run during the last two drilling campaigns (2020 and 2021), with average recovery rate of 98%.

Surficial structural measurements, historical drilling, and 3D geological modelling enabled ValOre geologists to plan and complete drill holes which pierced the target mineralized ultramafic intrusions roughly perpendicular to the contact. Consequently, most of the ValOre-reported drilling intercepts represent 90-100% of the true width.

10.2.4 Collar Location Determinations

Collar coordinates were initially measured using hand-held GPS units measuring in WGS84 (SIRGAS 2000) Datum. Once a program is completed drill holes were surveyed using a differential GPS by professional land surveyor. Coordinates for the drill collars are delivered in UTM WGS84 or SIRGAS 2000.

10.2.5 Downhole Survey Data

There is no downhole survey data for any of the holes drilled prior to ValOre in the project database. The average drill hole depth for historical drilling was 73 m and most holes were drilled vertically or had a subvertical dips (average of -77°). There is less likelihood of hole deviation or deflection with short, vertical to sub-vertical holes such as the historical holes at the Pedra Branca project.

Downhole survey data was acquired for all diamond drill holes drilled by ValOre in 2020 and 2021, with the surveys carried out by the drilling contractors. In 2020, Servitec used the non-magnetic, reference, DeviFlex survey instrument, manufactured by Devico. Azimuth, Dip and referenced X, Y and Z coordinates were taken at stations situated at every 3 m stations from surface to end of hole, from two readings (in and out). ValOre's geologist monitored the readings, and if no major difference was observed, the 'in' reading was then added to the Survey table within drill hole database. Raw data from drilling company was delivered by email to ValOre geologists in Excel spreadsheets.

In 2021, the survey was carried out using the non-magnetic and north-seeking Gyro instrument from Stockholm Precision Tools ("SPT"). Two readings were again taken (in and out) and the first 'in" was used as final data for ValOre's drill hole database, assuming error-free crosschecks.

10.2.6 Intersection Angles and True Thickness

The combination of vertical to sub-vertical drilling orientation and the shallow dip of the lithology units results in perpendicular to sub-perpendicular intersections of the mineralization in most drill holes. This is ideal for geology modelling and mineral resource estimation.

10.2.7 Conclusions and Recommendations

GE21 has not found any drilling or recovery factors that could materially impact the mineral resource estimations.

11 Sample Preparation, Analyses and Security

11.1 Sampling Protocols at Worksite

11.1.1 1987 Drill Hole Samples

There is no information available on the sampling protocols used during the 1987 drilling campaigns.

11.1.2 1999 to 2004 Drill Hole Samples

There is no information available on the sampling protocols used during the 1999 to 2004 drilling campaigns.

11.1.3 2007 to 2014 Drill Hole Samples

All the drill core from 2007 to 2014 that support the mineral resource estimations was sawn in half along the core axis.

Sampling was conducted in the core yard at Capitão Mor. Geologists selected the sample size based on the geology and mineralization observed during the logging process and lithology boundaries were honoured.

Samples were marked up, sawn in half and one half of the core was returned to the core box while the other half was placed in a sample bag. The sample intervals and sample numbers were recorded on the sampling sheet and on the core boxes. A sample tag was placed in the sample bag and the accumulated sample shipments were sent to the laboratory by truck.

11.1.4 2020 to 2021 Drillhole Sampling

Diamond Drilling (DD)

The diamond drilling company hired by ValOre Metals Corp. was responsible to transport the core boxes from drilling sites within Pedra Branca directly to ValOre's core storage and loggin facility, located in Capitão Mor, District of Pedra Branca, Ceará State.

The transport is carried out by the drilling crew in 4x4 pickup trucks. The core boxes must be properly covered (lids), safely positioned in the vehicles and transported to the core shack one time per shift for each drill rig in operation, or as previously agreed.

After the drill core is brought, the following procedures are executed by ValOre's team. All activities are overseen and/or executed by geologists and mining technicians with the support of qualified local assistants, properly trained to carry out each task.

- Check if the core boxes are in good conditions and properly identified/labeled;
- Verify information accuracy in the daily drilling report and drill hole depths;

- Core boxes are laid out in sequence and run blocks are checked for possible errors;
- The core is aligned and measured, with depths marked every metre;
- The entire hole is photographed from surface to the final depth, three core boxes at time, with HQ and NQ sizes never in same photo. After that, all photos are uploaded, renamed so that the photo shows the name of the hole and depth interval, then they are archived in the digital folder of a specific hole within ValOre's database;
- Rock Quality Designation (RQD) is calculated and recorded in a specific sheet for each hole, which contains all the basic information for a simplified classification (Sum of pieces greater than 10 cm, number of fractures, run blocks data);
- Core litho logging is exclusively performed by ValOre's geologists, identifying and marking the different lithologies, mineralogy, mineralization and zones of interest, measuring structures etc. All this info is collected in Microsoft Excel files and uploaded to ValOre's Database;
- When core logging is complete, the sampling plan is done by ValOre's geologists, with sample intervals definition respecting QAQC criteria such as lithological contacts, major compositional or textural brakes, mineralization styles and concentration, hydrothermal alteration zones, sample size etc. Core intervals to be sampled are identified and marked with dermatographic pencil in the core box. Within the mineralized interval, sample intervals must range from 0.50 metres minimum to 1.50 metres maximum with support of 1.00 metre, depending on specific characteristics of the ore zone. Non-mineralized samples, or samples that fall within a 3.00-metre buffer zone out of a possible mineralized zone, can range from 0.50 metres minimum to 2.00 metres maximum, with the support of 1.00 metre;
- Prior to sampling, the drill core is marked by a line drawn along the core at high angles to the foliation, so that systematically the right side of the core is sampled. The other half core is retained for future reference;
- For the weathered material a spatula or a machete should be used to equally split the sample into two subsamples along the direction of drilling. Fresh core is cut in half using a diamond saw, and the half core samples are sent to the SGS Laboratory, in Vespasiano, MG, Brazil, where the samples are prepared and analyzed;
- Holes with metallurgical purposes are sawn twice, ¼ of the core is sent for geochemical analysis and the other 3/4 are kept for future analysis;
- Prior to sampling, sample bags and sample cards are identified according to the sampling plan and sample's identity number;
- Each sample has 2 tags, one tag is attached on the core box at the end of each sample interval and the other tag is inserted at the same bag only after the sample is collected;
- After sampling, sample bags are weighted and assembled in volumes with 20 kg maximum for transportation to SGS Laboratory. Each volume is marked with permanent pencil, indicating the sample interval and the submission form code. Added to that, a paper with the same information is attached to the volume;

- A copy of the submission form is inserted at the first volume of the same submission form;
- The volumes are transported by ValOre's team to the town of Crateús, located approximately 100 km from Capitão Mor, where Gontijo (Carrier Service) is responsible for the transport of the samples to Belo Horizonte;
- A contractor based in Belo Horizonte picks up the samples at Gontijo garage in Belo Horizonte and drive them to SGS Laboratory in Vespasiano, where the conformity of samples and submission forms are checked by the Laboratory's team;
- If everything is normal, the Laboratory proceeds with the preparation and analysis of the samples;
- The assays are sent by e-mail and can only be accessed by ValOre's Exploration Manager and geologists.

Reverse Circulation Drilling (RC)

RC holes are drilled in 4.5 inches diameter, in run lengths of 3 metres. One large sample is collected every metre, dried out from the cyclone and deposited directly into previously identified plastic bags. If the material is dry, the cyclone is cleaned every 3 metres with pressurized air. If humid, cyclone is cleaned at every metre.

Each sample is weighted at the drill site, with an average of 20-30kg per obtained sample (for 100% recovery). A representative sample is taken from the sack and is sieved and washed to remove excess dust. This sample is then stored in plastic chip case for logging procedures and future reference. Magnetic Susceptibility measurements are taken at the drill site, for each interval.

The large samples collected from the cyclone are transported to a sampling/splitting facility at Capitão Mor. At Capitão Mor, every sample goes into a Jones Riffle Splitter, and 2 aliquots of approximately 2kg, and minimum of 500g, are obtained. One of them to be kept as archive, and the other to be submitted for assay. These 2 aliquots are bagged in new plastic bags, properly previously identified.

The splitter is cleaned before every new sample splitting, in a two-step procedure: (1) manually, initially, with a 'paint brush'; and then (2) with pressurized air. The residual volume of each sample material is discarded.

11.2 Resampling of 1999 to 2004 Drill Hole Samples

The assay results from the 1999 to 2004 drill core that was resampled by Amplats (2011 to 2012) are from ¼ core samples as the remaining half-core was cut in half along the core axis.

The difference in sample size between the ¼ core and ½ core samples does not appear to impact the grades of Pt, Pd and Au as per the comparisons documented in section 12.4 of this report.

The drill core from the re-assay samples were subjected to the same sampling protocols applied to the Amplats drill holes from 2007 to 2014.

11.3 Laboratory Sample Preparation and Analysis Procedures

The drilling samples have been analyzed at different laboratories by the different companies that have completed drilling campaigns at the Pedro Branca project.

11.3.1 Historical Drill holes – 1987 to 2004

The 1987 drilling completed by RTZ used the Impala Laboratory and by Gencor used the Impala and LBPM Laboratories.

The drilling completed between 1999 to 2001 by Altoro and Rockwell used the Bondar Clegg Laboratory.

The drilling completed between 2001 and 2002 by Solitario used both the Bondar Clegg and ALS Chemex laboratories then used the ALS Chemex Laboratory exclusively for the 2003 to 2004 drilling campaigns.

11.3.2 2007 Drilling – ALS Chemex Laboratory

Amplats started out using the ALS Chemex laboratory for their 2007 drilling.

For the Pt, Pb and Au results the samples were crushed to 70% passing 2 mm mesh and then 250 gm subsample pulverized to 85% passing -200 mm mesh. The samples were analysed using 30 gm Fire Assay method (PGM-ICP23) with ICP-AES finish.

The samples were also analysed for 33 Elements using four acid digestion with ICP-AES finish for Ag, Al, As, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W and Zn. Over limits were reanalyzed using the ore-grade version of this method ME-OG62 which also used four acid digestion of the sample. Cu results that exceeded the top limit were reanalyzed using Cu-OG62 method which uses a four-acid digestion and ICP or AAS finish. The ALS-Chemex laboratory was located in Sparks, Nevada in the United States.

11.3.3 2008 to 2014 and Resampled Core (1999 to 2004) - SGS Geosol

Amplats switched to the SGS Geological Solutions Laboratory ("SGS Geosol") for their 2008 to 2014 drill holes. This laboratory is ISO9001:2000 accredited and located in Belo Horizonte, Brazil. SGS Geosol laboratory analysed the bulk of the samples from the project as they were also the site that analysed the resampled core from the historical drilling from 1999 to 2004.

At the SGS Geosol Laboratory the samples are crushed to 100% passing 2 mm mesh and then the whole sample was pulverised to 95% passing -200 mesh.

Analysis for Pt, Pd and Au was by fire assay method with an ICP finish (FA1313, 30 gm).

A 37-element analysis by Ion Coupled Plasma Mass Spectrometry (“ICPMS”) using four acid digestion (HCl, HNO_3, HF and $HClO_4$) (ICP40B).

Analysis for S is also conducted using CSA17V method.

Analysis for Mg and Fe were competed when S content was >15% using laboratory method XRF79C. When the content of Mg and Fe exceed 10,000 ppm from the 37 element ICP, Cu and Cr are analysed as well using the XRF method.

The analytical methodologies employed are accepted industry practice on similar deposits in South Africa and are considered representative of total analysis.

11.3.4 2020 and 2021 Diamond Drilling and Reverse Circulation- SGS Geosol

SGS Geosol was defined as the primary lab by ValOre. The same analytical methods were carried out for diamond drill samples and RC samples, except by density measurements.

Density calculation (g/cm3) were performed for all diamond drill samples at SGS Geosol using the method PHY04V, with test performed on the raw sample. Method of water immersion, after wrapping up the sample using PVC film.

Density measurements were taken by the pycnometer method for the first two RC holes drilled, being two twins from diamond drill holes drilled in 2020 by ValOre, at Trapiá deposit. Density measurements by pycnometer showed a good correlation with measurements by water immersion carried out on the twinned diamond drill holes.

Rock preparation, multi-element analysis and fire assay were identical for both diamond drill samples and RC samples sent to SGS Geosol.

Preparation by method PRP102E, with drying, crushing with 75% passing 3 mm, homogenization, quartering and pulverizing of 250 to 300 g of samples in a 95% steel mill at 150 mesh.

Multi-element analyses were carried out by ICM90A, with the digestion by Sodium Peroxide Fusion followed by a multielement combined ICP-OES and ICP-MS scan for base metals, trace and lithological elements, for a total of 55 elements.

If a sample was found to contain > 5% Cr from the ICM90A analysis, then X-ray fluorescence (XRF82B method in 2020 drilling and XRF82CR in 2021) was applied to determine major elements.

Determination of Pt, Pd & Au was performed by FAI34V method, for which fire assays fluxes are variable (mass and content) and depend on Chromium content determined from the ICP. Finish is done by ICP-OES finish.

11.4 Quality Assurance and Quality Control

11.4.1 Historical Drill Holes – 1987 to 2004

There is no information related to the QAQC procedures and protocols for the historical drill holes.

11.4.2 2007 to 2014 Drill Holes and Resampled Historical Drill Core – QAQC

Amplats inserted QAQC check samples into sampling streams of their drilling from 2007 through 2014 and into the resampling program of the 1999 to 2004 historical drill holes.

Amplats was inserting blank samples at a rate of 1 blank sample for every 70 drill core samples submitted. Industry standard is to include more blank samples at about double that rate.

A Standard Reference Material ("SRM") sample was inserted into the sample stream at a rate of 1 SRM for every 40 drill core samples. While some workers find this a reasonable insertion rate it is recommended to include an SRM at a rate of 1 for every 20 drill core samples.

Amplats included duplicate samples in the 2008 to 2009 drilling programs (drill holes DD08CU20 to DD09CD67) at a rate of 1 duplicate sample per batch of 20 drill core samples. This is a reasonably acceptable rate but the short duration of their duplicate program resulted in only 59 data pairs.

In future drilling programs there should be 1 blank, 1 SRM, 1 core duplicate, 1 course reject duplicate and 1 pulp duplicate for every batch of 20 samples submitted to the assay laboratory. This is to ensure the drilling, sampling and sample preparation protocols applied to the drill core are ideal~~ized~~ for the deposits being tested and used for mineral resource estimations.

11.4.2.1 Standard Reference Materials

SRM samples used to support the 2007 to 2014 diamond drilling samples and the re-assayed samples from the historical drill holes were purchased from CDN Resource Laboratories in Delta, BC, Canada (Table 11-1).

SRM results should be reviewed when assay results are received from the laboratory. An SRM is considered to have failed and the associated samples should be re-assayed when:

- a single SRM result exceeds triple the standard deviation value or
- more than one consecutive sample exceeds double the standard deviation value.

There are significant number of failures on some of the SRM charts that support the drilling data. Some of the apparent failures may be due to the errors in the database that LGGC identified during the data validation process. The database audit should include the QAQC data to confirm if the apparent failures on the charts are not due to incorrect assay data in the QAQC database.

Table 11-1: CDN Resource Laboratories SRM Samples Used in QAQC Program

SRM ID	Expected Pt g/t	2*Standard Deviation	Expected Pd g/t	2*Standard Deviation	Expected Au g/t	Standard Deviation
CDN-PGMS-1	2.3	0.18	10.35	0.74	0.23 (not certified)	0.06
CDN-PGMS-2	0.21	0.04	3.9	0.47	-	-
CDN-PGMS-9	0.71	0.09	2.6	0.24	1.04	0.1
CDN-PGMS-13	1.25	0.08	4.51	0.25	1.41	0.11
CDN-PGMS-15	0.098	0.014	0.428	0.03	0.41 (provisional)	0.07
CDN-PGMS-21	0.293	0.026	2	0.18	3.42	0.41

CDN PGMS-1

Twenty-two CDN PGMS-1 SRMs were used to support the Pt and Pd values from the samples submitted for analysis during 2007 to 2009 (Figure 11-1). The certificate for this SRM provides an expected value for Au and a confidence interval but it clearly states that the gold value is not certified and should not be used to determine the quality of gold assay results.

Ten assay results for Pt and eight for Pd were outside of the acceptable limits and the sample batches associated with these SRMs should have been re-assayed at the time of the sampling program. All other samples returned values of Pt and Pd within the acceptable range. Seven of the failures in the Pt and Pd SRM results are from the same sample.

Three samples returned values for Au outside of the expected range but the SRM is not certified for gold values so no actions would have been recommended.

SRM CDN PGMS-1 Results
Pt, Pd and Au (g/t)

2007 to 2014 DDHs
and
Reassay of 1999 to 2004 DDHs

Samp_ID	Type	Au ppm	Pd ppm	Pt ppm
82175	Standard CDN PGMS-1	0.249	9.770	2.200
82225	Standard CDN PGMS-1	0.247	10.000	2.220
82325	Standard CDN PGMS-1	0.215	9.580	2.030
82425	Standard CDN PGMS-1	0.154	9.320	2.050
85100	Standard CDN PGMS-1	0.071	3.783	0.638
85175	Standard CDN PGMS-1	0.073	9.903	0.817
85250	Standard CDN PGMS-1	0.189	8.849	1.967
85325	Standard CDN PGMS-1	0.197	9.629	2.135
85400	Standard CDN PGMS-1	0.181	8.713	1.480
85475	Standard CDN PGMS-1	0.145	7.420	1.680
85550	Standard CDN PGMS-1	0.215	9.672	2.178
85625	Standard CDN PGMS-1	0.758	9.266	2.153
85700	Standard CDN PGMS-1	0.210	10.517	2.375
85775	Standard CDN PGMS-1	0.207	11.061	2.471
86025	Standard CDN PGMS-1	0.188	8.478	1.992
86100	Standard CDN PGMS-1	0.197	8.445	1.951
86175	Standard CDN PGMS-1	0.228	9.447	2.156
86250	Standard CDN PGMS-1	0.205	10.453	2.228
86325	Standard CDN PGMS-1	0.247	10.704	2.553
86400	Standard CDN PGMS-1	0.231	12.215	2.688
86475	Standard CDN PGMS-1	0.234	10.670	2.312
86550	Standard CDN PGMS-1	0.191	9.820	1.992

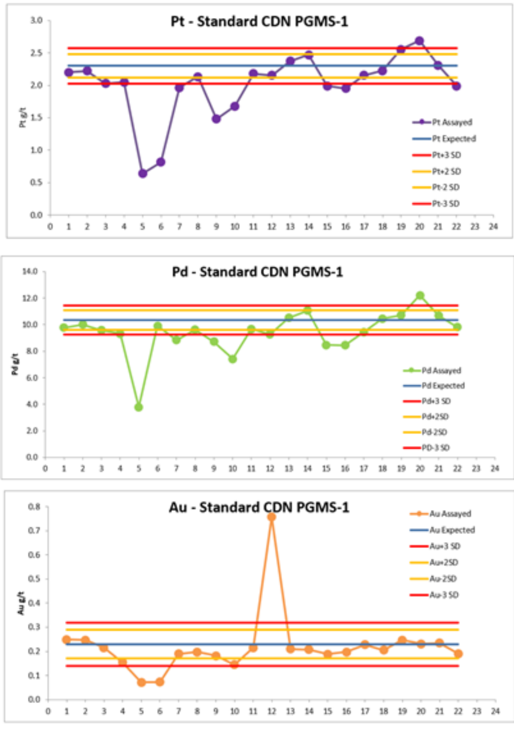


Figure 11-1: SRM Results for CDN PGMS-1 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

CDN PGMS-2

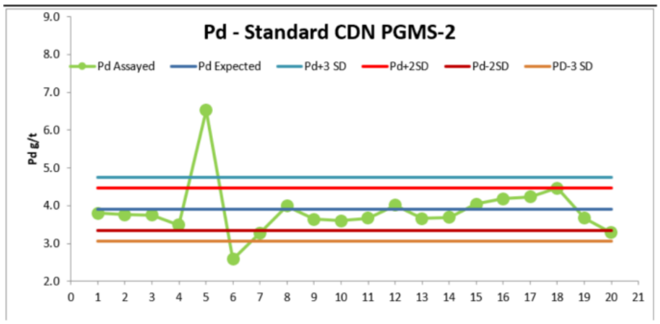
Twenty CDN PGMS-2 SRMs were used to support the drill hole samples submitted for analysis during 2007 to 2009 (Figure 11-2). This SRM is certified for Pt and Pd values and does not report a value for Au (Table 11-1).

Three samples returned values for Pt and two for Pd that were outside of the expected ranges. The sample batches associated with these SRMs should have been re-assayed at the time of the sampling program. All other samples returned ranges of Pt and Pd that were within the acceptable range.

SRM CDN PGMS-2 Results
Pt and Pd (g/t)

2007 to 2014 DDHs
and
Reassay of 1999 to 2004 DDHs

Samp_ID	Type	Au ppm	Pd ppm	Pt ppm
82125	CDN PGMS-2		3.800	0.240
82275	CDN PGMS-2		3.760	0.211
82375	CDN PGMS-2		3.750	0.186
85050	CDN PGMS-2		3.494	0.218
85125	CDN PGMS-2		6.522	0.482
85200	CDN PGMS-2		2.586	0.149
85275	CDN PGMS-2		3.278	0.179
85350	CDN PGMS-2		3.989	0.245
85425	CDN PGMS-2		3.637	0.225
85500	CDN PGMS-2		3.600	0.212
85575	CDN PGMS-2		3.665	0.202
85725	CDN PGMS-2		4.007	0.239
86050	CDN PGMS-2		3.661	0.176
86125	CDN PGMS-2		3.684	0.210
86200	CDN PGMS-2		4.041	0.290
86275	CDN PGMS-2		4.181	0.255
86350	CDN PGMS-2		4.228	0.234
86425	CDN PGMS-2		4.462	0.256
86500	CDN PGMS-2		3.671	0.218
86575	CDN PGMS-2		3.282	0.162



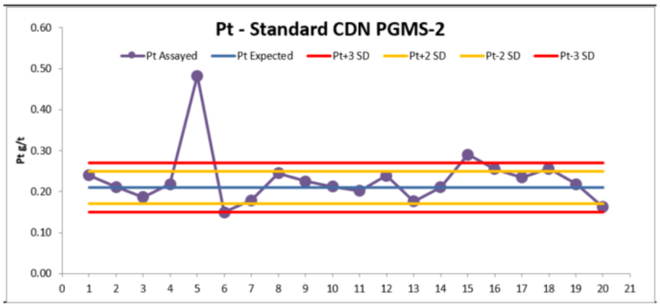


Figure 11-2: SRM Results for CDN PGMS-2 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

CDN PGMS-9

Twenty-nine CDN PGMS-9 SRMs were used to support the drill hole samples submitted for analysis during 2009 through the 2012 (Figure 11-3). This SRM is certified for Pt, Pd and Au values as per Table 11-1.

Three samples returned values for Pt, four for Pd and seven for Au that were outside of the expected ranges. The sample batches associated with these SRMs should have been re-assayed at the time of the sampling program.

SRM CDN PGMS-9 Results
Pt, Pd and Au (g/t)

2007 to 2014 DDHs
and
Reassay of 1999 to 2004 DDHs

Samp_ID	Type	Au ppm	Pd ppm	Pt ppm
86625	CDN PGMS-9	0.009	0.044	0.298
86700	CDN PGMS-9	0.922	2.526	0.736
86775	CDN PGMS-9	0.961	2.564	0.719
86850	CDN PGMS-9	1.055	2.787	0.688
87075	CDN PGMS-9	1.040	2.715	0.747
87150	CDN PGMS-9	1.074	2.913	0.771
87225	CDN PGMS-9	1.280	3.068	0.813
87300	CDN PGMS-9	0.964	2.592	0.702
87375	CDN PGMS-9	0.987	2.478	0.724
87450	CDN PGMS-9	0.919	2.386	0.713
89350	CDN PGMS-9	1.180	2.648	0.726
89025	CDN PGMS-9	1.109	2.802	0.730
89100	CDN PGMS-9	1.047	2.538	0.752
89175	CDN PGMS-9	1.092	2.891	0.751
89250	CDN PGMS-9	1.095	2.959	0.746
89400	CDN PGMS-9	1.004	2.573	0.706
90375	CDN PGMS-9	0.978	2.328	0.671
89475	CDN PGMS-9	1.079	2.400	0.558
89625	CDN PGMS-9	1.029	2.634	0.557
89700	CDN PGMS-9	1.026	2.624	0.766
89775	CDN PGMS-9	1.111	2.496	0.705
89850	CDN PGMS-9	0.929	2.375	0.670
89925	CDN PGMS-9	1.012	2.568	0.667
90000	CDN PGMS-9	0.993	2.584	0.679
90075	CDN PGMS-9	0.852	2.516	0.669
90150	CDN PGMS-9	0.892	2.361	0.657
89550	CDN PGMS-9	1.121	2.720	0.761
90225	CDN PGMS-9	1.038	2.496	0.698
90300	CDN PGMS-9	0.970	2.477	0.747

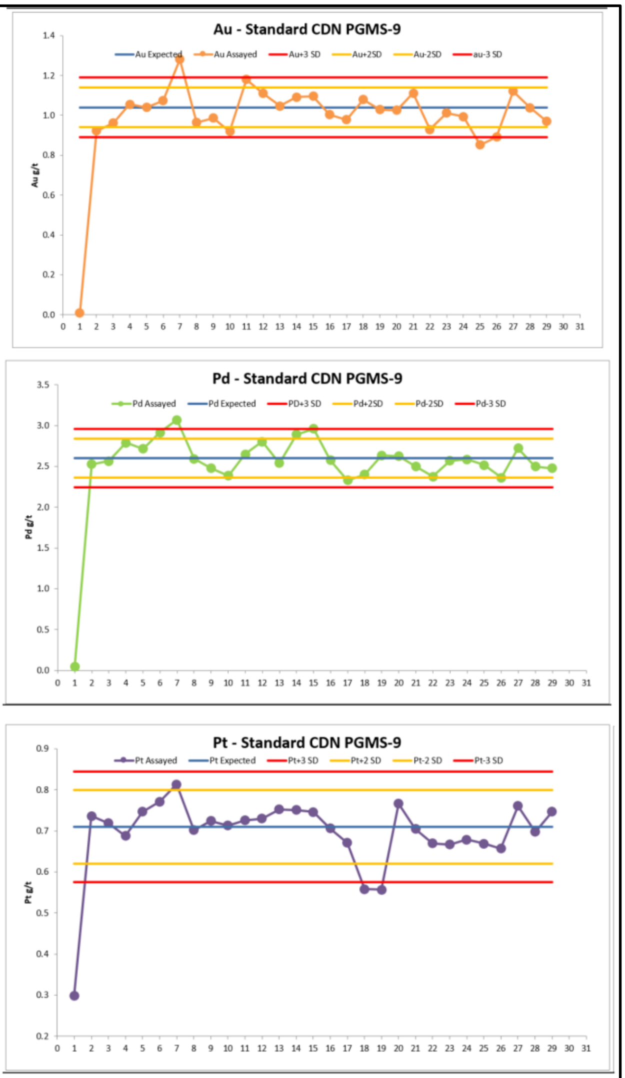


Figure 11-3: SRM Results for CDN PGMS-9 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

CDN PGMS-13

Twenty-nine CDN PGMS-13 SRMs were used to support the drill hole samples submitted for analysis during 2009 through the 2012 (Figure 11-4). This SRM is certified for Pt, Pd and Au values as per Table 11-1.

Six samples returned values for Pt, fourteen for Pd and six for Au that were outside of the expected ranges. The sample batches associated with these SRMs should have been re-assayed at the time of the sampling program.

SRM CDN PGMS-13 Results Pt, Pd and Au (g/t)

2007 to 2014 DDHs and Reassay of 1999 to 2004 DDHs

Samp_ID	Type	Au ppm	Pd ppm	Pt ppm
86650	CDN PGMS-13	1.549	5.116	1.289
86725	CDN PGMS-13	1.124	3.997	1.105
86800	CDN PGMS-13	1.587	5.210	1.363
87100	CDN PGMS-13	1.259	4.131	1.108
87175	CDN PGMS-13	1.274	4.373	1.209
87250	CDN PGMS-13	1.285	4.279	1.200
87325	CDN PGMS-13	1.050	3.512	1.020
87400	CDN PGMS-13	1.497	4.719	1.536
87475	CDN PGMS-13	1.193	4.051	1.185
89325	CDN PGMS-13	1.417	4.974	1.236
89050	CDN PGMS-13	1.303	4.616	1.326
89125	CDN PGMS-13	1.354	4.456	1.287
89200	CDN PGMS-13	1.497	4.978	1.208
89275	CDN PGMS-13	1.487	4.933	1.258
90400	CDN PGMS-13	1.399	4.393	1.251
89425	CDN PGMS-13	1.269	4.372	1.225
89575	CDN PGMS-13	1.412	4.436	1.201
89650	CDN PGMS-13	1.440	4.207	1.128
89725	CDN PGMS-13	1.416	4.597	1.358
89800	CDN PGMS-13	1.233	4.053	1.173
89875	CDN PGMS-13	1.258	3.930	1.137
89950	CDN PGMS-13	1.323	4.386	1.167
90025	CDN PGMS-13	1.256	4.391	1.226
90100	CDN PGMS-13	1.227	3.921	1.054
90175	CDN PGMS-13	1.378	4.235	1.209
90250	CDN PGMS-13	1.266	4.183	1.282
90325	CDN PGMS-13	1.385	4.514	1.272
90450	CDN PGMS-13	1.321	4.372	1.278
89500	CDN PGMS-13	1.325	4.467	1.241

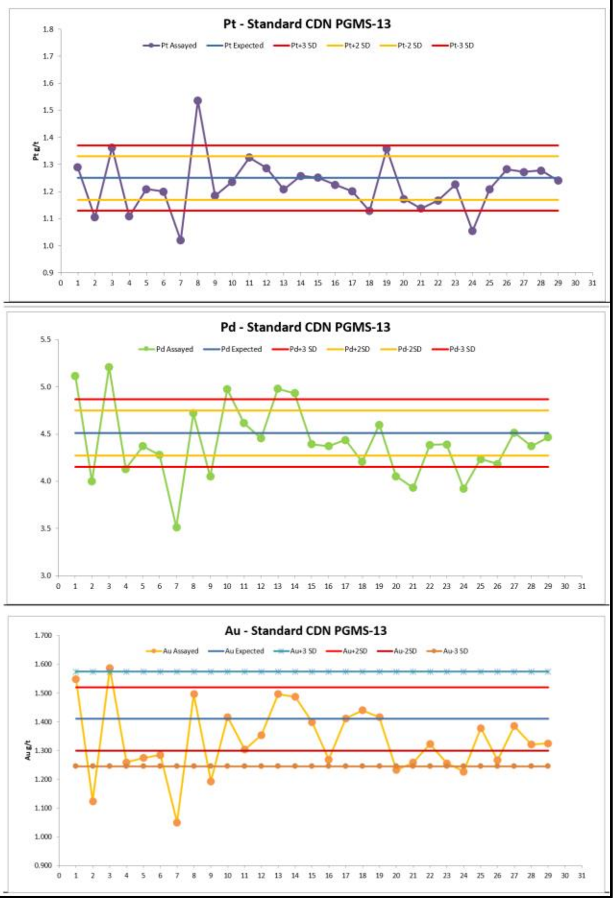


Figure 11-4: SRM Results for CDN PGMS-13 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

CDN PGMS-15

Forty-three CDN PGMS-15 SRMs were used to support the drill hole samples submitted for analysis during 2009 through the 2012 (Figure 11-5). This SRM is certified for Pt and Pd but is only a provisional guide for Au values as per Table 11-1.

Seven samples returned values for Pt, six for Pd and no Au that were outside of the expected ranges. The sample batches associated with these SRMs should have been re-assayed at the time of the sampling program.

SRM CDN PGMS-15 Results
Pt, Pd and Au (g/t)

2007 to 2014 DDHs
and
Reassay of 1999 to 2004 DDHs

Samp_ID	Type	Au ppm	Pd ppm	Pt ppm
90875	CDN PGMS-15	0.351	0.388	0.095
90950	CDN PGMS-15	0.398	0.452	0.114
91025	CDN PGMS-15	0.413	0.404	0.103
91100	CDN PGMS-15	0.458	0.468	0.116
91175	CDN PGMS-15	0.386	0.435	0.105
91250	CDN PGMS-15	0.350	0.434	0.095
91400	CDN PGMS-15	0.391	0.409	0.099
91475	CDN PGMS-15	0.343	0.412	0.098
91550	CDN PGMS-15	0.393	0.392	0.098
91625	CDN PGMS-15	0.473	0.437	0.095
91700	CDN PGMS-15	0.367	0.385	0.092
91775	CDN PGMS-15	0.401	0.410	0.096
91850	CDN PGMS-15	0.315	0.357	0.072
91925	CDN PGMS-15	0.403	0.402	0.106
91325	CDN PGMS-15	0.375	0.431	0.112
90725	CDN PGMS-15	0.480	0.445	0.102
90800	CDN PGMS-15	0.385	0.416	0.098
92000	CDN PGMS-15	0.428	0.417	0.096
92075	CDN PGMS-15	0.323	0.393	0.096
90475	CDN PGMS-15	0.424	0.430	0.098
90550	CDN PGMS-15	0.416	0.388	0.098
90625	CDN PGMS-15	0.421	0.433	0.109
92150	CDN PGMS-15	0.312	0.429	0.113
92225	CDN PGMS-15	0.384	0.414	0.098
92300	CDN PGMS-15	0.412	0.396	0.093
92375	CDN PGMS-15	0.363	0.378	0.100
92450	CDN PGMS-15	0.348	0.411	0.093
92525	CDN PGMS-15	0.378	0.405	0.099
92600	CDN PGMS-15	0.446	0.400	0.090
92750	CDN PGMS-15		0.369	0.435
92900	CDN PGMS-15		0.387	0.427
92975	CDN PGMS-15		0.452	0.457
93050	CDN PGMS-15		0.416	0.394
93125	CDN PGMS-15	0.429	0.431	0.109
93200	CDN PGMS-15	0.328	0.380	0.092
93375	CDN PGMS-15	0.498	0.456	0.109
93450	CDN PGMS-15	0.375	0.434	0.110
93300	CDN PGMS-15	0.395	0.455	0.099
93525	CDN PGMS-15	0.425	0.412	0.101
93600	CDN PGMS-15	0.425	0.125	0.104
93675	CDN PGMS-15	0.456	0.437	0.110
92675	CDN PGMS-15		0.496	0.463
92825	CDN PGMS-15		0.367	0.430

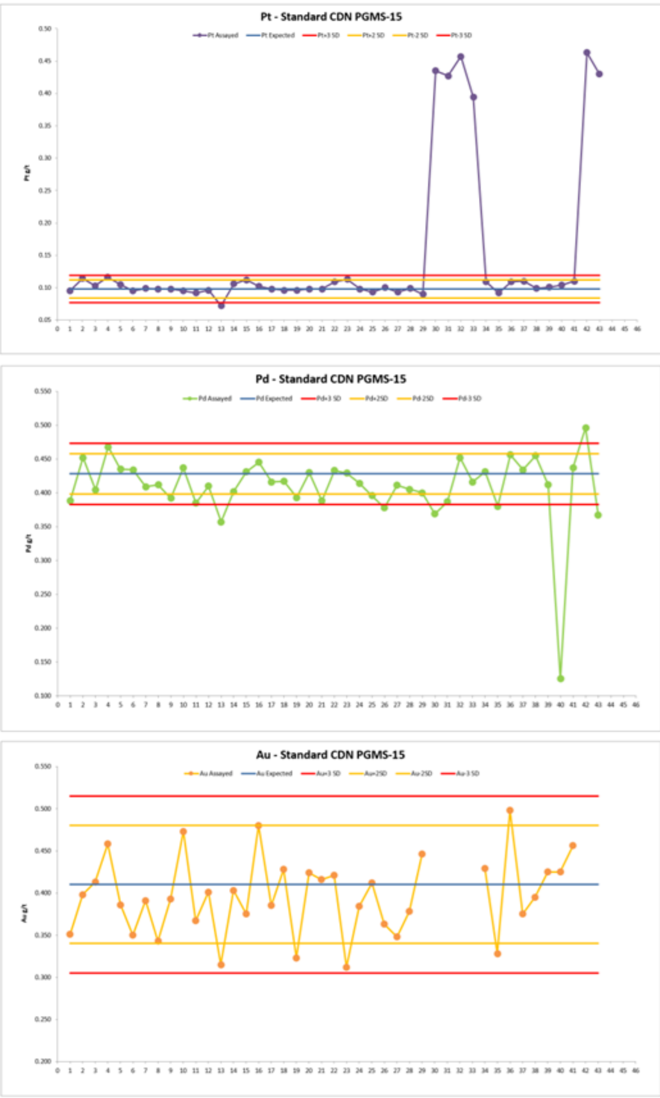


Figure 11-5: SRM Results for CDN PGMS-15 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

CDN PGMS-21

Thirty-six CDN PGMS-21 SRMs were used to support the drill hole samples submitted for analysis during 2009 through the 2012 (Figure 11-6). This SRM is certified for Pt, Pd and Au values as per Table 11-1.

One sample returned values for Pt, one for Pd and no Au were outside of the expected ranges. The sample batches associated with these SRMs should have been re-assayed at the time of the sampling program.

SRM CDN PGMS-21 Results
Pt, Pd and Au (g/t)

2007 to 2014 DDHs
and
Reassay of 1999 to 2004 DDHs

Samp_ID	Type	Au ppm	Pd ppm	Pt ppm
90975	CDN PGMS-21	3.757	1.875	0.262
90825	CDN PGMS-21	3.419	2.125	0.319
91050	CDN PGMS-21	3.532	2.072	0.323
91125	CDN PGMS-21	3.132	1.888	0.301
91200	CDN PGMS-21	3.489	1.855	0.298
91275	CDN PGMS-21	3.077	1.854	0.296
91350	CDN PGMS-21	3.255	1.856	0.305
91425	CDN PGMS-21	3.522	2.021	0.313
91500	CDN PGMS-21	3.214	1.707	0.289
91575	CDN PGMS-21	3.232	1.836	0.304
91650	CDN PGMS-21	3.430	1.968	0.309
91725	CDN PGMS-21	2.840	1.895	0.294
91800	CDN PGMS-21	3.089	1.800	0.295
91875	CDN PGMS-21	2.961	1.838	0.282
91950	CDN PGMS-21	3.532	2.196	0.319
90688	CDN PGMS-21	3.280	1.819	0.292
90750	CDN PGMS-21	3.908	1.974	0.312
90900	CDN PGMS-21	3.468	1.990	0.313
92025	CDN PGMS-21	2.801	1.814	0.287
90500	CDN PGMS-21	3.616	1.857	0.305
90575	CDN PGMS-21	3.555	1.778	0.278
92475	CDN PGMS-21	3.075	1.826	0.306
92100	CDN PGMS-21	3.180	1.915	0.292
92325	CDN PGMS-21	3.210	1.795	0.286
92400	CDN PGMS-21	2.784	1.837	0.286
92550	CDN PGMS-21		1.862	0.304
93150	CDN PGMS-21	3.234	1.844	0.284
93225	CDN PGMS-21	3.338	1.815	0.274
92175	CDN PGMS-21	3.090	1.837	0.294
93400	CDN PGMS-21	3.304	1.928	0.348
93475	CDN PGMS-21	3.147	1.951	0.296
93625	CDN PGMS-21	3.317	1.954	0.303
92250	CDN PGMS-21	3.522	1.894	0.329
93325	CDN PGMS-21	3.703	2.003	0.302
93550	CDN PGMS-21	2.944	1.756	0.293
93700	CDN PGMS-21	3.228	2.036	0.317

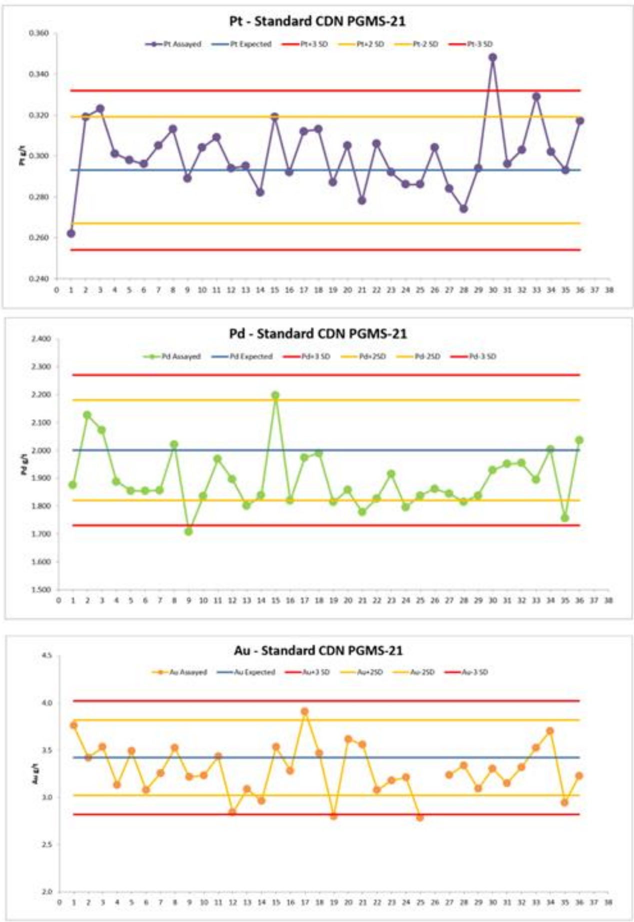


Figure 11-6: SRM Results for CDN PGMS-21 (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

11.4.2.2 Blanks

Blank material was inserted into the QAQC sample stream in order to detect cross-contamination between samples during sample preparation. LGGC has no information regarding the source or the size of the material that was used for the blank samples. There appears to be at least two different blank materials or a change in analysis method as the first 32 assay results show some "noise" in the results and then the results are more consistently reporting at the detection limit (Figure 11-7).

While there are some results that are higher grade than acceptable for a blank there is no indication of any consistent contamination in the sample prep system. It is recommended that ValOre find a source for a blank sample that is coarse material that will be crushed and pulverized during the sample preparation phase.

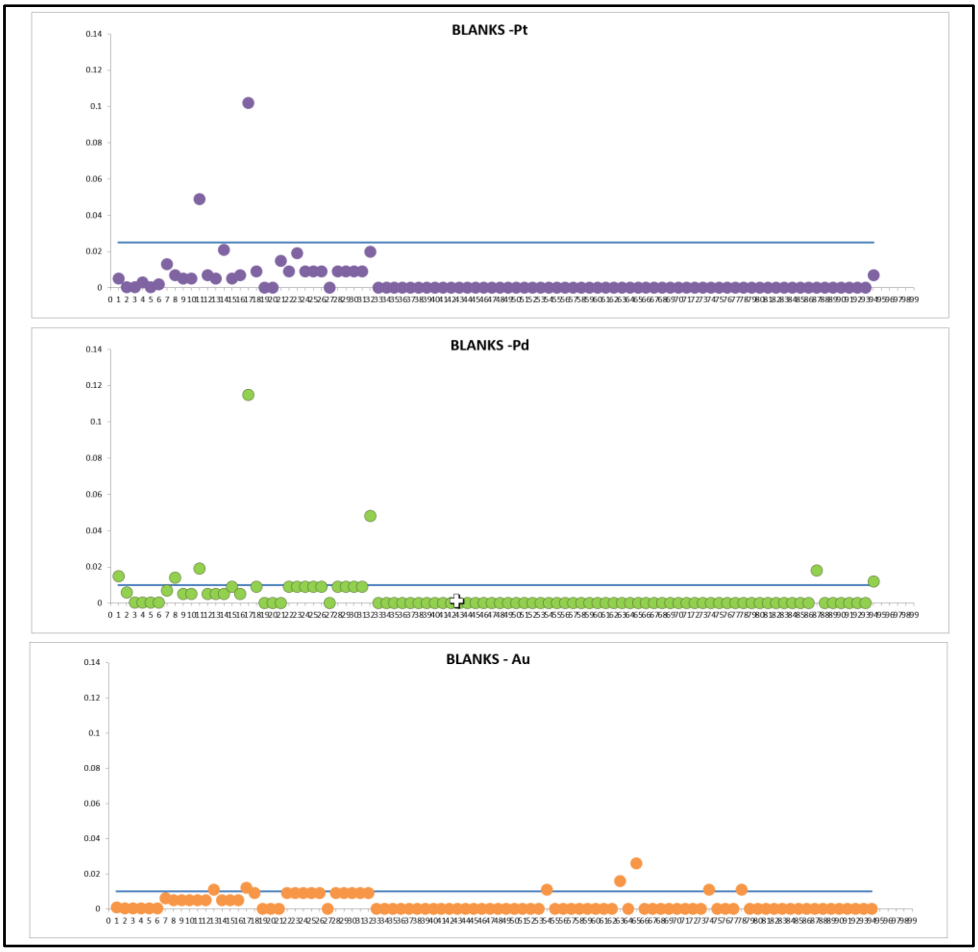


Figure 11-7: Blank Sample Results for Pedra Branca Project Sampling Database (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

11.4.2.3 Pulp Duplicate

There was a limited pulp duplicate sampling program during the 2008 to 2009 drilling program that resulted in 59 pulp duplicate samples. It is not clear if the assay results presented as duplicates are sourced from the same pulp or if duplicate pulps were created during the sample preparation process.

Pulp duplicate results appear to be reasonably well reproduced between the duplicate analysis results for Pt, Pd and Au. There are some minor outlier results but that is not unusual for precious metal analysis. As part of any future QAQC program duplicates should be taken using core samples, coarse reject samples and pulp samples.

The duplicate graphs for Pt, Pd and Au are presented in Figure 11-8 through to Figure 11-10.

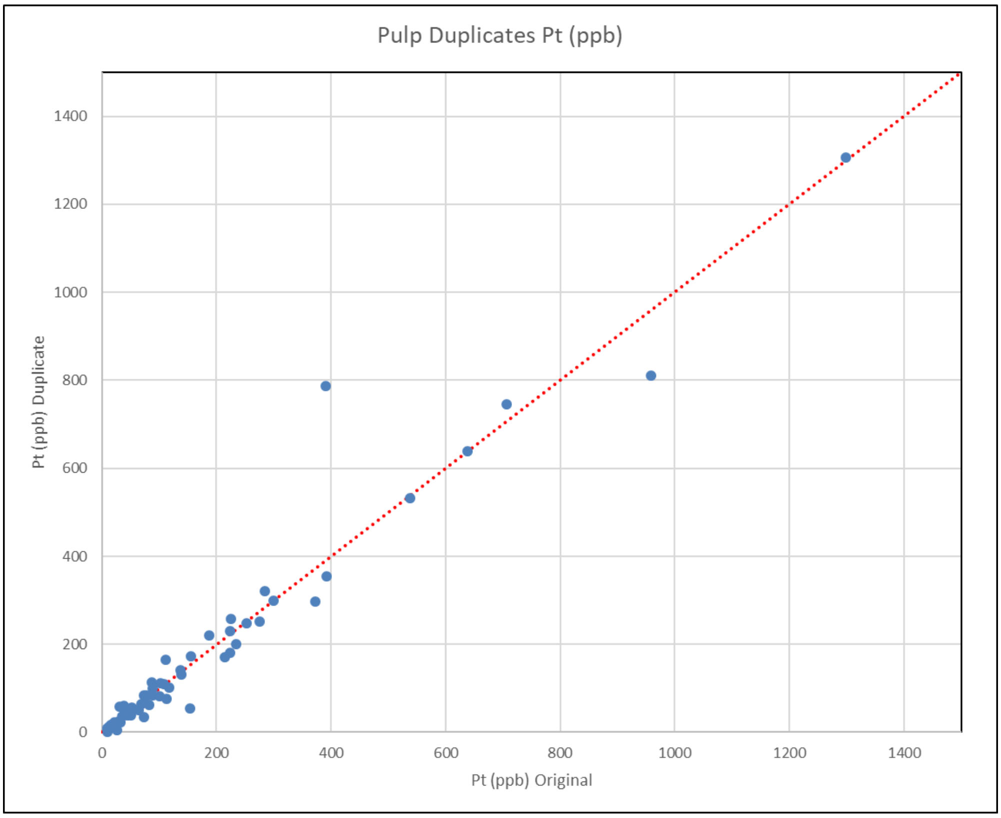


Figure 11-8: Pulp Duplicate Chart Pt (ppb) (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

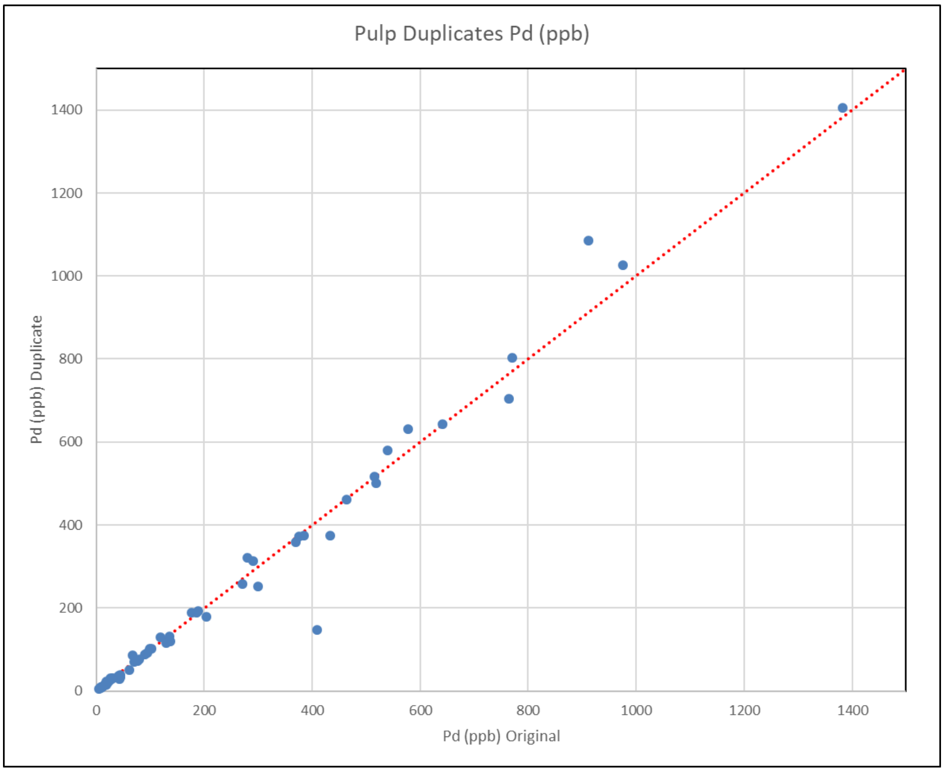


Figure 11-9: Pulp Duplicate Chart Pd (ppb)

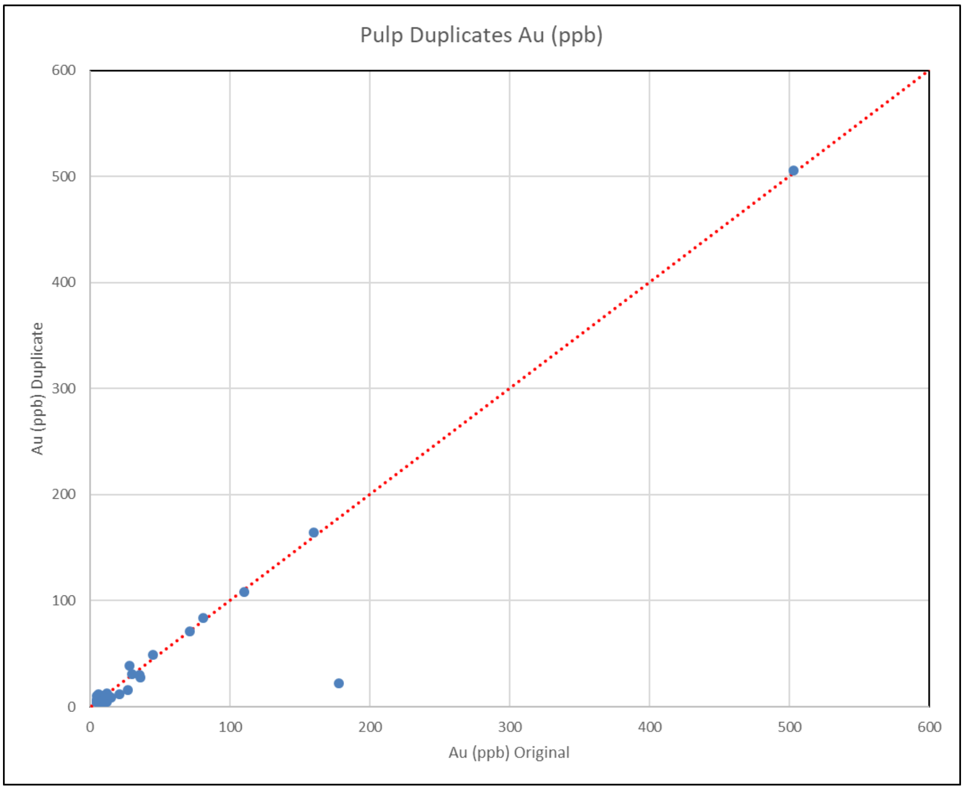


Figure 11-10: Pulp Duplicate Chart Au (ppb) (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

11.4.2.4 Conclusions and Recommendations (Historical Database – LGGC)

The 1987 drill holes are not represented in the drill core library and there is little to no information available regarding the drilling or sampling of the core or any QAQC support for the assay results. There are drill logs and assay certificates available at the project office for these holes. To ensure the quality of the analytical results are sufficient to support mineral resource estimation using indicated classification or higher, a study should be conducted to ensure there is no bias in the 1987 drill hole results compared to those holes drill in 1999 and the 2000s. The 1987 drill holes are 40% of the drill hole inventory at the Esbarro Deposit. No other deposit is influenced by the 1987 drill holes as there is only one other deposit they were drilled at, Trapiá, and only one of the holes was used in the grade estimation.

It is unclear if outliers evident on the QAQC charts, especially the SRM charts, are due to database errors identified during the database audit or are true analytical outliers.

11.4.3 2020 to 2021 Campaign

The QAQC program covers each chemical analysis performed on samples with the aim of promoting procedures for controlling and guaranteeing the quality and reliability of the samples that are prepared and of the chemical analytical results that are obtained in the laboratory.

GE21 conducted the validation of the QAQC data generated in the period from 2020 to 2021, referring to 2020-2021 Campaign.

The QAQC program includes blanks, standards, pulp duplicates, reject duplicates, preparation duplicates (RC Drilling), quarter-core duplicate samples (for diamond drilling) and secondary laboratory analysis. ValOre's batch size is 72 samples, including 64 core samples and 8 quality control samples.

In addition, as part of the primary lab (SGS Geosol) Quality Control procedure, 7 quality control samples are included for every 50-samples run performed for multi-element analysis method and 12 quality control samples are included for every 84-samples run performed for fire assay method.

11.4.3.1 Blank

ValOre uses rock fragments with extremely low background metal values with similar mass of the core samples as a blank control sample Figure 11-11. The selected material has been historically applied to the Pedra Branca Project by former owners, and although not certified, has shown assay results systematically under ore analysis detection limit. Material collected in a barren quartz vein outcrop in the region of the project, at the following coordinate point 392200 / 9380810 (WGS84 - 24S). The coarse blanks are inserted at the beginning and at the end of the possible mineralized interval of each batch. For non-mineralized batches, the blanks are inserted after the first or second sample and then two samples before the end of the batch.

Figure 11-11: Coarse Blank Material to be Applied as Quality Control sample for ValOre's Pedra Branca Project (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

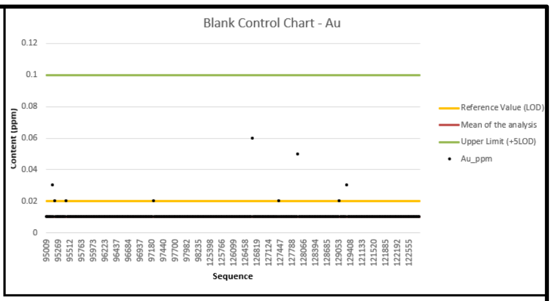
These samples are included with the aim of verifying the quantitative analysis undertaken by the laboratory. GE21 observed that the total of number of blank samples has a rate of 4.27% comparing to the number of samples present in ValOre's database of 2020-2021 campaign.

Figure 11-12 presents the statistics and results associated with the blank control samples used in this campaign. Overall, results from samples that underwent these quality control procedures are considered to be within the quality control limit, for both drilling types and Pt, Pd and Au content.

Type of control	Blank
Reference	BLANK
Variable	Au ppm
Number of analysis	352

Standard code	BLANK
Reference Value (LOD)	**0.020**
Standard deviation	**0.004**
Upper limit (5 x LOD)	0.100
Lower limit	-

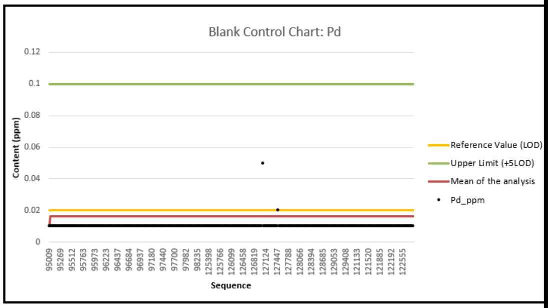
Minimum	0.01
Maximum	0.06
Average	0.01
Median	0.01
Bias	52.56%



Type of control	Blank
Reference	BLANK
Variable	Pd ppm
Number of analysis	352

Standard code	BLANK
Reference Value (LOD)	**0.020**
Standard deviation	**0.002**
Upper limit (5 x LOD)	0.100
Lower limit	-

Minimum	0.01
Maximum	0.05
Average	0.01
Median	0.01
Bias	-49.29%



Type of control	Blank
Reference	BLANK
Variable	Pt ppm
Number of analysis	352

Standard code	BLANK
Reference Value (LOD)	**0.020**
Standard deviation	**0.000**
Upper limit (5 x LOD)	0.100
Lower limit	-

Minimum	0.01
Maximum	0.01
Average	0.01
Median	0.01
Bias	50.00%

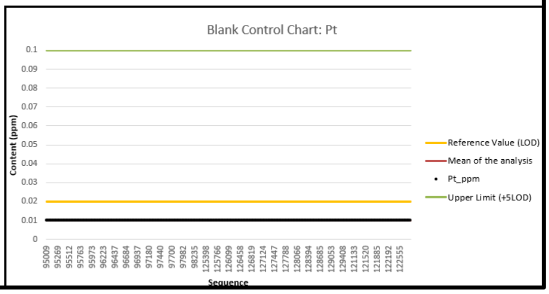


Figure 11-12: Result of the Analysis of Blank Samples (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

11.4.3.2 Standards

The Certified Reference Material ("CRM") is a reference material, which one or more parametres have been certified by a technically valid and recognized procedure and for which a certificate or other valid documentation has been issued by a certifying body.

ValOre Metals Corp. purchased commercial standards previously prepared by CDN Resource Laboratories Ltd (ME-10, PGMS-27 and PGMS-29) following the best industry practices, which include proper sample preparation, analysis and round robin followed by statistics.

ValOre uses three types of standard samples to verify the laboratory's accuracy. The insertion of these CRM respects the following procedures:

- Insert the PGM-27 standard just before a possible high-grade sample (i.e., Cr-reefs), applying the sequence specified in the note above;
- If a high-grade mineralized sample (i.e., Cr-reefs) is not observed, but rather, disseminated ore is present, insert the PGMS-29 standard at the beginning of the batch;

- Insert the ME-10 or ME-1310 standard at the end of the batch, within the bottom portion of the sequence (i.e., potentially Ni-Cu-rich intervals).

GE21 observed that the total of number of CRM control samples has a rate of 4.15% with the 2020-2021 campaign database used for estimation. The CRM samples used, ranged from low to high gold, platinum and palladium grades. Based on internal controls, GE21 has established that 90% of the tested samples should be within the minimum and maximum limits, defined as within two standard deviations of the CRM certified value (or 95% confidence limits). The values of these limits are presented in Table 11-2. The analysis graphics are presented in Figure 11-13 to Figure 11-20.

Table 11-2: CRM Evaluation Criteria

CRM ID	**Certified Value (Au ppm)**	**Lower Limit (Au ppm)**	**Upper Limit (Au ppm)**	**Certified Value (Pt ppm)**	**Lower Limit (Pt ppm)**	**Upper Limit (Pt ppm)**	**Certified Value (Pd ppm)**	**Lower Limit (Pd ppm)**	**Upper Limit (Pd ppm)**
		95% Confidence			**95% Confidence**			**95% Confidence**	
CDN-ME-10	0.077	RSD 17%		0.299	0.263	0.379	0.603	0.557	0.649
CDN-PGMS-27	4.800	4.360	5.240	1.290	1.210	0.335	2.000	1.900	2.100
CDN-PGMS-29	0.088	0.074	0.102	0.550	0.492	0.608	0.677	0.631	0.631

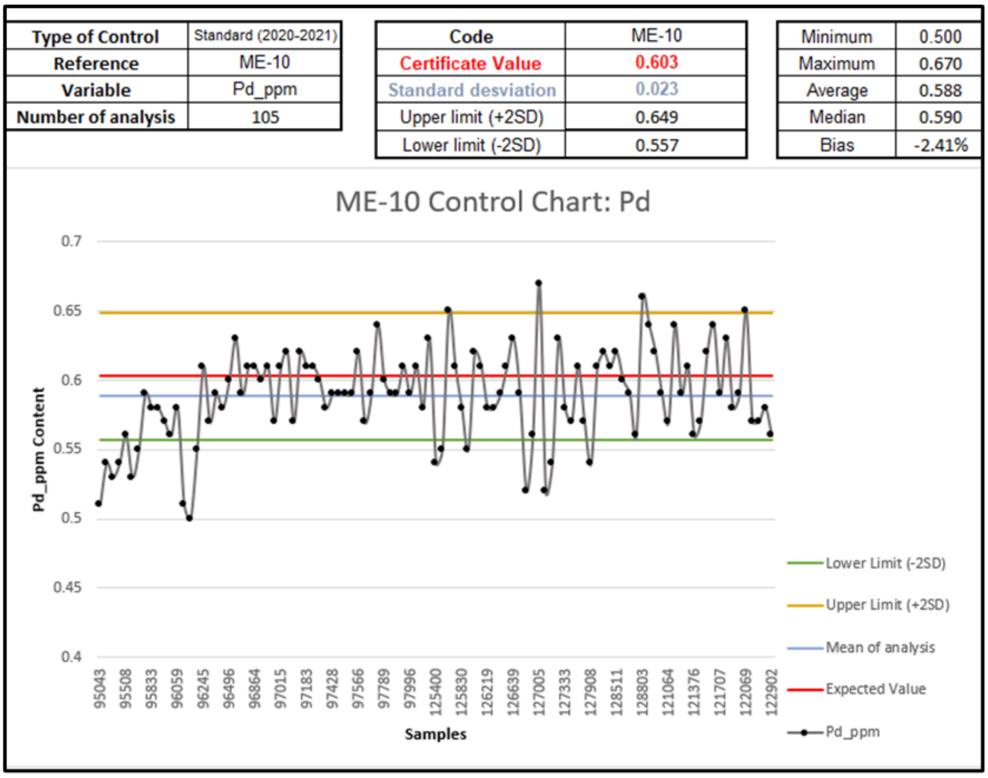


Figure 11-13: Result of the Analysis of Pd Content for CRM CDN-ME-10 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

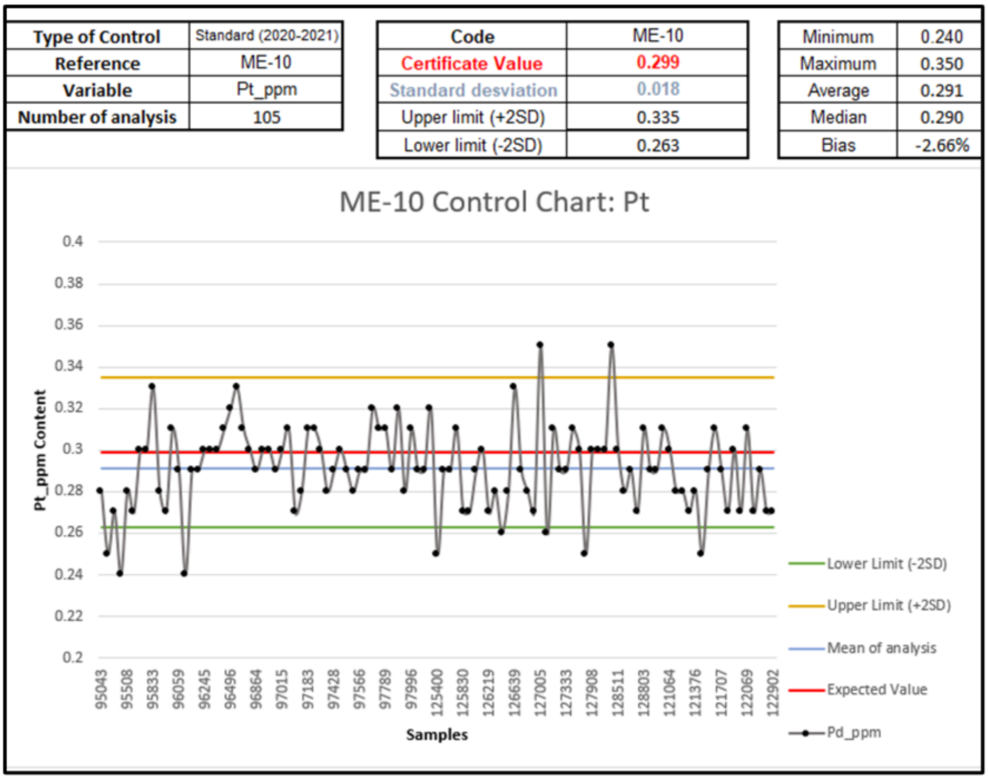


Figure 11-14: Result of the Analysis of Pt Content for CRM CDN-ME-10 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of Control	Standard (2020-2021)
Reference	PGMS-27
Variable	Au_ppm
Number of analysis	128

Code	PGMS-27
Certificate Value	4.800
Standard desviation	0.220
Upper limit (+2SD)	5.240
Lower limit (-2SD)	4.360

Minimum	3.970
Maximum	5.270
Average	4.664
Median	4.675
Bias	-2.92%

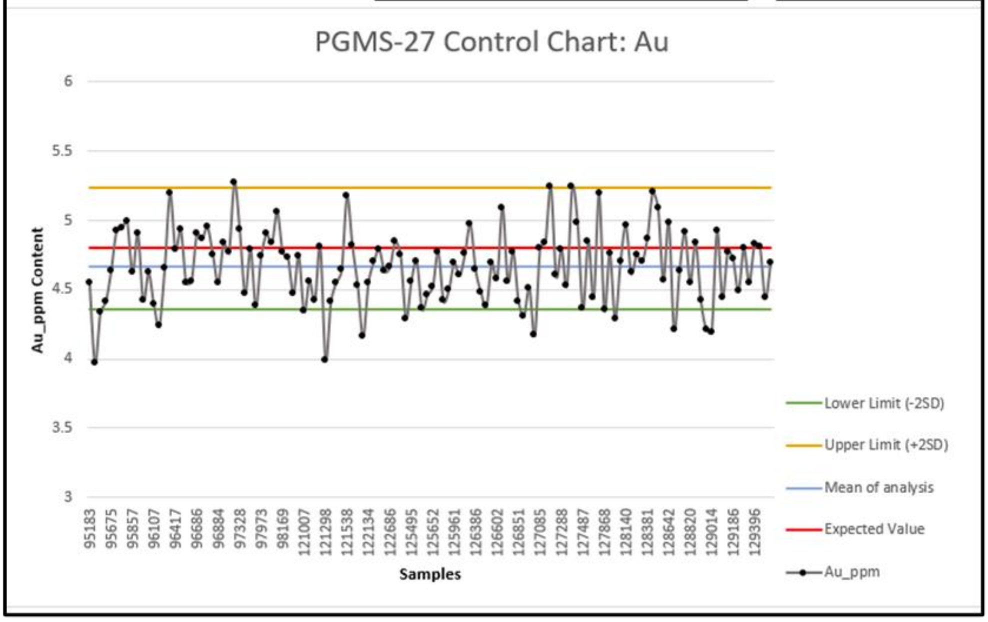


Figure 11-15: Result of the Analysis of Au Content for CRM CDN-PGMS-27 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of Control	Standard (2020-2021)
Reference	PGMS-27
Variable	Pt_ppm
Number of analysis	128

Code	PGMS-27
Certificate Value	1.290
Standard desviation	0.040
Upper limit (+2SD)	1.370
Lower limit (-2SD)	1.210

Minimum	1.100
Maximum	1.420
Average	1.273
Median	1.280
Bias	1.33%

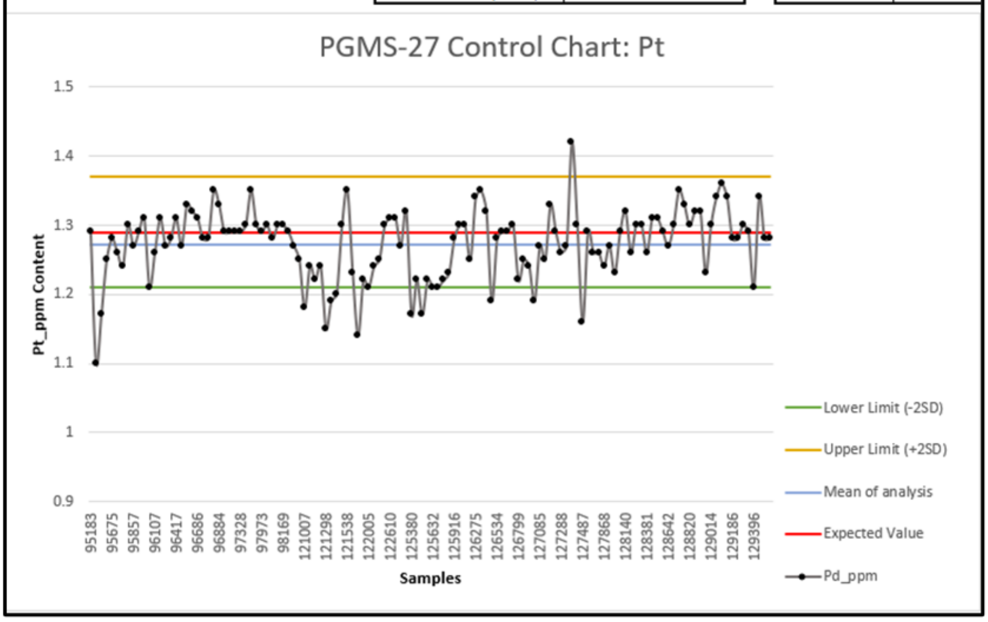


Figure 11-16: Result of the Analysis of Pt Content for CRM CDN-PGMS-27 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of Control	Standard (2020-2021)	Code	PGMS-27	Minimum	1.690
Reference	PGMS-27	Certificate Value	2.000	Maximum	2.190
Variable	Pd_ppm	Standard desviation	0.050	Average	1.989
Number of analysis	128	Upper limit (+2SD)	2.100	Median	1.990
		Lower limit (-2SD)	1.900	Bias	0.56%

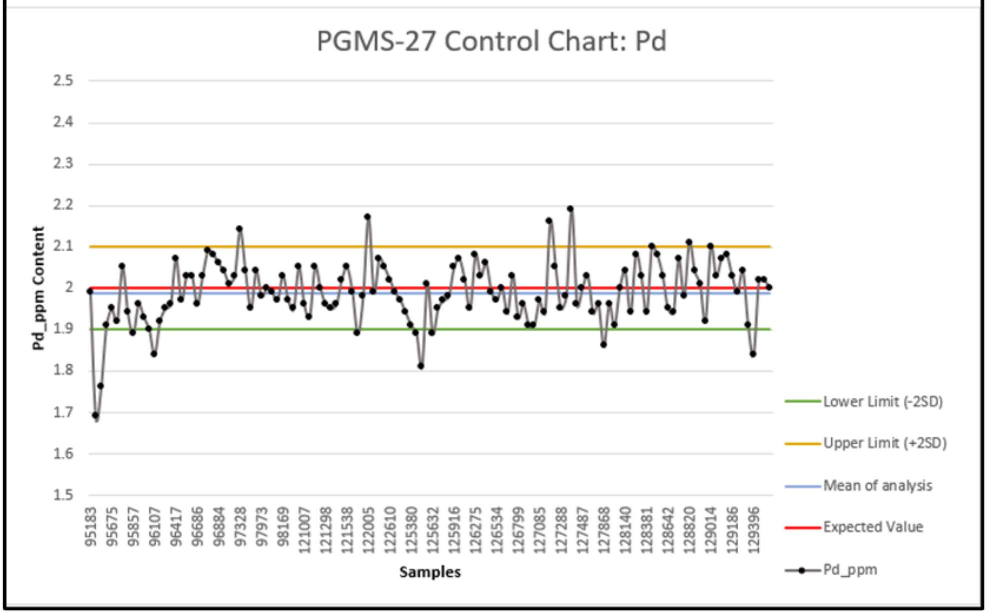


Figure 11-17: Result of the Analysis of Pd Content for CRM CDN-PGMS-27 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of Control	Standard (2020-2021)	Code	PGMS-29	Minimum	0.010
Reference	PGMS-29	Certificate Value	0.088	Maximum	0.160
Variable	Au_ppm	Standard desviation	0.007	Average	0.084
Number of analysis	105	Upper limit (+2SD)	0.102	Median	0.080
		Lower limit (-2SD)	0.074	Bias	-4.88%

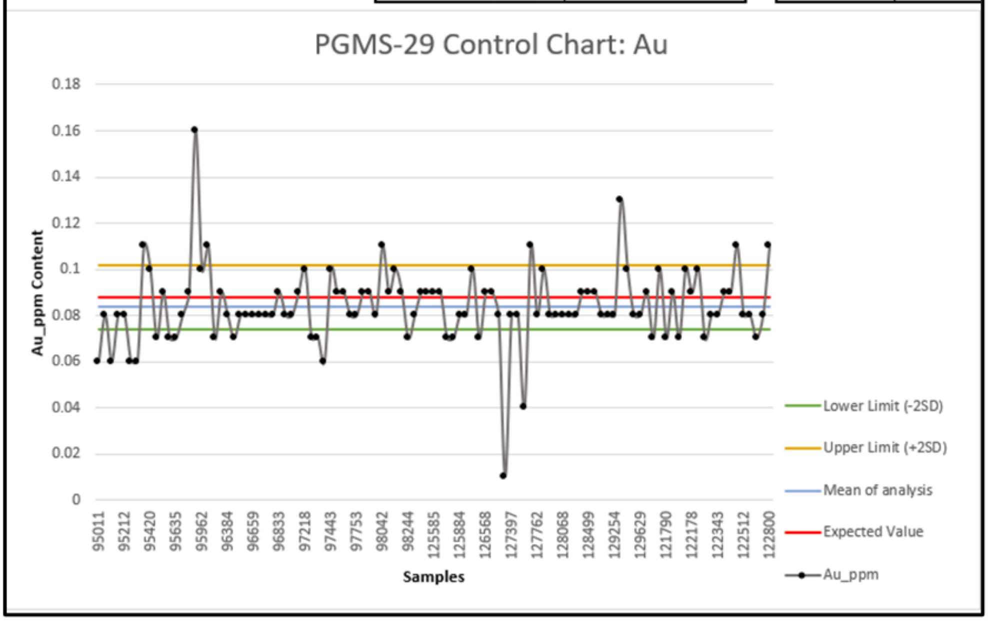


Figure 11-18: Result of the Analysis of Au Content for CRM CDN-PGMS-29 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of Control	Standard (2020-2021)
Reference	PGMS-29
Variable	Pd_ppm
Number of analysis	105

Code	PGMS-29
Certificate Value	0.677
Standard desviation	0.023
Upper limit (+2SD)	0.723
Lower limit (-2SD)	0.631

Minimum	0.510
Maximum	0.750
Average	0.664
Median	0.670
Bias	1.88%

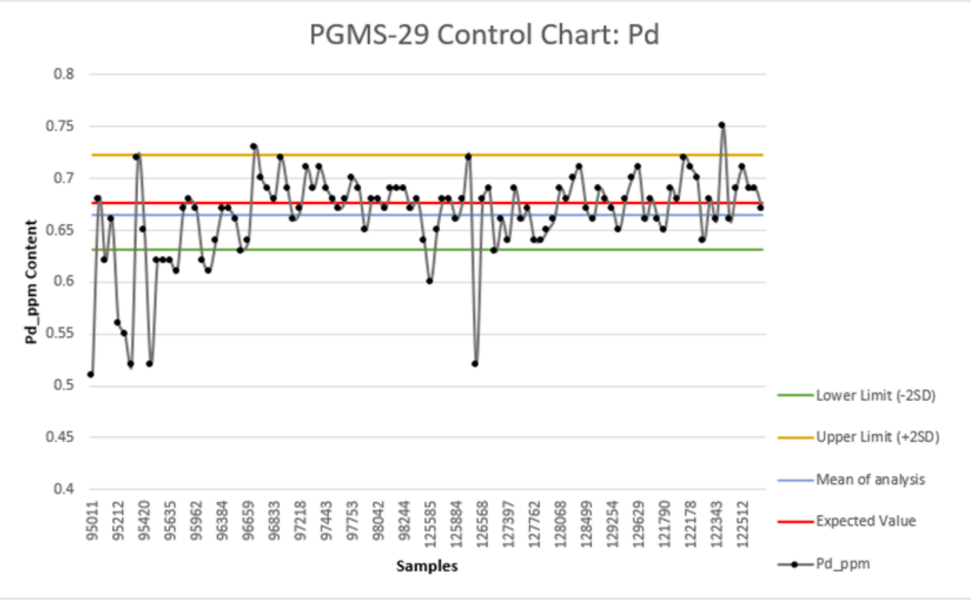


Figure 11-19: Result of the Analysis of Pd Content for CRM CDN-PGMS-29 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of Control	Standard (2020-2021)
Reference	PGMS-29
Variable	Pt_ppm
Number of analysis	105

Code	PGMS-29
Certificate Value	0.550
Standard desviation	0.029
Upper limit (+2SD)	0.608
Lower limit (-2SD)	0.492

Minimum	0.400
Maximum	0.610
Average	0.534
Median	0.540
Bias	2.84%

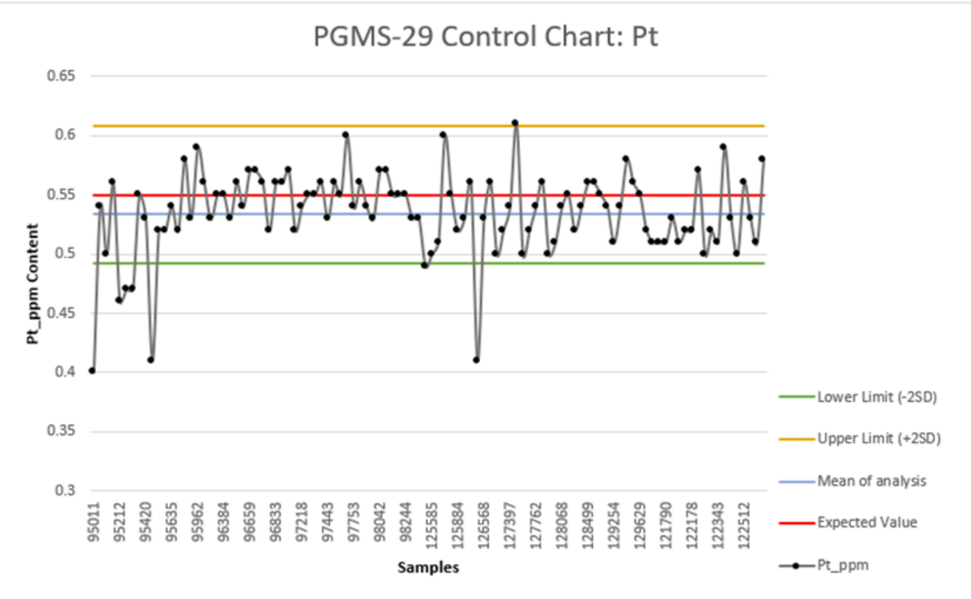


Figure 11-20: Result of the Analysis of Pt Content for CRM CDN-PGMS-29 (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Six samples were removed from the analysis due to sample exchange in the collecting or storing processes. The certificate for CRM CDN-ME-10 provides an indicated value for Au and a relative standard deviation (17%), but it clearly states that the gold value is not certified and should not be used to determine the quality of gold assay results.

Overall, based on the analysis of the QAQC results, the SGS laboratory provided a good level of accuracy at all grade ranges. It was observed that the analysis displays a slight tendency to underestimate the gold values, probably due to equipment calibrating. Despite these remarks, the results are considered, mostly, to be within the quality control limit.

11.4.3.3 Pulp Duplicates

The duplicate analysis objective is to control the effect of variance in the processes of sample preparation and chemical analysis, to evaluate analytical and sampling precision and identify possible sample changes

The typical QAQC program implemented at ValOre involves sending pulp duplicate samples to be assayed by SGS Geosol Laboratory. GE21 observed that the total number of duplicate samples has a rate of 2.51% of the total samples present in the database, from the 2020-2021 campaigns.

Analysing the results of duplicate samples, the author considered 10% of the relative difference as a limit of acceptability.

Considering both drilling types performed in the campaign, the pulp duplicate results appear to be reasonably well correlated, for the duplicate analysis results for Pt, Pd and Au. Some minor outliers are present, but that is not unusual for precious metal analysis, particularly at grades near the detection limit.

Diamond Drilling (DD)

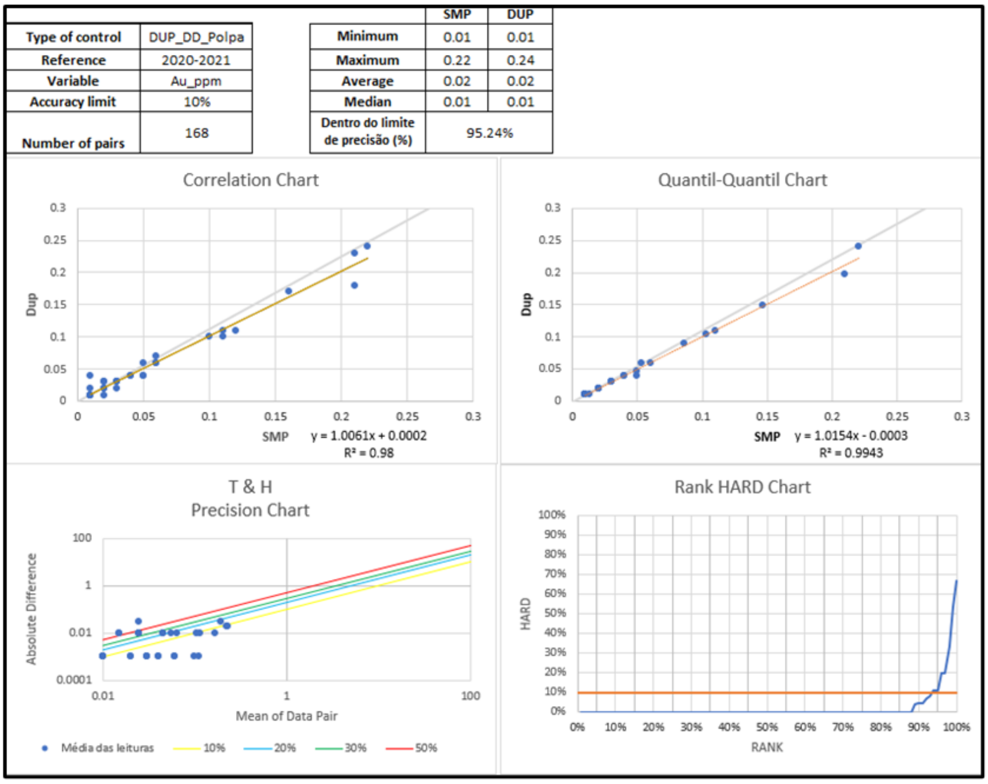


Figure 11-21: Result of the Analysis of Au for Pulp Duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

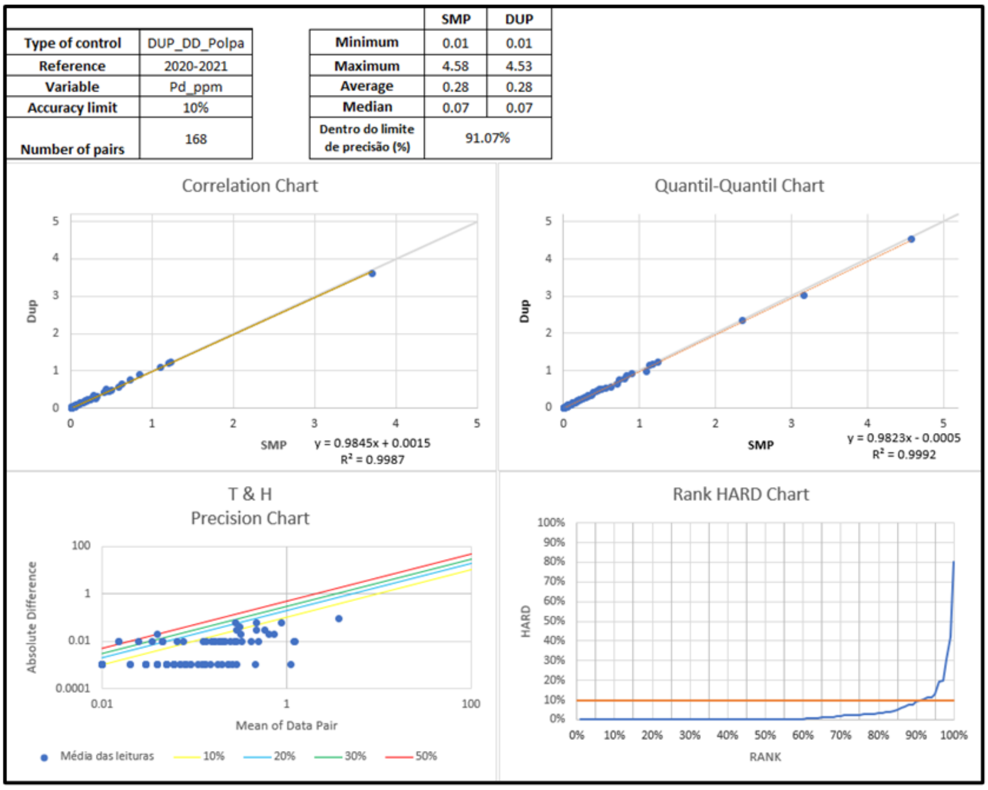
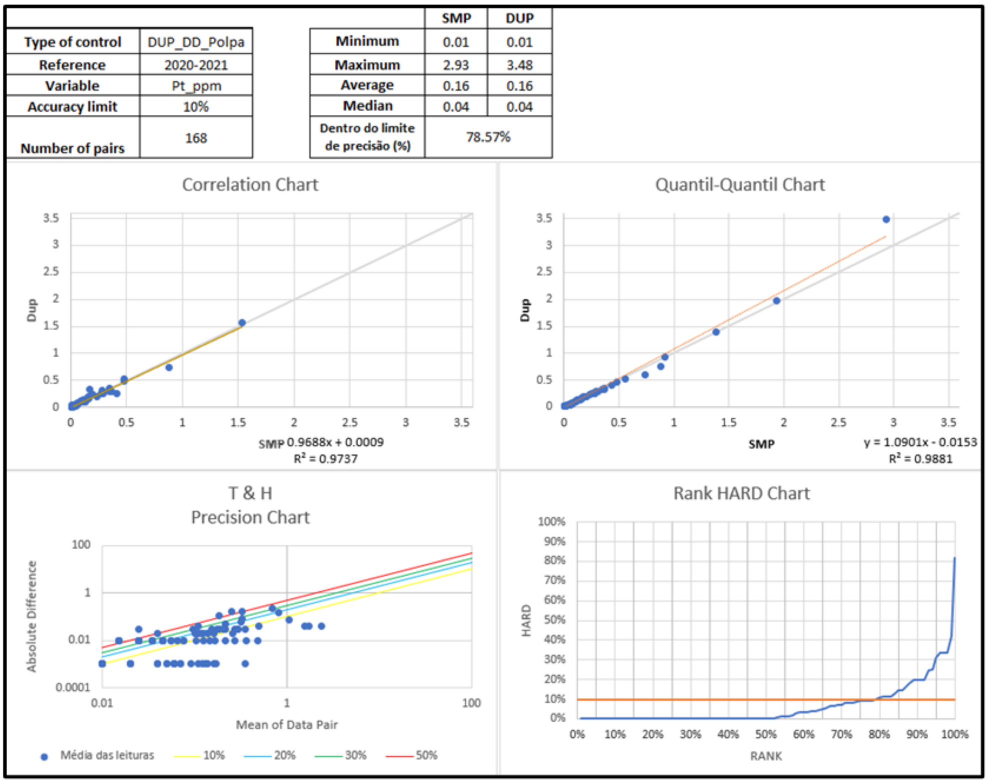


Figure 11-22: Result of the Analysis of Pd for Pulp Duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).



Type of control	DUP_DD_Polpa
Reference	2020-2021
Variable	Pt_ppm
Accuracy limit	10%
Number of pairs	168

	SMP	DUP
Minimum	0.01	0.01
Maximum	2.93	3.48
Average	0.16	0.16
Median	0.04	0.04
Dentro do limite de precisão (%)	78.57%	

Figure 11-23: Result of the Analysis of Pt for Pulp Duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

RC Drilling (RC)

Type of control	DUP_RC_POLPA
Reference	2020-2021
Variable	Au_ppm
Accuracy limit	10%
Number of pairs	40

	SMP	DUP
Minimum	0.01	0.01
Maximum	0.05	0.05
Average	0.01	0.01
Median	0.01	0.01
Dentro do limite de precisão (%)	97.50%	

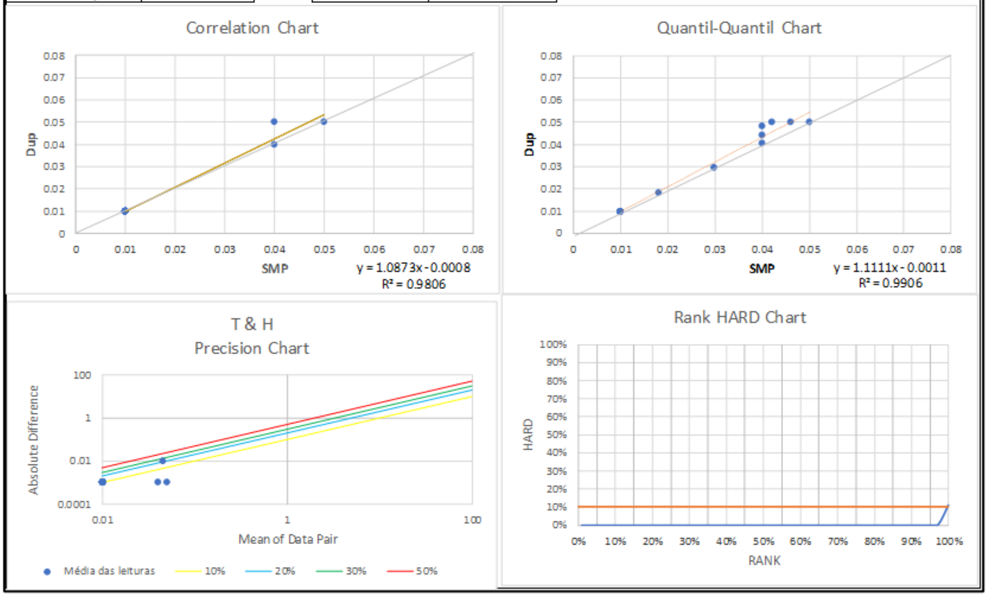


Figure 11-24: Result of the Analysis of Au for Pulp Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of control	DUP_RC_POLPA
Reference	2020-2021
Variable	Pd_ppm
Accuracy limit	10%
Number of pairs	40

	SMP	DUP
Minimum	0.01	0.01
Maximum	0.59	0.59
Average	0.06	0.06
Median	0.01	0.01
Dentro do limite de precisão (%)	95.00%	

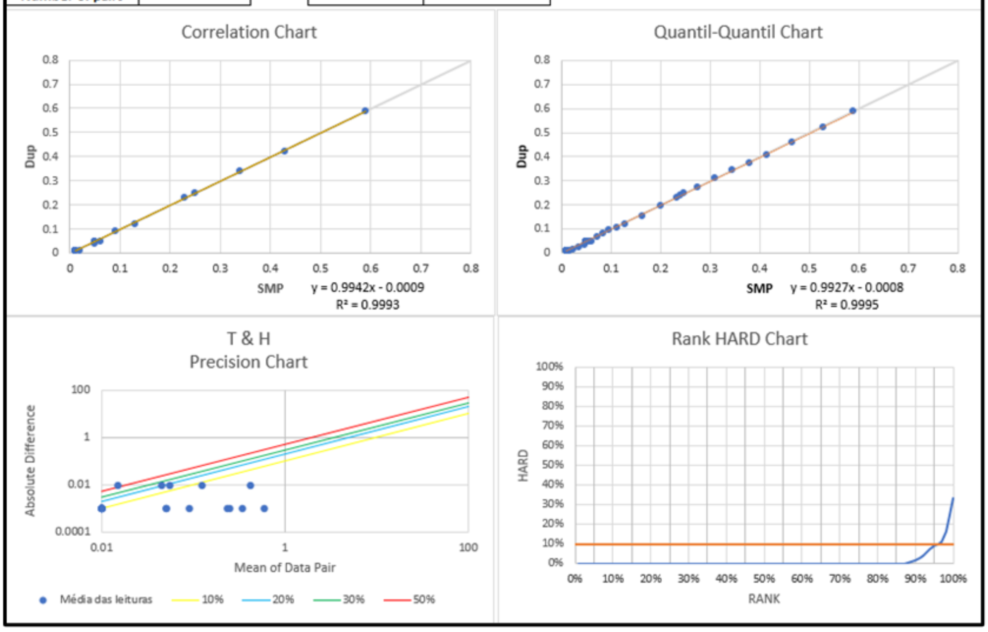


Figure 11-25: Result of the Analysis of Pd for Pulp Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

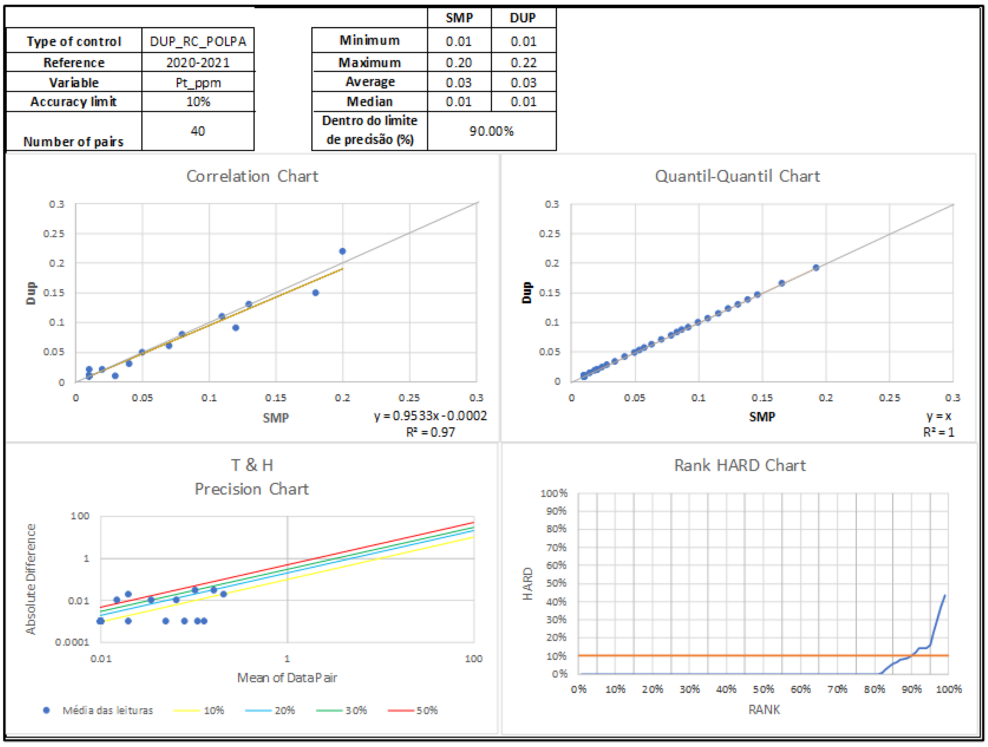


Figure 11-26: Result of the Analysis of Pt for Pulp Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

11.4.3.4 Coarse Reject Duplicates

Coarse Reject Duplicates are collected by taking a second split after crushing, before the pulverizing stage. These samples are sent to the same laboratory at a later stage. The assay of the coarse reject samples is compared with the assay of the half of sample (original assay). GE21 observed that the total of number of duplicate samples has a rate of 2.83% of the total samples present in the database, from the 2020-2021 campaigns.

The data showed a good correlation between the original samples and their respective duplicates, as well as relating their respective statistical distributions. It is important to note that the accuracy in the analysis decreases with lower grades, near the detection limit, as noticeable in the gold grades in RC Drilling. Incoherence observed in Figure 11-30 is related to Au grades near to detection limit.

Diamond Drilling

Type of control	DUP_DD_REJ
Reference	2020-2021
Variable	Au_ppm
Accuracy limit	15%
Number of pairs	195

	SMP	DUP
Minimum	0.01	0.01
Maximum	0.44	3.10
Average	0.02	0.04
Median	0.01	0.01
Dentro do limite de precisão (%)	91.79%	

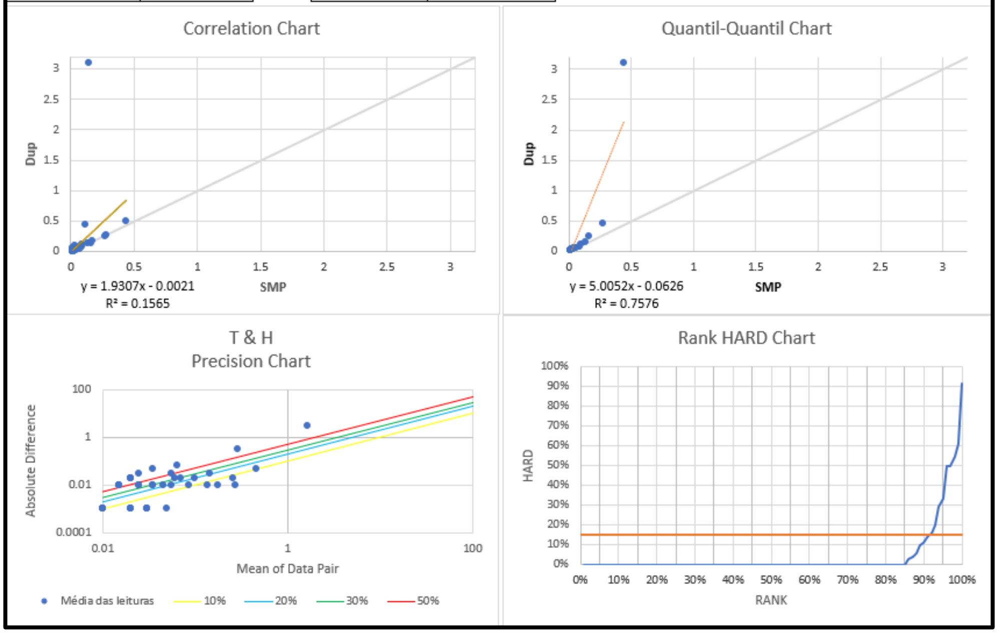


Figure 11-27: Result of the Analysis of Au for Reject Duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of control	DUP_DD_REJ
Reference	2020-2021
Variable	Pd_ppm
Accuracy limit	15%
Number of pairs	195

	SMP	DUP
Minimum	0.01	0.01
Maximum	8.40	7.36
Average	0.37	0.37
Median	0.07	0.07
Dentro do limite de precisão (%)	92.31%	

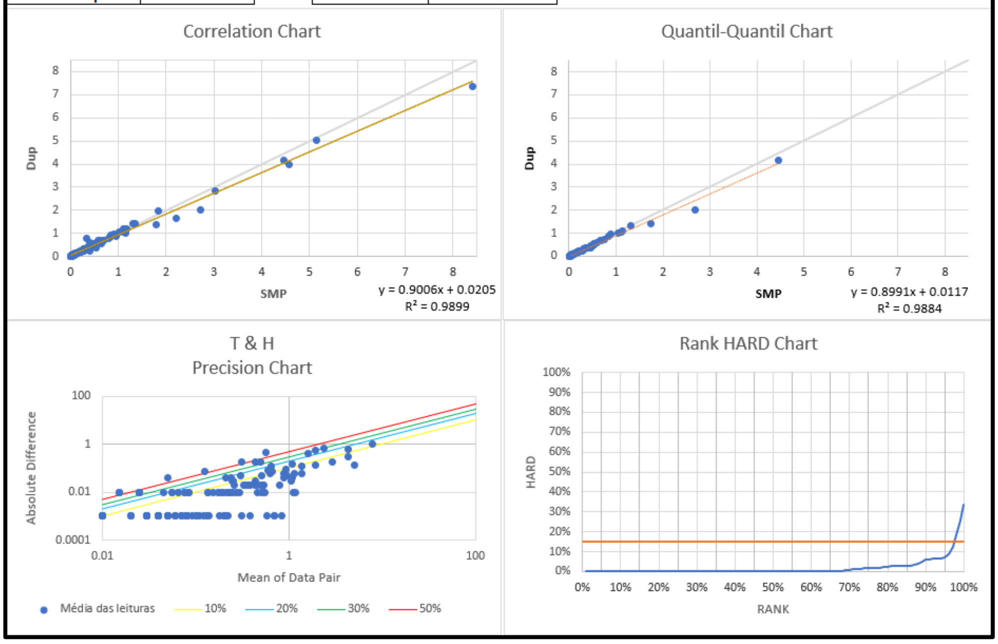


Figure 11-28: Result of the analysis of Pd for reject duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of control	DUP_DD_REJ
Reference	2020-2021
Variable	Pt_ppm
Accuracy limit	15%
Number of pairs	195

	SMP	DUP
Minimum	0.01	0.01
Maximum	4.65	4.35
Average	0.23	0.23
Median	0.04	0.04
Dentro do limite de precisão (%)	84.10%	

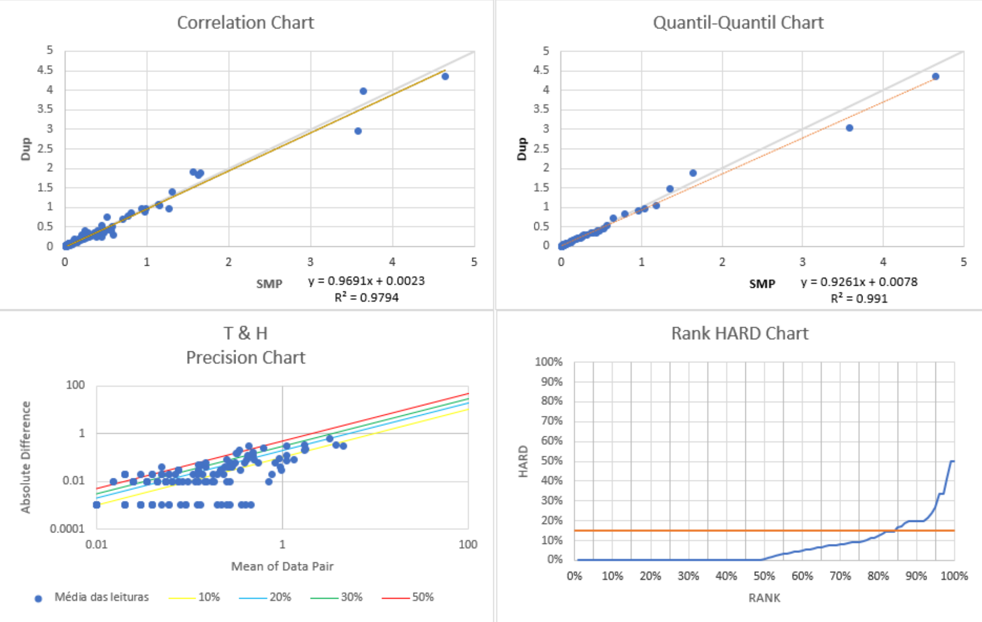


Figure 11-29: Result of the Analysis of Pt for Reject Duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

RC Drilling

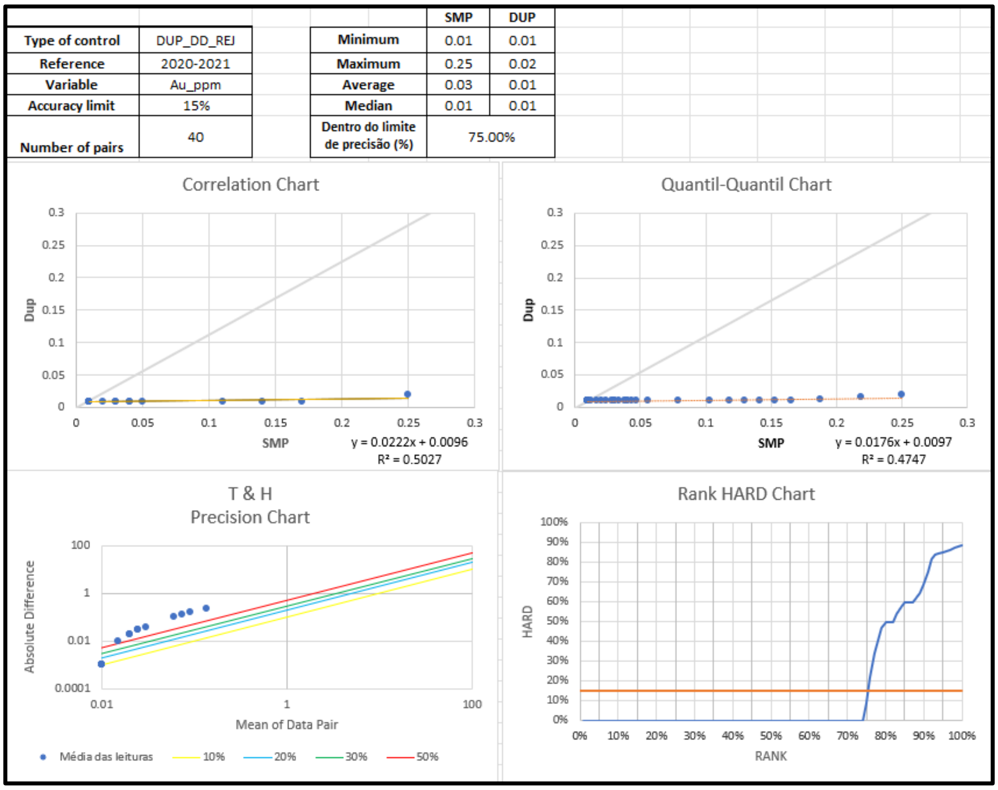


Figure 11-30: Result of the Analysis of Au for Reject Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

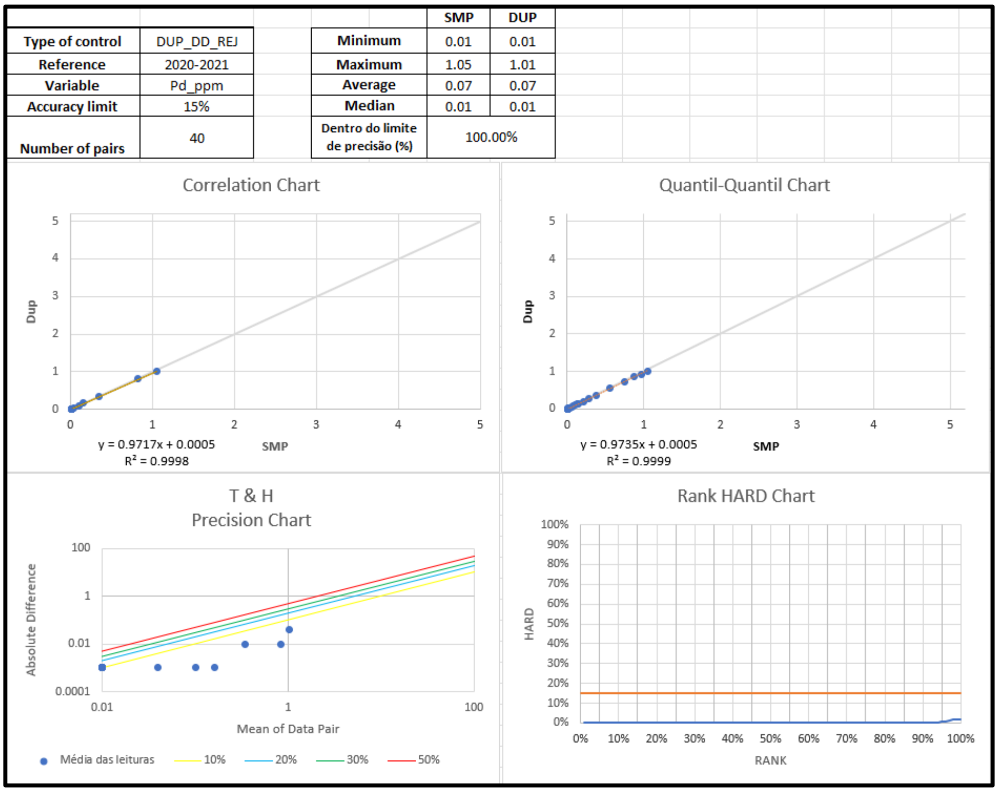


Figure 11-31: Result of the Analysis of Pd for Reject Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

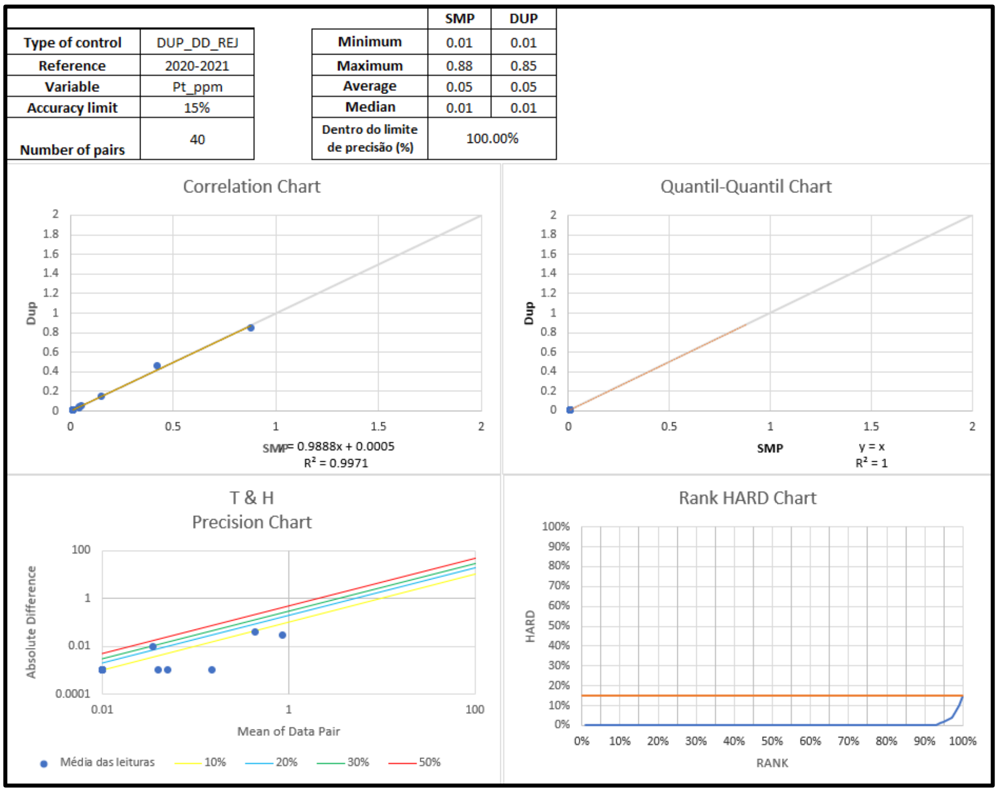


Figure 11-32: Result of the Analysis of Pt for Reject Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

11.4.3.5 Quarter-Core Duplicate (DD Drilling)

The remaining core (half-core) after splitting is re-split (quarter-core) and submitted as a duplicate sample to the laboratory. GE21 observed that the total of number of quarter-core duplicate samples has a rate of 1.28% of the total samples present in the database, from the 2020-2021 campaigns. Analysing the results of duplicate samples, the author considered 20% of the relative difference as a limit of acceptability. This analysis was undertaken only for diamond drilling. Overall, the analysis can be considered satisfactory, due to the presence of lower grades, which reduced the accuracy of the analysis.

Type of control	DUP_DD_Core
Reference	2020-2021
Variable	Au_ppm
Accuracy limit	20%
Number of pairs	106

	SMP	DUP
Minimum	0.01	0.01
Maximum	0.25	0.33
Average	0.02	0.02
Median	0.01	0.01
Dentro do limite de precisão (%)	88.68%	

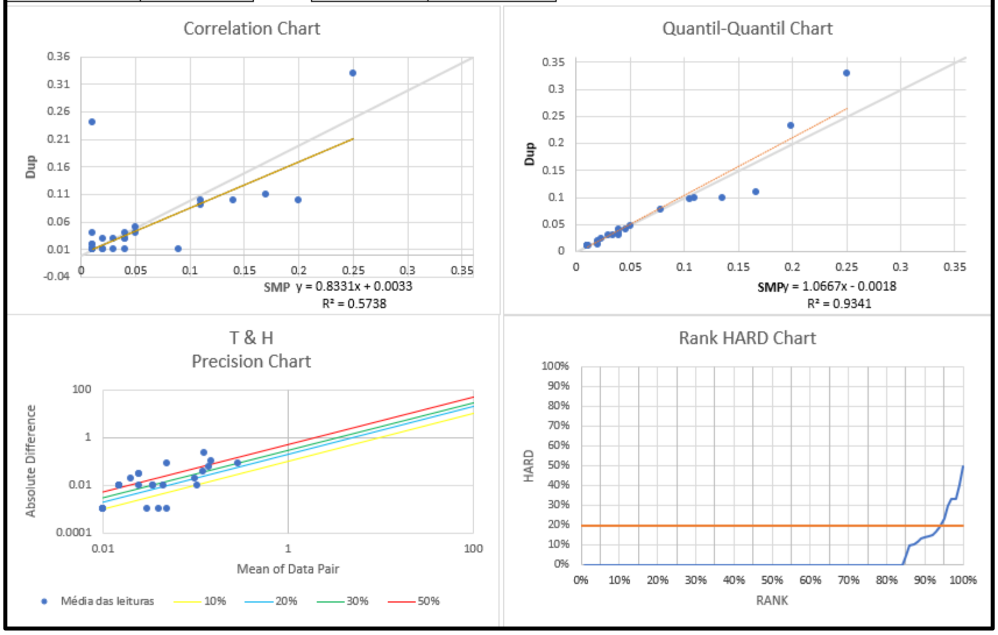


Figure 11-33: Result of the Analysis of Au for Quarter-Core Duplicate, for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of control	DUP_DD_Core
Reference	2020-2021
Variable	Pd_ppm
Accuracy limit	20%
Number of pairs	106

	SMP	DUP
Minimum	0.01	0.01
Maximum	4.26	5.01
Average	0.27	0.27
Median	0.08	0.08
Dentro do limite de precisão (%)	84.91%	

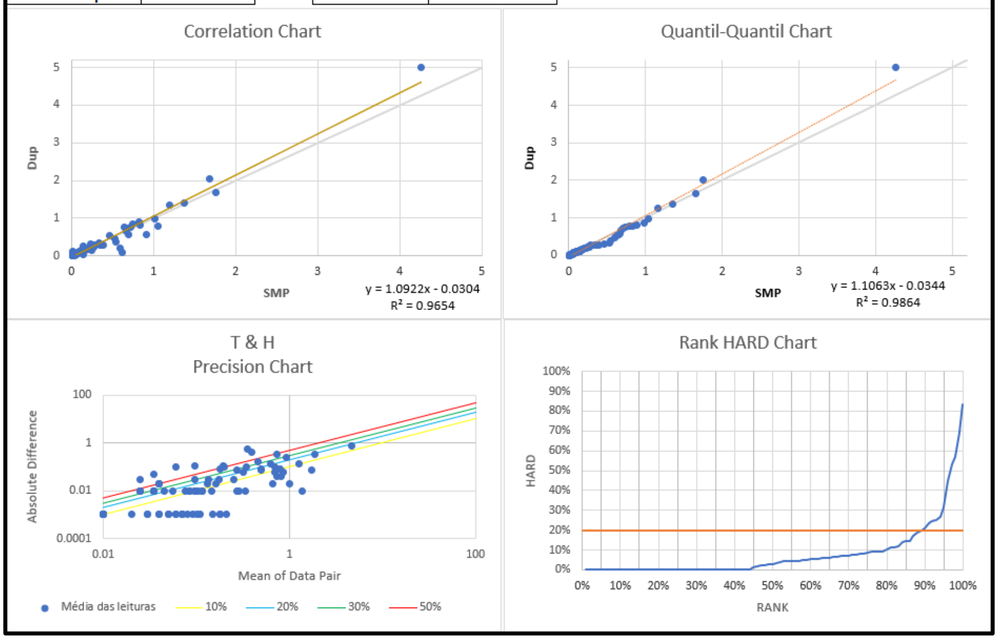


Figure 11-34: Result of the Analysis of Pd for Quarter-Core Duplicate , for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

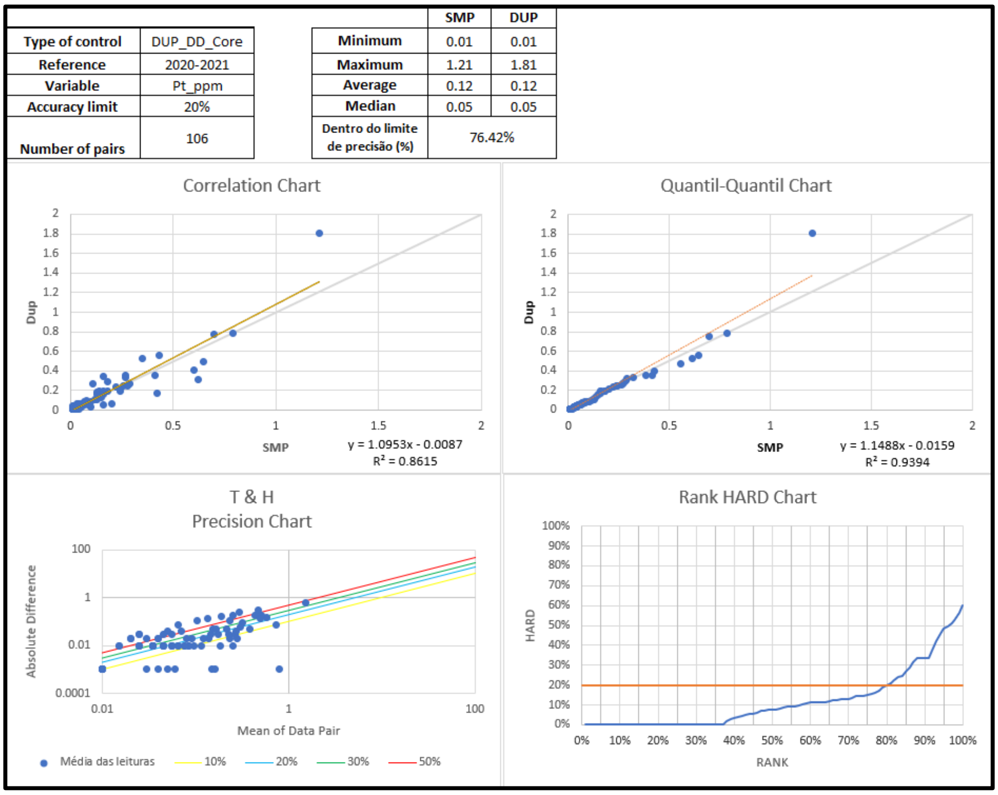


Figure 11-35: Result of the Analysis of Pt for Quarter-Core Duplicate , for Diamond Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

11.4.3.6 Preparation Duplicate (RC Drilling)

The preparation duplicate for RC Drilling is resulted from splitting process developed at Capitão Mor. The samples are collected, prepared and assayed in an identical manner to an original sample collected and submitted to provide a measure of the total variance introduced by the entire sampling and assaying process. All the analysis provided a good level of accuracy, considering the correlation between the original samples and their respective duplicates. The authors considered 25% of the relative difference acceptability. GE21 observed that the total of number of secondary samples has a rate of 0.36% of the total number of samples in the database, from the 2020-2021 campaigns.

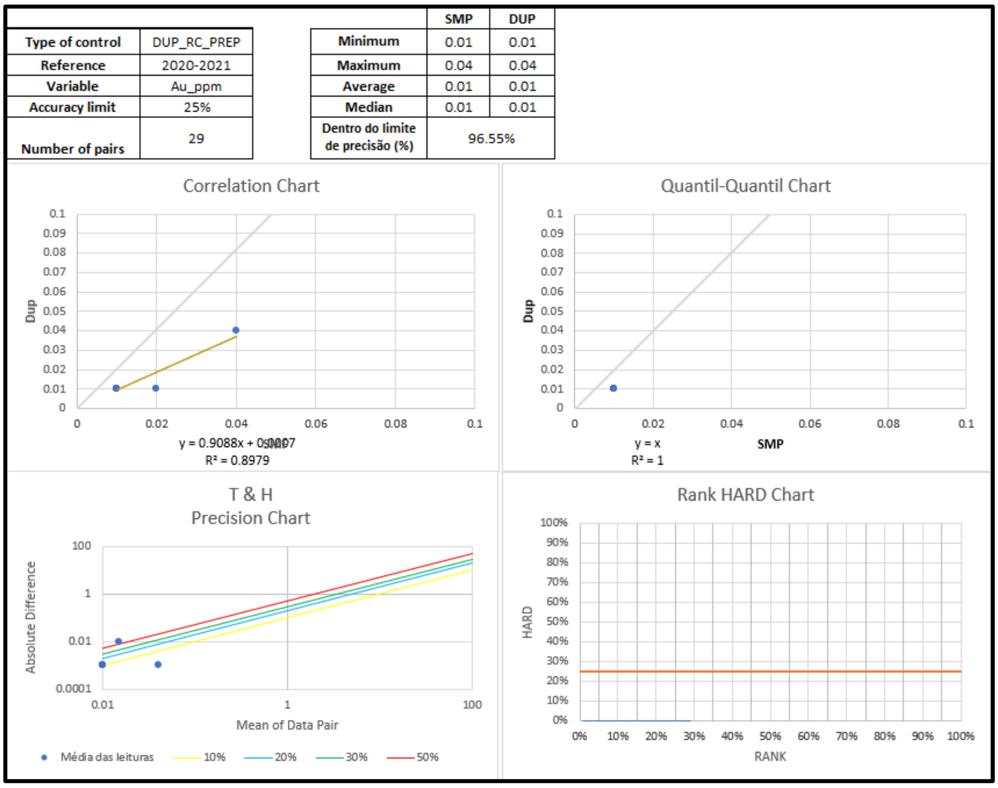


Figure 11-36: Result of the Analysis of Au for Preparation Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

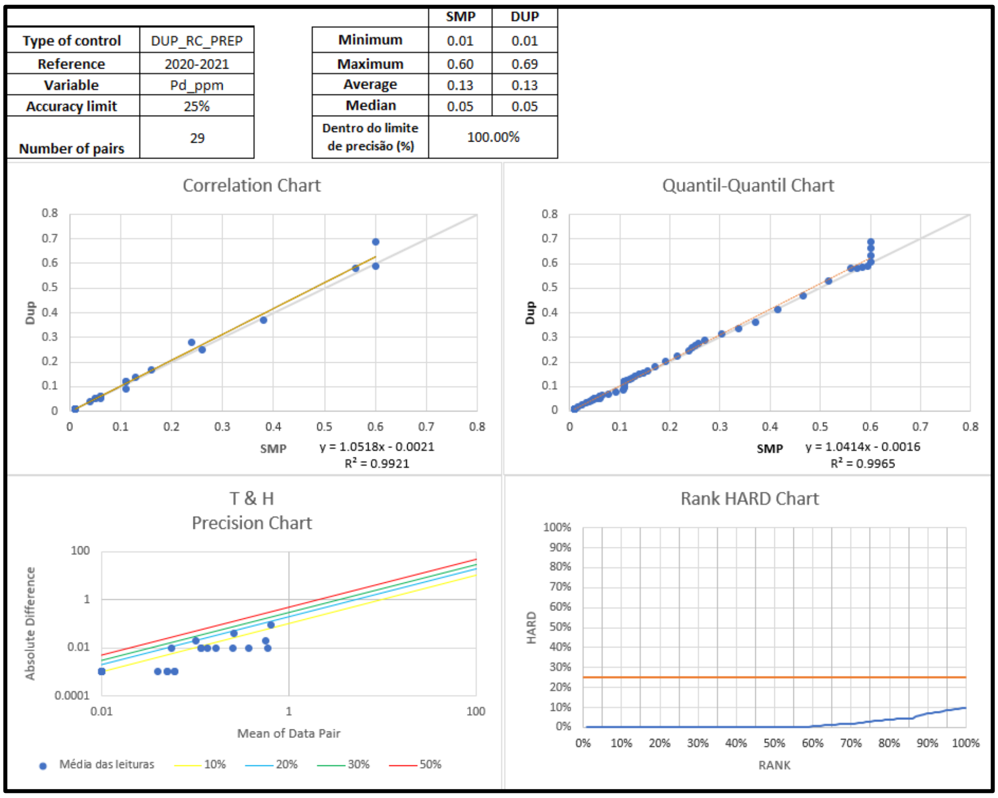


Figure 11-37: Result of the Analysis of Pd for Preparation Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Type of control	DUP_RC_PREP
Reference	2020-2021
Variable	Pt_ppm
Accuracy limit	25%
Number of pairs	29

	SMP	DUP
Minimum	0.01	0.01
Maximum	0.41	0.37
Average	0.06	0.06
Median	0.01	0.01
Dentro do limite de precisão (%)	96.55%	

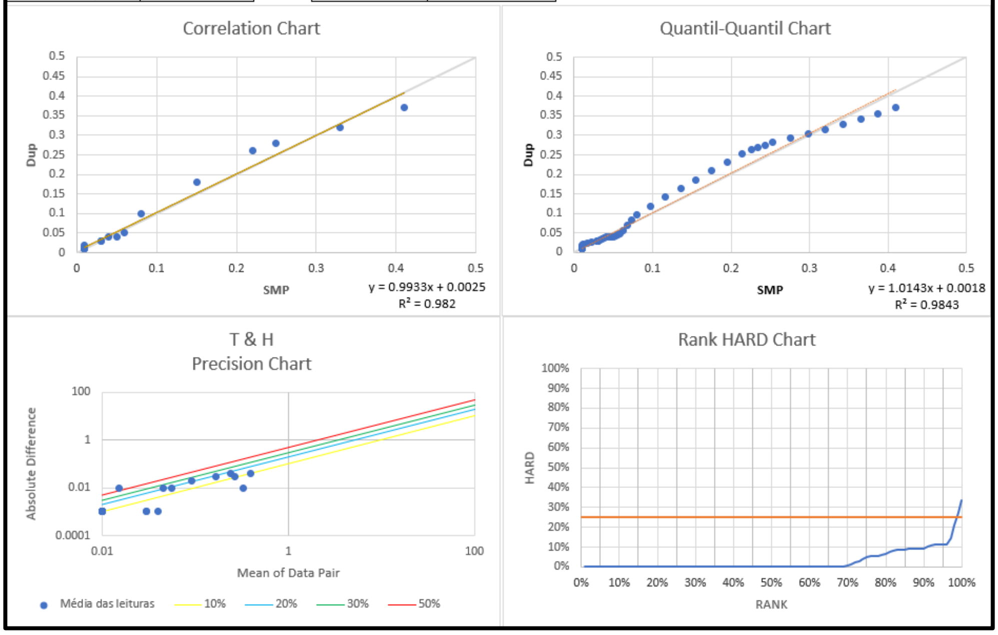
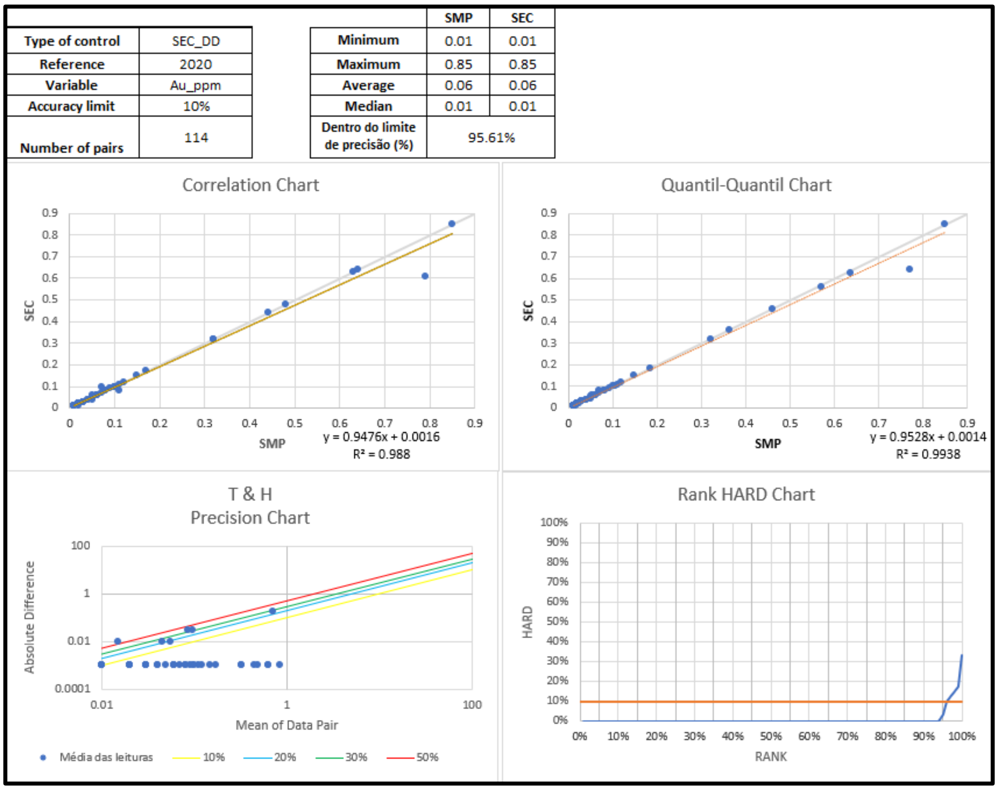


Figure 11-38: Result of the Analysis of Pt for Preparation Duplicate, for RC Drilling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

11.4.3.7 Secondary Analysis (Check Assay)

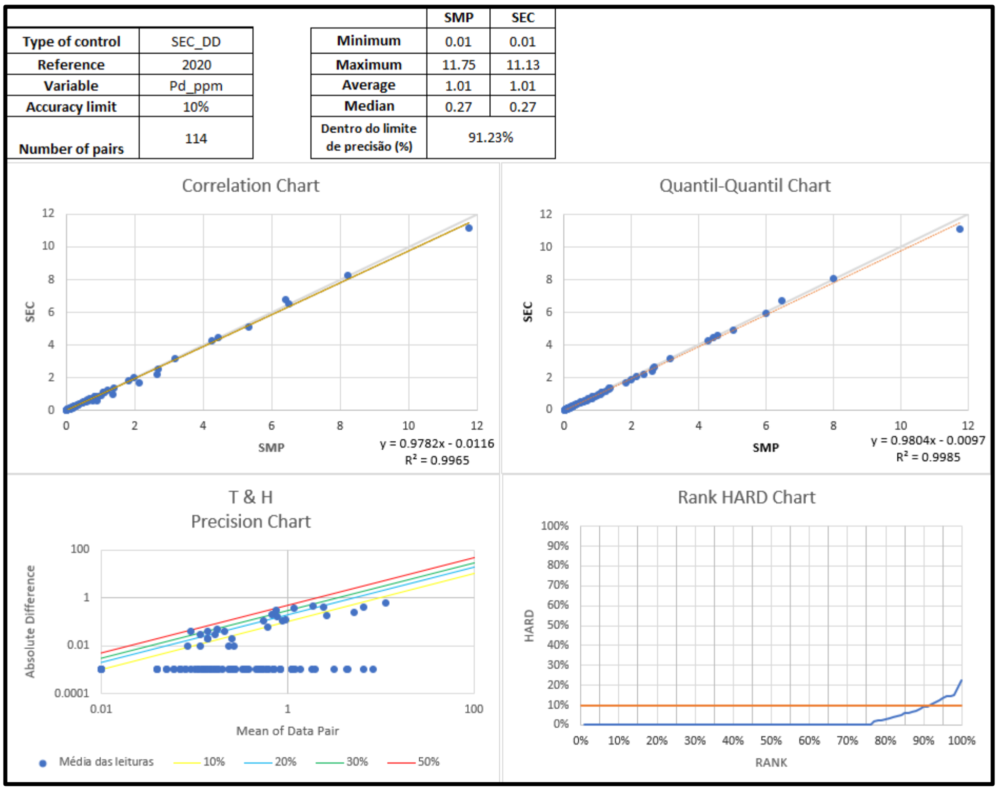
Secondary assays check the analytical precision of the laboratory relative to a secondary laboratory. Pulp samples from the primary laboratory are retrieved and submitted as a batch to the secondary laboratory for analysis. The selection of the secondary laboratory, which is ALS Global, is done after ensuring that it uses an assaying technique identical to the principal laboratory. In the analysis of the results assayed by secondary lab, the authors considered 10% of the relative difference acceptability. GE21 observed that the total of number of secondary samples has a rate of 1.36% of the total number of samples in the database, from the 2020-2021 campaigns. The umpire check results appear to be reasonably well correlated, for the secondary analysis results for Pt, Pd and Au.



Type of control	SEC_DD
Reference	2020
Variable	Au_ppm
Accuracy limit	10%
Number of pairs	114

	SMP	SEC
Minimum	0.01	0.01
Maximum	0.85	0.85
Average	0.06	0.06
Median	0.01	0.01
Dentro do limite de precisão (%)	95.61%	

Figure 11-39: Result of the Analysis of Pd for Secondary Analysis (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).



Type of control	SEC_DD
Reference	2020
Variable	Pd_ppm
Accuracy limit	10%
Number of pairs	114

	SMP	SEC
Minimum	0.01	0.01
Maximum	11.75	11.13
Average	1.01	1.01
Median	0.27	0.27
Dentro do limite de precisão (%)	91.23%	

Figure 11-40: Result of the Analysis of Pd for Aecondary Analysis (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

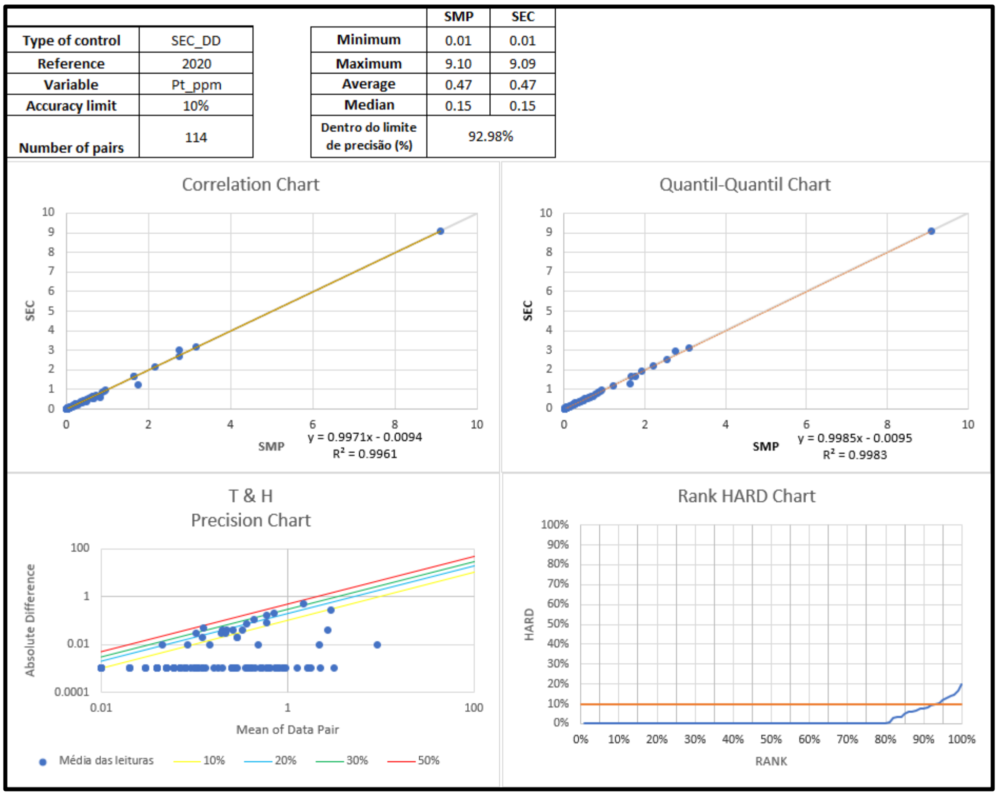


Figure 11-41: Result of the Analysis of Pd for Secondary Analysis (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

11.4.3.8 GE21 Findings (2020-2021 Campaigns)

Sampling protocols and QAQC program implemented in the 2020-2021 campaigns were considered in accordance with industry best practices.

Overall, the results of Quality Control are acceptable data quality to use into a Mineral Resource estimation proposes.

It is also worth pointing out that six samples registered as CRM CDN-PGMS-27 were removed from the evaluation, considering that the values for the Au, Pt and Pd were true outliers.

11.5 QP Opinion

The recommendations made by LGGC were adopted and implemented in the 2020-2021 campaigns, including the total database validation executed by the independent consultant Andy Randell, P.Geo. (SGDS HIVE Geological Consulting).

Data from 1997 until before the 2020-2021 campaigns was validated by LGGC and the Author agrees with the validation.

The author considers the drilling database satisfactory and has all the parametres needed for the execution of the Mineral Resources estimation.

Aiming a quality improvement for the database GE21 makes the following recommendations:

- Continue to implement the QAQC protocols established for the 2020 and 2021 drilling in future programs;
- Complete additional twin drill holes to check pre-1997 drilling results.

12 Data Verification

12.1 Lions Gate Data Verification

LGGC completed a site visit in June 26 and 27, 2019 and completed various tasks to validate the exploration data that underpins the resource estimation.

12.1.1 DDH Collar Locations

The site visit included a tour of the Cedro, Esbarro and Curiú deposit areas, looking at outcrops and historical trench sites and collar location markers.

Six collar locations were identified, and their location recorded using a hand-held GPS. The GPS coordinates were recorded using WAG 84 datum, whereas the database used for resource estimation has the coordinates in SAD69 datum. This resulted in a consistent discrepancy of 30-36m in Eastings and 35 45m in Northings between the two sets of data (due to the datum difference). Four of the collar locations were compared to the recent survey reports (using WGS 84 datum) and showed only minor variance (<4m).

12.1.2 Core Storage and Core Inspection

LGGC visited the core storage and office facilities in Capitão Mor, Brazil. Ten drill holes were selected for detailed inspection and were reviewed to ensure the logging, sampling and assay information was consistent with the recorded information on the drill logs and in the project database.

12.1.3 Database Validation

Thirty drill holes from the 5 PB Deposits were selected for validation, representing a 10% check of the drill holes in the database for each area. Original drill logs and assay certificates were reviewed while at the worksite and digital copies were retained to complete a detailed audit.

All 1463 assay intervals from the 30 drill holes were checked against the digital copies of the original assay certificates. LGGC only checked the Pt, Pd and Au assay results for these records, as these are the three elements included in the mineral resource estimate.

The database shows inconsistency in the treatment of below detection limit results. In some cases, < 10 ppb has been noted in the database as 0.009 ppm and in other cases as 0.005 ppm. It is recommended that for consistency, detection limits be set to 0.001 ppm. The detection limit for the 1987 PBE holes is recorded in the database as 0.05 ppm for Pd and Pt results which results in a PGE+Au combined result of 0.100 ppm which is the limit used to define the mineralization shells for the estimation. Below detection limit results for these drill holes should be lowered to 0.001 ppm in the project database.

Assay results for 2 of the audited holes showed a transposition error where the results for Pd are in the Pt column of the database, results for Au are in the Pd column and very low values, the source of which is unknown to LGGC, are in the Au column. This resulted in 88 of the 1463 records checked to be in error, or a 6% error rate. Generally, error rates greater than 1-2% are considered too high for use in mineral resource estimation. As such, the remainder of the assay database used in the resource estimate was checked, and 19 additional drill holes were identified with the same transposition error, all from the Trapiá and Curiú Deposit areas.

The error was corrected for the 19 holes using original SGS certificate data for Au, Pt and Pd. LGGC subsequently reran the grade estimates for the Curiú and Trapiá Deposits and updated the block tabulations.

LGGC recommended a 100% audit of all assay, collar, drill orientation and lithology data for all holes in the project.

12.1.4 Review of 2011 to 2012 Resampling Program Data

LGGC reviewed the dataset that included the original sampling results from the historical drilling between 1999 and 2004 and the sample re-assay results program completed by Amplats in 2011 and 2012.

Amplats relogged and resampled the stored core from the historical drill holes and submitted 3,889 for re-assaying. Due to shifting of core in the core boxes and to new sampling intervals being chosen during the relogging it is not possible to do a direct sample to sample comparison. LGGC composited the original assay data and the re-assayed data into 2 m composites (2,885 composites) and compared these results.

The goal of comparing the two data sets is to:

- Compare the two results and determine if there are any concerns relating to the reproducibility of the results;
- Impact of ½ core sample of original to the ¼ core sampling in re-assay program;
- Assess if there is any bias in the datasets.

Overall, the results show that there was good reproducibility of the original historical results, no apparent impact of the ¼ sample intervals for Pt, Pd and Au and no apparent bias is evident (Figure 12-1 to Figure 12-3).

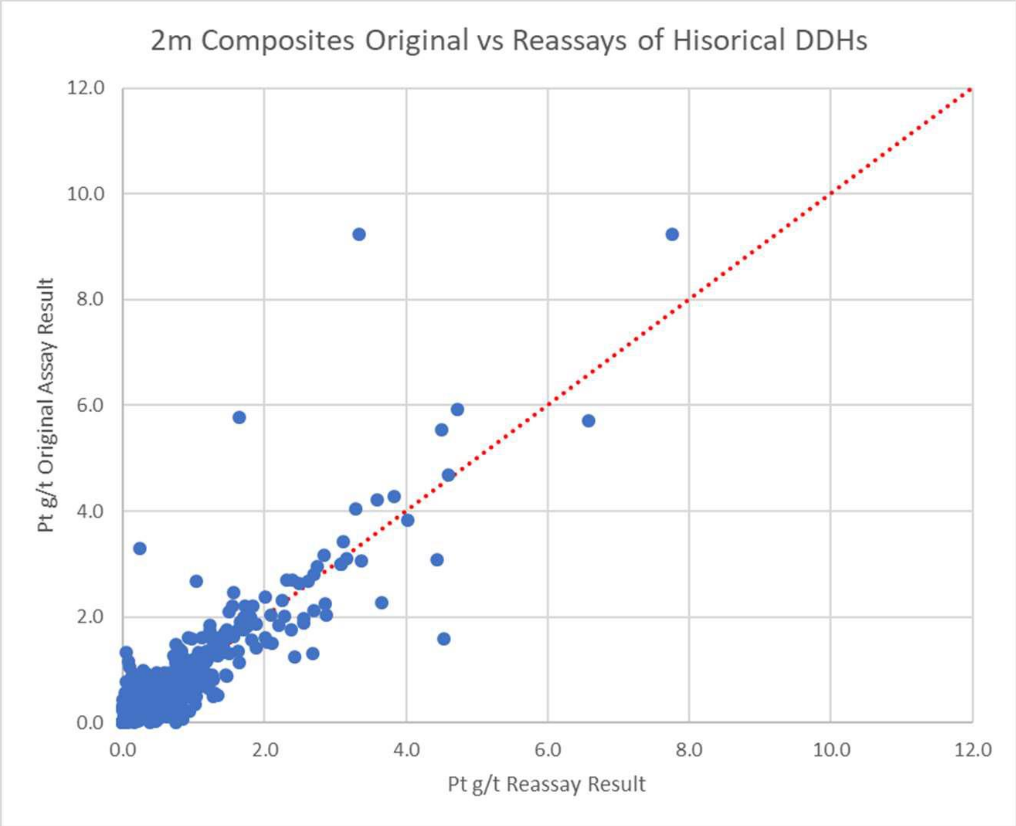


Figure 12-1: 2m Composites, Pt g/t, All Re-Assayed Samples Compared to All Original Samples (Amplats 2011 to 2012 Re-Assay Program) (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

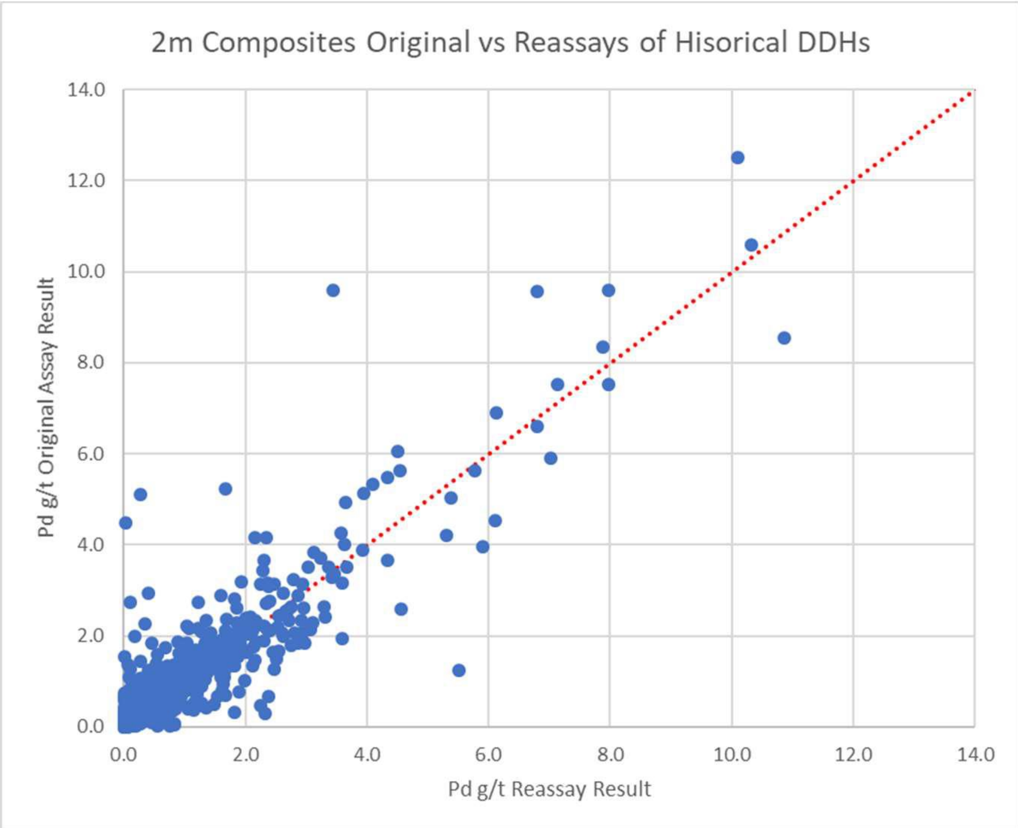


Figure 12-2: 2m Composites, Pd g/t, All Re-Assayed Samples Compared to All Original Samples (Amplats 2011 to 2012 Re-Assay Program) (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

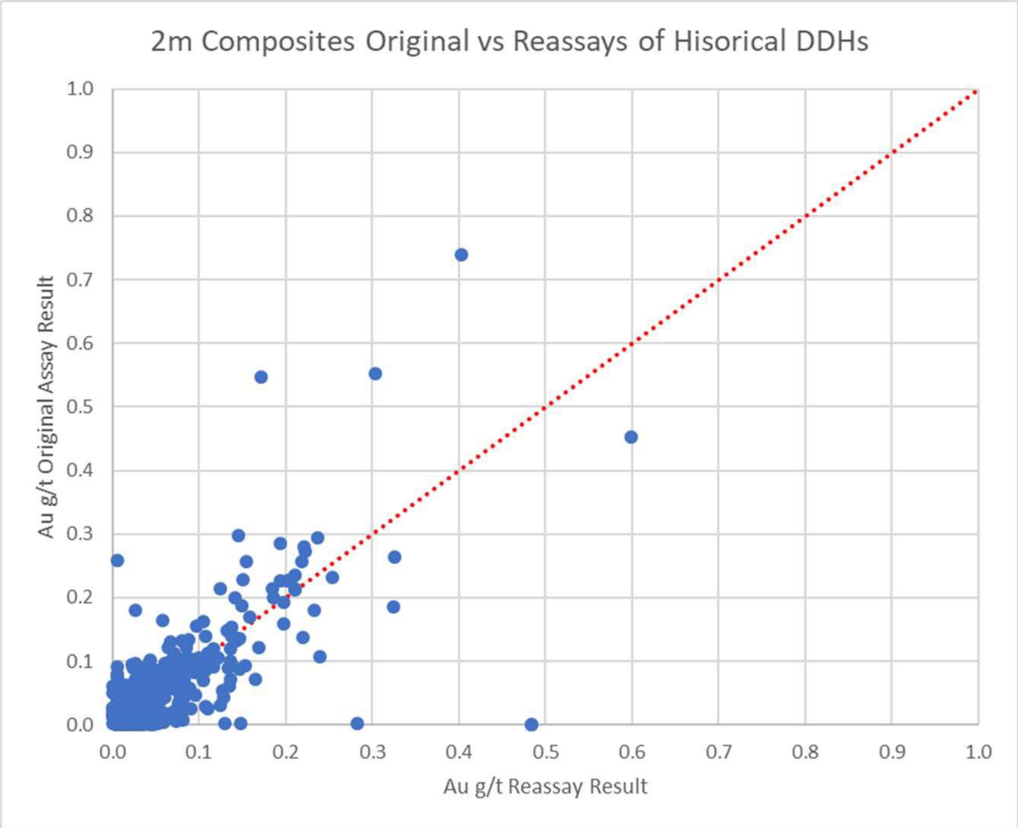


Figure 12-3: 2m Composites, Au g/t, All Re-Assayed Samples Compared to All Original Samples (Amplats 2011 to 2012 Re-Assay Program) (Modified from Susan Lomas, P.Geo. – LGGC, 2019).

12.1.5 Conclusions and Recommendations

LGGC recommended that due to the high error rate found during the database audit, ValOre should complete a full audit of all assays, QAQCs, collar, drill orientation and lithology data for all holes in the 5PB Deposits before any future resource estimates are completed.

12.2 GE21 Data Verification

12.2.1 Site Visit

Geologist Fábio Xavier (MAIG #5179), associated with GE21, visited the project on January 18 to 20, 2022. The visit aimed to understand the mineralization and the processes involved in drilling, including the quality control implemented in the project.

The QP visited the main targets to check outcrops of the ultramafic rocks. It was possible to observe the spatial arrangement of the ultramafic rocks within the geological/geomorphological context of the area. Technical discussions were held with the ValOre team throughout the visit period.

The QP visited the local source of quartz used as control sample in QAQC.

There was no active drilling occurring at the time of the site visit. Consequently, it was not possible to oversee the drilling operations.

The collar of holes is correctly identified with a concrete structure and a plate with basic information (Figure 12-4). Some collars were without plates waiting for definitive coordinates. In the field, the QP carried out the identification of the hole, the collection of photographs and coordinates using GPS Navigation. In an office, the coordinates collected in the field were compared with the coordinates registered in the database. No differences were found that could not be explained by the accuracy of the GPS equipment used.

Figure 12-4: 2m Drillhole Collar Visited in the Field (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Historical trenches at the Trapiá deposit area were visited, as well as a historical test pit, approximately 7 metres deep at the Esbarro deposit area. This test pit was vertically channel sampled by ValOre in 2021.

During the visit, drill core inspection and logging was carried out in the facility located in Capitão Mor. The logging facility supports all necessary requirements such as storage, logging, sampling, core sawing, and sample batch preparation. The QP observed core boxes, crush and pulp reserves and supporting documents. ValOre informed the QP that a storage expansion is being planned to accodate additional drill core from future programs (Figure 12-5 to Figure 12-10). The processes of geological logging, core sawing and batch composition were observed by the QP during the site visit, and all procedures were performed by personnel with the appropriote training for each task. The QP had access to documents referring to the operational procedures used in the drilling processes. The QP considered all observed procedures adequate for mineralization and within industry best practice.

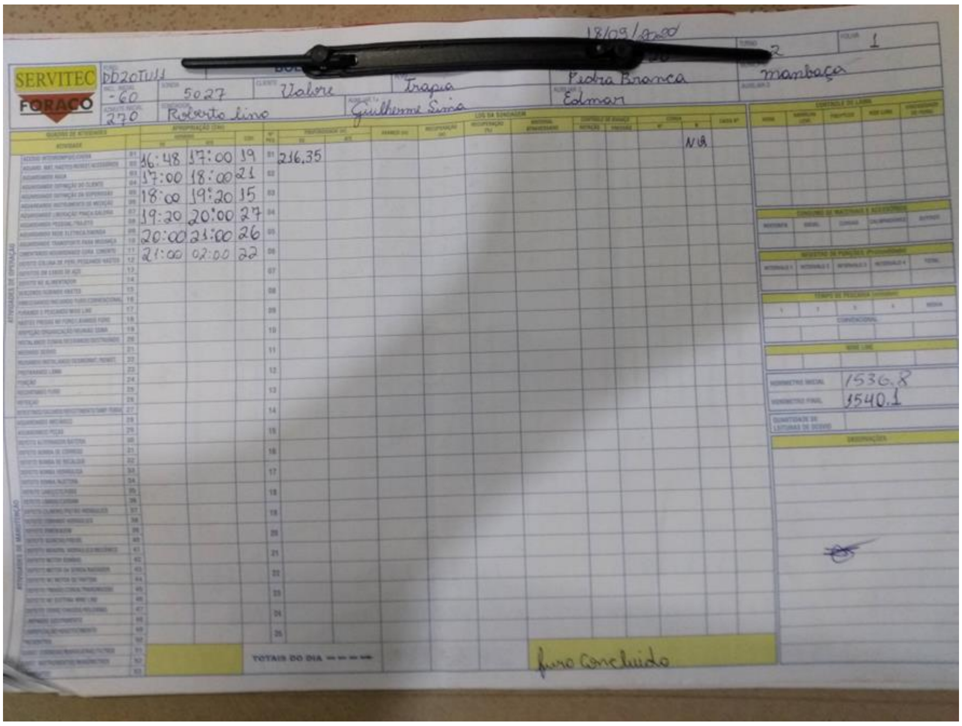


Figure 12-5: Drilling Document Stored in Folder by Hole. (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Figure 12-6: Core Box in the Structure for Geological Drilling and Sampling (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Figure 12-7: Pulp Rejects Stored in the Core Facility (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Figure 12-8: Core from the 2020-2021 Campaigns Stored in Core Facility (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Figure 12-9: Historical Drill Core Stored in Core Shed (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Figure 12-10: Operating Core Saw in the Core Facility (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

The QP held discussions with the ValOre team about the drilling QAQC procedures. The procedures and evaluation of results are described in Section 11.4.

The core facility procedures and the drilling database were managed using Microsoft Excel and stored on site computers and hard drives.

12.2.2 Database Validation

GE21 conducted a verification of drillholes coordinates, mainly regarding the Z (Elevation) measurement, using the topography of project, survey campaigns and twin holes. It was observed divergences between the survey campaigns and the topography. GE21 has chosen to use an Alos Palsar topography and drape the drillholes position to it to fix the divergencies.

The drilling database was checked to assess the presence of inconsistencies such as missing information, overlapping data or inconsistencies related to formatting. Inconsistences on 'holeid', 'from' and 'to' intervals were identified. When data could not be retrieved from the original logs or together ValOre team, it was removed from the database used in the Mineral Resource Estimate.

Approximately 10% of the intervals from the database with PGE+Au grades above 0.7 g/t were randomly selected and cross-verified with the original assay certificates. Errors associated with decimal places were identified and subsequently corrected in the database.

12.2.3 Twin Holes

ValOre conducted 6 twin holes with historical drillholes during 2020/2021 campaign. The twin holes were drilled in HQ diameter core, to provide sample material for subsequent metallurgical tests. Quarter-core samples were submitted for geochemical assays, and additional quarter-core samples were used for metallurgical test work.

GE21 conducted an analysis of twin holes using lithological and PGE+Au, Pt, Pd and Au grades to compare results, and the observed differences are deemed acceptable. Figure 12-11 to Figure 12-14 show the comparison of 2021 twin hole DD21ES15C to the original hole DD03ES15 (2003 campaign), and 2021 twin hole DD21CD24A to the original hole DD07CD24 (2007 campaign).

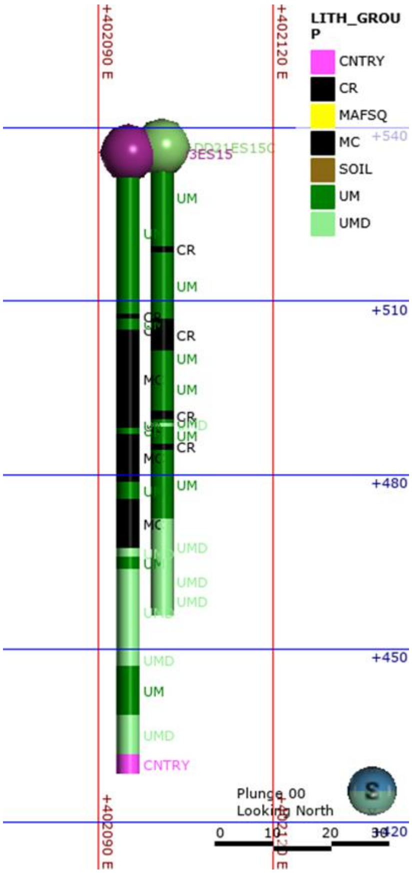


Figure 12-11: Twin Holes DD03ES15 and DD21ES15C: Lithological Comparison (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

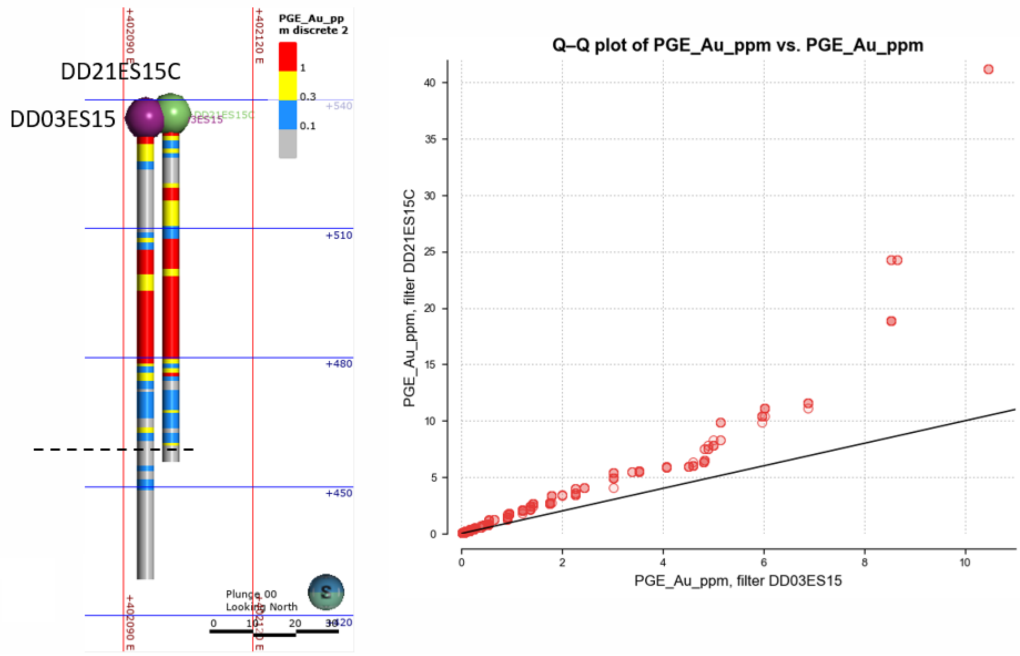


Figure 12-12: Twin Holes DD03ES15 and DD21ES15C: PGE+Au Grades Comparison (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

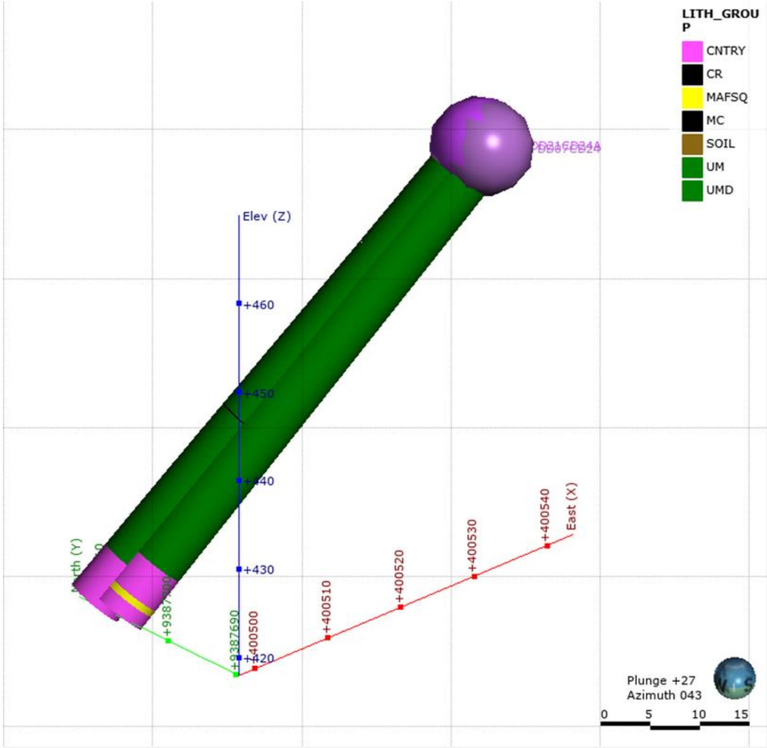


Figure 12-13:Twin Holes DD07CD24 and DD21CD24A: Lithological Comparison (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

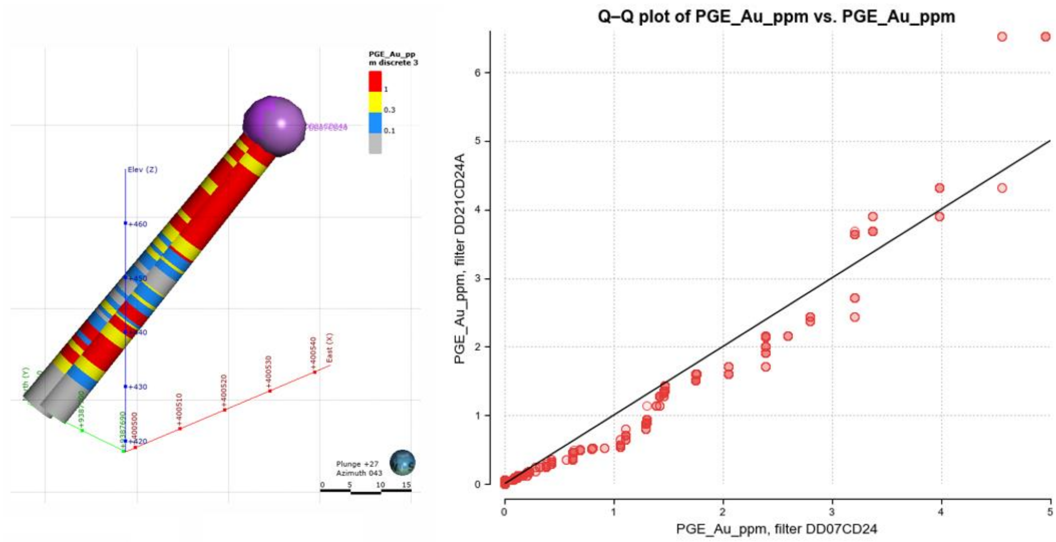


Figure 12-14: Twin Holes DD07CD24 and DD21CD24A: PGE+Au Grades Comparison (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

12.2.4 Check-Sample

A check-sample was conducted during the site visit to verify the assay results from the resource database. Ten samples were selected by the QP within a range of grades to facilitate a comprehensive assessment.

The core sampling and batch creation processes were monitored by the QP, and the samples were sent to the SGS Geosol laboratory using the same preparation and analysis protocol used during the 2020-2021 drilling campaigns, including QAQC sample control. Figure 12-15 to Figure 12-17 present the sample collection procedures.

The results evaluated from the Half Absolute Relative Difference ("HARD") assay precision demonstrated:

- 8 samples of precision better than 20%;
- 2 samples of 38% and 48% precision;
- 1 sample of 96% precision.

The QAQC duplicates carried out in the 2020-2021 campaigns demonstrate a precision of 20% for this type of control sampling and that there were occurrences of the order of 40-50% within the accepted statistical limits. The sample with 96% accuracy suggests a sample coding error during sampling or at the lab. The standard used to control the accuracy of the original sample batch was within the expected limits.

Figure 12-15: Sampling to Check-Sample (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Figure 12-16: Collected Samples to Check-Sample (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

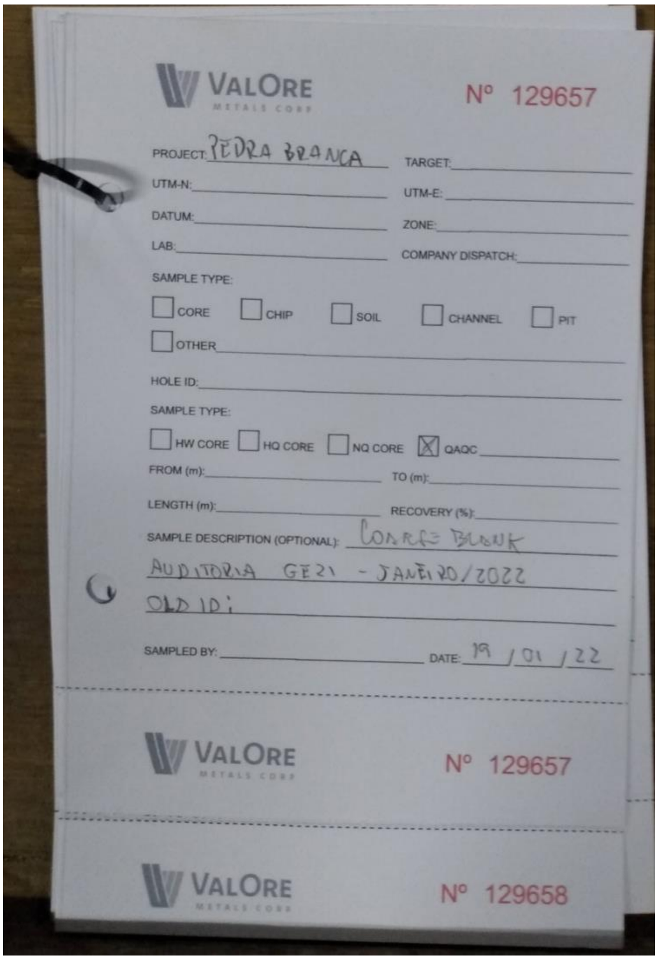


Figure 12-17: Registration form to Check-Sample (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

12.2.5 QP Opinion

The QP considers the the logging and sampling procedures carried out in the core facility are in accordance with the best practices of industry, and ensure adequate quality for use in the estimation of mineral resources.

Some inconsistences were found during the validation conducted to the current estimative.

To improve the quality of the procedures and the database, GE21 recommends:

- Conduct a new validation of database to confirm accuracy;
- Validation drillhole collar survey;
- Execute detailed topographic survey of the main resource deposit areas with appropriated precision to the level of the project;
- Continue to implement the QAQC protocols established for the 2020 and 2021 drilling in future programs;
- Conclude ongoing relogging of historical drill holes to standardizing litho-codes and grouping of lithotypes;
- Complete the weathering description for all drillholes, with the recommended addition of sulfur analyses in subsequent drilling programs, to potentially aid in quantitatively defining transitional surface between weathered and fresh domains.
- Enhance detailed mapping of hydrothermal and metamorphic alteration zones at the known PGE deposits, to aid in the creation of a geometallurgical modeling to guide future metallurgical test work.

13 Mineral Processing and Metallurgical Testing

13.1 ValOre's Metallurgical Test Work

This section documents ValOre's metallurgical test work performed on mineralized material from the Pedra Branca project since the release of the Technical Report titled "Pedra Branca Project May 2019 Resource Estimate Technical Report Updated: August 12, 2019" and up to March 7, 2022. Metallurgical testing is ongoing and results after this date will be documented in future Technical Reports.

Metallurgical testing has involved scoping level test work examining the use of Falcon Ultrafine ("UF") Gravity concentration (Sepro Mineral Systems), cyanide leaching (coarse and ground material) and pressure oxidation (Platsol™). Cyanide leaching test work compared recoveries from material ground in a conventional comminution circuit versus that using VeRoLiberator® comminution technology from Fre-E-Tec Maschinenbau Gmbh and Co. in Germany. A sensory-based material sorting test work program assessed the ability to sort material on a mineralogical basis. A test work program, which is currently in progress, is investigating the recovery of minerals into a marketable concentrate using flotation.

Summaries of the programs and results to date are presented below. It is noted that comminution test work performed by Fre-E-Tec Maschinenbau Gmbh and Co. in Germany is not documented in a report and as such the preparation of crushed material used in downstream testing is not discussed below.

13.1.1 Gravity Separation, Cyanide Leaching and Pressure Oxidation

The gravity separation, cyanide leaching and Platsol™ pressure oxidation tests were performed by SGS in Lakefield, Ontario, Canada. Sample preparation of some of the samples used by SGS was performed by Fre-E-Tec Maschinenbau Gmbh and Co. in Germany (via the VeRoLiberator®).

Testing was divided into two phases. The initial phase was conducted on the Curiú Core Samples ("CCS"), Trapiá West Met Outcrop ("TWMO") and Curio Met Outcrop ("CMO") samples and included an evaluation of gravity separation, incorporating Falcon concentrator technology, Platsol™ pressure oxidation, and hot cyanide leaching. The second phase focused on detailed, size by size, chemical analysis of the MV-1 to -6 (VeRoLiberator® grind) and MV-1A to -6A (conventional, or non-VeRoLiberator® grind) samples to assess if there was a liberation advantage in the VeRoLiberator® ground material. To this end, limited recovery testing, including hot cyanide leaching and coarse ore cyanide leaching was completed on selected VeRo and non-VeRo samples.

13.1.1.1 *Test work Samples*

Samples provided for testing by SGS are summarized in Table 13-1 below.

Table 13-1: Metallurgical Test Work Samples Received by SGS

Received	Receipt	No. of Drums	Mass, kg	Consisted of	Samples For
July 22, 2020	0278-JUL20	3	~75	~25 kg each of: CCS, CMO and TWMO comps.	Initial scoping metallurgical characterization testwork.
Jan 4, 2021	0001-JAN21	3	~225	~35 kg each of: MET-VERO_001A through MET-VERO_006A	Size by size characterization and metallurgical comparison to VeRo Liberator ground material (see below).
Jan 20, 2021	0263-JAN21	6	~150	~25 kg each of: MET-VERO_001 through MET-VERO_006	Size by size characterization and metallurgical comparison to Non VeRo Liberator ground material (see above).

*Table reproduced from report titled "An Investigation into the Recovery of Platinum Group Elements and Gold from Pedra Branca Project Samples", dated January 26, 2022, prepared by SGS Minerals (Project 17984-01). CCS = Curiú Core Sample. CMO = Curiú Met Outcrop. TWMO = Trapiá West Met Outcrop.

The samples received by SGS on January 20, 2021, represent splits of the same material received on January 4, 2021. The January 4 samples were shipped directly to Lakefield, while the January 20 samples (designated as MET-VERO) were received from Fre-E-Tec Maschinenbau Gmbh and Co. in Germany, after processing through their VeRoLiberator® comminution technology. Further details of the 12 samples designated as MET-VERO are presented in Table 13-2.

Table 13-2: Details of MET-VERO Samples

Sample ID	Grind?	RPM	Sample Type	Lithology	Note
From Pedra Branca Site (not ground)					
MET-VERO_001-A	n/a	n/a	Core (PQ)	Cr-reef	Fresh
MET-VERO_002-A	"	"	"	"	"
MET-VERO_003-A	"	"	Trench Fragments	"	Slightly Weathered
MET-VERO_004-A	"	"	Core (PQ)	Dunite/Peridotite	Fresh
MET-VERO_005-A	"	"	"	"	"
MET-VERO_006-A	"	"	"	"	Weathered
From Germany (VeRoLiberator® Ground)					
MET-VERO_001	VeRo	*1000-800-800	Core (PQ)	Cr-reef	Fresh
MET-VERO_002	"	800-600-600	"	"	"
MET-VERO_003	"	"	Trench Fragments	"	Slightly Weathered
MET-VERO_004	"	*1000-800-800	Core (PQ)	Dunite/Peridotite	Fresh
MET-VERO_005	"	800-600-600	"	"	"
MET-VERO_006	"	"	"	"	Weathered

* Data provided to SGS indicated VeRoLiberator® speeds of 100-800-800, not 1000-800-800 as indicated in the table.

*Table reproduced from report titled "An Investigation into the Recovery of Platinum Group Elements and Gold from Pedra Branca Project Samples", dated January 26, 2022, prepared by SGS Minerals (Project 17984-01).

Head grades of samples used in testing are presented in Table 13-3.

Table 13-3: Head Grades – Metallurgical Test Work Samples

Sample	Analyses						
	g/t				%		
	Pt	Pd	Rh	Au	[1] Cr	[2] Cu	[2] Ni
Originally Received Samples							
CCS	3.83	6.86	0.25	0.24	7.66	0.052	0.24
TWMO	17.0	21.6	0.15	0.83	15.3	0.011	0.11
CMO	3.95	7.86	0.45	0.30	18.4	0.021	0.13
Not Ground							
MV-1A	1.80	3.44	0.29	0.10	21.3	--	--
MV-2A	7.20	13.5	0.67	0.15	20.3	--	--
MV-3A	6.24	6.45	0.72	0.05	22.0	--	--
MV-4A	0.68	2.10	0.10	0.04	0.86	--	--
MV-5A	0.49	1.54	0.07	0.02	0.72	--	--
MV-6A	0.10	0.25	0.05	0.02	1.03	--	--
VeRoLiberator® Ground							
MV-1	1.38	2.56	0.22	0.08	18.4	--	--
MV-2	3.36	6.37	0.33	0.08	21.0	--	--
MV-3	3.03	3.70	0.37	0.05	22.0	--	--
MV-4	2.71	3.62	0.33	0.04	10.1	--	--
MV-5	1.06	1.69	0.13	0.03	2.37	--	--
MV-6	0.70	1.01	0.10	0.05	2.06	--	--

[1] TWMO and CMO Cr assays are from direct analysis. All other Cr values are estimated based on WRA Cr_2O_3 assays.

[2] Cu and Ni were assayed for the first three samples only.

*Table reproduced from report titled “An Investigation into the Recovery of Platinum Group Elements and Gold from Pedra Branca Project Samples”, dated January 26, 2022, prepared by SGS Minerals (Project 17984-01).

It is noted that the head grades of the metallurgical samples are significantly different to that represented in the May 2019 resource estimate. It is further noted that higher than expected differences exist between assays of MV-1A to 6A and MV-1 to 6 samples. These samples are splits of the same materials and expected difference should be minimal.

13.1.1.2 Gravity Separation

Gravity separation testing was completed on the CCS sample only. Two tests were performed: test G1 and G2. Test G1 examined the response of finely ground material to the high G-force. Test G2 evaluated the recovery of potentially liberated PGEs at a coarser size.

At similar mass pulls platinum and palladium recoveries were much higher in test G1 than in G2. The difference was likely the direct result of poor PGE liberation at the coarser grind size. The test data implies a low probability that platinum and palladium could be adequately recovered or significantly concentrated together by gravity separation. It is noted that this result is from testing on a single sample of core from one of several identified zones at Pedra Branca. Additional testing on other samples is required to confirm this result.

13.1.1.3 Pressure Oxidation - Platsol™ Testing

Five Platsol™ tests were performed; three on sample CMO, one on sample TWMO and one on a reconstituted gravity concentrate from test G1 (derived from sample CCS). The CMO and TWMO samples were ground to ~10 µm P80 in a stirred attrition mill. After grinding, samples were slurried to ~20% solids. Using sulfuric acid, the pH was then adjusted to ~1 and maintained for 30 minutes. Chloride was provided as a 25 g/L NaCl addition at the end of the 30 minutes conditioning stage. Conditions common to all tests are:

Pre-Acidulation Stage

Pulp Density	=	20% solids (w/w)
Conditioning Time	=	30 minutes
Chloride Addition	=	25 g/L as NaCl

Pressure Oxidation Stage

Retention Time	=	120 minutes
Temperature	=	~230°C
O_2 Overpressure	=	100 psi

Tests POX-1 and POX-2 revealed high sulfuric acid requirements; excess of 0.5 tonne H_2SO_4 per tonne of ore treated. Tests POX-3 and POX-4 examined the replacement of a portion of the sulfuric acid with elemental sulfur. Tests POX-3 and 4 used a pre-acidulation conditioning stage pH target of ~2 and replaced 2/3 and 1/3 of the sulfuric acid required in POX-2 with equivalent masses of sulfur after pre-acidulation. Test POX-5 applied the baseline conditions of POX-1 and 2 to the reconstituted gravity separation test concentrate (sample CCS, test G1 concentrate).

A summary of the Platsol™ test results are presented in Table 13-4 below.

Table 13-4: Platsol™ Test Results

Sample	POX Test No	% Extraction				Direct Head Grades, g/t			
		Pt	Pd	[1] Rh	[1] Au	Pt	Pd	Rh	Au
TWMO	1	**95.7**	**93.6**	47	67	17.0	21.6	0.15	0.83
CMO	2	**95.3**	**93.4**	29	7	3.95	7.86	0.45	0.30
	3	**70.8**	**69.7**	20	64				
	4	**84.4**	**78.6**	16	59				
G1 Conc (CCS)	5	**96.7**	**97.8**	-	73	9.01	9.77	--	--

[1] Au and Rh extractions are estimated by comparing assayed residue grades to direct assayed head grades. Solution analyses are not available.

*Table reproduced from report titled "An Investigation into the Recovery of Platinum Group Elements and Gold from Pedra Branca Project Samples", dated January 26, 2022, prepared by SGS Minerals (Project 17984-01).

Platinum and palladium extractions in the initial two tests (POX-1 and POX-2) averaged ~95.5% and ~93.5%, respectively; however, sulfuric acid requirements were very high at 547 kg/t and 581 kg/t of leach feed. The acid requirements were due to the very high magnesium oxide (MgO) content of the samples. The costs associated with such high acid requirements would be significant. Adding elemental sulfur to help reduce requirements resulted in reducing extractions of both platinum and palladium.

Test POX-5 completed on reconstituted gravity concentrate, yielded ~97% and ~98% platinum and palladium extractions, respectively. While acid consumption was also high (394 kg/t) it was considerably less than that observed in tests POX-1 and POX-2. The lower acid requirement was likely related to the rejection of a significant proportion of the MgO content by gravity separation. Raw CCS contained ~20% MgO while the gravity concentrate contained only ~13% MgO.

13.1.1.4 Cyanide Leaching

Hot cyanide leach tests were conducted on samples of CCS and TWMO in stirred reactors. The initial tests, including one on test G1 gravity tailing (from sample CCS), were completed applying the following leach conditions.

Temperature	=	50°C
Pulp Density	=	33% solids (w/w)
Pulp pH	=	~11 (maintained with Lime if required)
Cyanide Concentration	=	20 g/L NaCN (maintained)
Dissolved Oxygen	=	~20 mg/L O_2, maintained with sparged oxygen
Leach Retention Time	=	48 hours - solution subsamples at 6 and 24 h

Additional hot cyanide leach tests were conducted on samples of conventionally ground MV-1A and MV-5A and on VeRoLiberator® ground sample MV-5. These tests examined the effect of grind size on platinum and palladium extraction. Leach conditions were the same as applied in the initial series of tests, except that retention time was increased to 72 hours. The parallel tests on the VeRo-ground (MV-5) and non-VeRo-ground (MV-5A) samples were intended to identify whether a performance improvement might be identified in the VeRoLiberator® ground material. The hot cyanide leach test results are summarized in Table 13-5 below.

Table 13-5: Hot Cyanide Leach Test Results.

Sample	Tail from Test	CN Test	Grind Size P_{80}, µm	Reagents (kg/t of CN Feed)				% Extraction (hours)								Residue, g/t		Head Grade, g/t			
				Added		Consumed		Platinum				Palladium				Pt	Pd	Calc.		* Direct	
				NaCN	CaO	NaCN	CaO	6	24	48	72	6	24	48	72			Pt	Pd	Pt	Pd
CCS	N/A	CN1	~20	47.6	2.57	7.01	2.22	1	2	**2.6**	--	81	88	**91.7**	–	3.16	0.60	7.19	3.24	6.86	3.83
TWMO	N/A	CN2	~20	47.0	0	7.38	0	2	3	**4.2**	--	47	74	**84.4**	–	18.5	3.57	22.9	19.3	21.6	17.0
CCS	G1	CN3	23	47.9	2.92	5.96	2.62	5	5	**7.2**	--	83	90	**88.5**	–	0.83	0.60	5.22	0.89	5.14	0.90
MV-1A	N/A	CN4	90	45.6	0.00	9.68	0.00	5	8	8	**10.3**	46	76	84	**80.5**	1.36	0.72	1.52	2.98	1.86	3.49
		CN5	70	45.7	0.00	10.3	0.00	8	10	11	**9.5**	58	82	86	**83.3**	1.14	0.59	1.26	2.94		
		CN6	46	49.2	0.00	16.3	0.00	10	11	12	**10.9**	86	90	81	**82.6**	1.66	0.64	1.86	3.03		
MV-5A	N/A	CN7	94	55.0	0.00	20.0	0.00	8	8	8	**4.4**	57	84	88	**82.2**	0.47	0.25	0.49	1.16	0.67	1.51
		CN8	72	53.8	0.00	19.2	0.00	4	7	7	**3.7**	55	81	83	**82.9**	0.54	0.26	0.56	1.26		
		CN9	50	60.3	0.00	26.6	0.00	3	3	3	**2.9**	56	86	70	**72.1**	0.62	0.49	0.64	1.27		
MV-5 (VeRo)	N/A	CN10	93	58.8	0.00	25.6	0.00	9	8	9	**9.7**	57	67	76	**74.1**	0.87	0.50	0.96	1.43	0.61	0.90
		CN11	72	59.9	0.00	26.9	0.00	7	8	8	**9.4**	57	72	76	**76.6**	1.07	0.46	1.18	1.50		
		CN12	49	71.2	0.00	38.5	0.00	4	5	6	**4.0**	40	56	59	**43.4**	1.83	1.54	1.91	1.18		

* MV-1A, MV-5A and MV-5 direct heads are from size fraction analysis for Pt and Pd.

*Table reproduced from report titled "An Investigation into the Recovery of Platinum Group Elements and Gold from Pedra Branca Project Samples", dated January 26, 2022, prepared by SGS Minerals (Project 17984-01).

Platinum responded poorly to hot cyanide leaching, regardless of the grind size with a maximum extraction of ~10% observed in the MV1-A tests. The principal platinum mineral in these samples has been tentatively identified at sperrylite ($PtAs_2$). Sperrylite has been shown, in the literature, to be resistant to cyanide leaching. Palladium responded reasonably well to hot cyanide leaching with extractions of ~84% and ~92% from samples TWMO and CCS, respectively, and similar, at 88.5%, from the G1 gravity tailing.

Palladium extraction from non-VeRo-ground and VeRo-ground samples tended to be somewhat lower than indicated for the samples discussed above. Excluding the seemingly erroneous test CN12 result, the average palladium extraction among the samples was ~79%, varying only from ~72-83%. There was no improvement in extraction noted with finer grinding, between ~90 and ~50 µm (P80). The VeRo-ground sample seems to have responded less favorably than the parallel conventionally ground MV-5A material. It is noted that this difference may have more to do with the sample head grades than any inherent liberation disadvantage introduced by the VeRoLiberator®. Additional testing is required to verify this.

Heap leach amenability was briefly examined using bottle roll cyanide leach tests. Platinum extractions were <4% while palladium extractions were ~55% or higher in two of the three tests.

13.1.1.5 Comparison of the VeRoLiberator® and Conventionally Ground Samples

To assess whether the VeRoLiberator® grinding technology had an impact on improving PGE liberation and/or size relative concentration five of the VeRoLiberator® ground samples and two of the parallel, conventionally ground samples were sieved into multiple size classes for analysis.

There was a poor correlation between of the VeRo and non-VeRo palladium grades which made a comparison between the two methods difficult using the assay related means.

13.1.2 Material Sorting Test Work

The objective of the sorting test work was to assess the ability to separate material based on mineralogical characteristics using sensory-based technologies, such as X-Ray Transmission technology ("XRT"), colour, magnetism, conductivity, and other potentially distinct mineralogical characteristics.

In November 2020, 100 samples of rock were provided to Steinert Latinoamericana ("STL") Test Centre in Belo Horizonte, Brazil. The samples consisted of approximately 5 cm drill core pieces categorized by lithology and grade. The first round of testing showed distinct XRT (density) signatures in the main rock groups (chromitites, peridotites, dunites, and waste). Consequently, this initial program was followed-up with a 300 kg bulk sample program to quantitatively assess XRT-based sorting performance. Information on the samples provided for testing is shown in Table 13-6 below.

Table 13-6: Sample Characteristics - Sorting Test Work

Litho type	Qualitative Pt-Pd Grade	2PGE+Au g/t Grade Estimate
Cr-reef	High grade	~5
Dunites	Mid to high grade	1 up to 8
Peridotites	Mid grade	1 to 2
Serpentinite/ Pyroxinite	Low to mid grade	0.2 up to 1
Serpentinite/ Dunite	Low to mid grade	0.2 up to 1
Gneiss	Anomalous-Barren	0
Granite	Anomalous-Barren	0
Amphibolite	Anomalous-Barren	0

Using XRT contrast assessments, the test results again suggested a differentiation between the XRT response for the different rock groups. In particular, the higher-grade chromitite samples returned the most distinct XRT response, and thus the highest potential for sortability. This suggests the potential ability to create a high-grade stockpile during production, if so desired. Additional testing is necessary to better define such relationships.

13.1.3 Flotation and Associated Test Work

Evaluation of a flotation flowsheet to treat Pedra Branca material is in progress. Mineralized material from the Curiú zone is currently being tested. The following is a summary of work conducted up until 7th March 2022.

13.1.3.1 Test Work Samples – Curiú

Two composite samples were prepared from material contained in the Curiú zone. The samples were identified as "Fresh Material" and "Weathered Material". Drill holes from which these samples were prepared are CU12A, CU15A, CU22A and CU26A. A map showing their locations within the Curiú zones is shown in Figure 13-1 below.

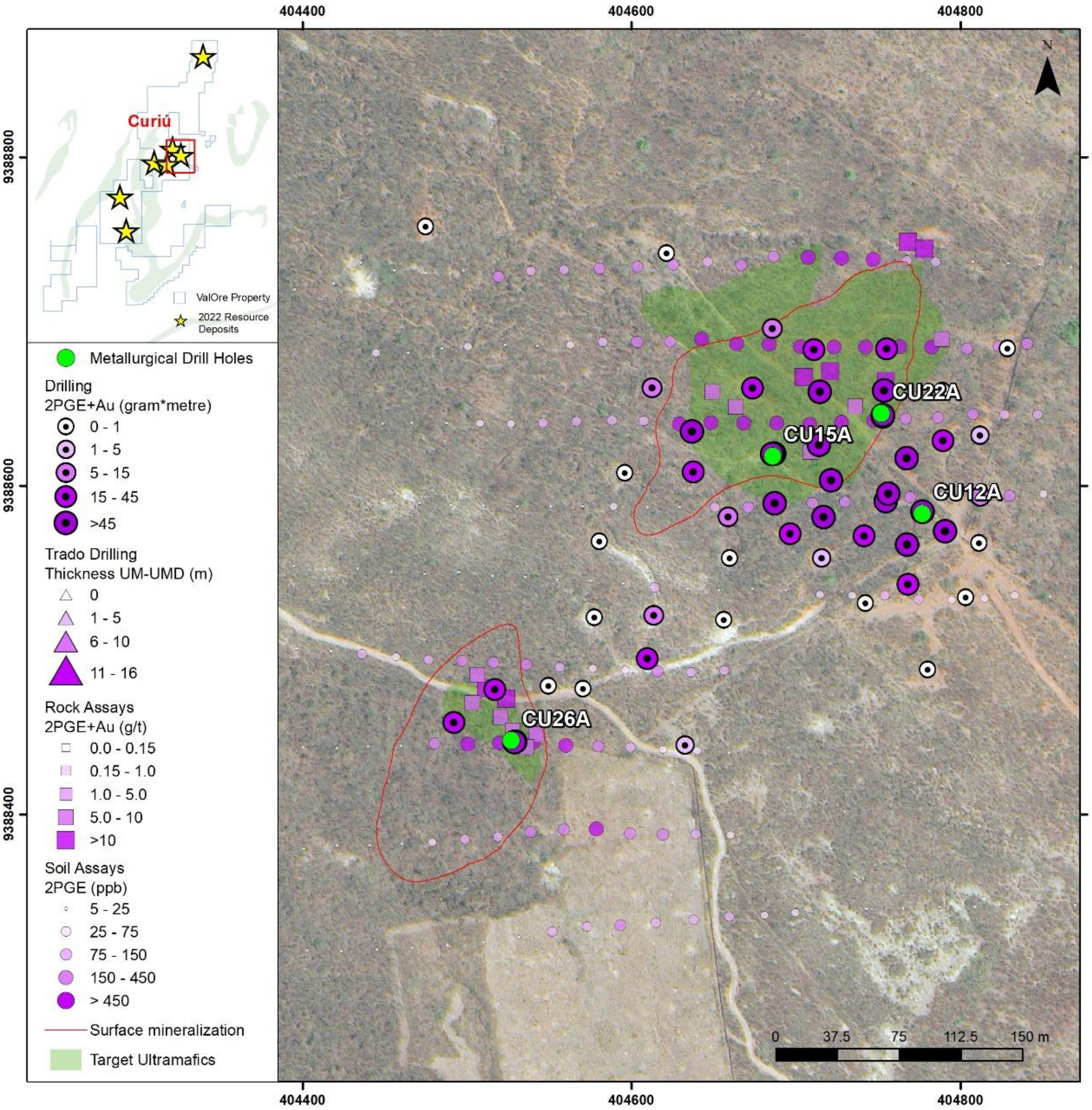


Figure 13-1: Drill Holes - Metallurgical Composites (Source: Thiago Diniz, P.Geo – ValOre).

The chemical content of key elements in each composite is presented in Table 13-7 below.

Table 13-7: Chemical Content Composite Samples

Sample ID	Assay - percent, g/tonne or ppb												
	Cu	Fe	S(t)	Au	Pt	Pd	Cr	Mg	Ag	Rh	Ir	Os	Ru
Fresh Composite	0.034	7.1	0.16	0.07	0.57	1.46	2.20	20.7	0.18	54	16	7	15
Weathered Composite	0.020	4.8	0.02	<0.01	0.67	1.11	1.59	13.6	0.20	38	9	5	13

Notes: a) Au, Pt, Pd and Ag are in g/tonne; Rh, Ir, Os and Ru are in ppb; all other assays are in percent.
b) Cu and Fe determinations were via aqua regia digestion.
c) S represents Total Sulphur via LECO.
d) Au, Pt and Pd assays were by fire assay.
e) Ag, Rh, Ir, Os and Ru were measured by ALS Geochemistry.

13.1.3.2 Mineralogy

Particle Mineral Analysis ("PMA") was conducted on four size fractions from each the Fresh and Weathered Composites using QEMSCAN. Very little of the total nickel is contained in sulfides in both samples; mostly occurring at low concentration in silicate minerals (mainly olivine, serpentine and pyroxene). Copper is mostly contained in sulfide mineral forms. Pyrite and pyrrhotite content are very low in both samples, measuring less than 0.1% of the sample mass. Talc content measured 1.25% in the Fresh Composite and 1.48% in the Weathered Composite. Iron oxides, including chromite, constituted around 7% of the mass in both composites.

Trace Mineral Searches ("TMS"), conducted using TESCAN TIMA, measured platinum in both samples as a platinum–arsenic alloy, likely sperrylite. Palladium was found in combination with various elements including tellurium, bismuth, arsenic and sulfur.

Liberation levels for platinum and palladium were relatively low due to extremely small grains attached to non-sulfide gangue. A minor component of the platinum and palladium was associated with sulfides in the Fresh Composite. About 6% of the palladium was observed physically attached to a nickel sulfide mineral (pentlandite).

13.1.3.3 Metallurgical Testing

Testing on the Fresh Composite material has included magnetic, gravity and flotation separation testing.

Tests involving gravity separation, magnetic separation and pre-flotation have been performed. On average, about 20% of the gold, 25% of the platinum and 9% of the palladium was recovered to a Knelson concentrate, which was upgraded to an average combined Au, Pt and Pd grade of 8.5 g/t. This grade is unlikely to be sufficient for direct sale. Consequently, a Knelson concentration stage was removed from the process flowsheet. Magnetic separation also resulted in relatively low levels of upgrading of the Au, Pt and Pd and was also eliminated. Pre-flotation was eliminated due to insufficient impact on the subsequent roughing stage.

Evaluations of xanthate collector type and dosage as well as the effect of Calgon have indicated a combination of PAX and Calgon as suitable reagents. Dose rates are yet to be optimized. Adding Mercaptan to the grinding mill has improved flotation response. Adding lime to the grinding mill has been found to be detrimental to flotation response.

Tests assessing the 53 µm K80 primary grind sizing, low rougher pulp density and mercaptan collector have aided in improving concentrate grades. Further testing is planned to assess primary grind size. The effect of regrind is unclear from results to date.

A single locked cycle test has been conducted on material from the Fresh Composite sample. The results are summarized in Table 13-8 below. In the test, approximately 85% of the gold, 83% of the platinum and 71% of the palladium were recovered to the bulk concentrate which graded a total of about 78 g/t combined gold, platinum and palladium. It is noted that these results are for a single locked cycle test on material from one sample. Additional testing is required to confirm these results.

Table 13-8: Summary of Locked Cycle Test Result – Fresh Material

Product	Weight	Assay (% or g/t)						Distribution (%)					
	%	S	Au	Pt	Pd	Cr	Mg	S	Au	Pt	Pd	Cr	Mg
Flotation Feed	100.0	0.17	0.07	0.57	1.35	2.17	19.7	100	100	100	100	100	100
Bulk Conc	1.9	5.31	2.94	24.9	50.4	0.35	15.2	59.6	85.2	82.9	71.0	0.3	1.5
Rougher Tail	98.1	0.07	0.01	0.10	0.40	2.20	19.8	40.4	14.8	17.1	29.0	99.7	98.5

To date, one gravity concentration test and two rougher flotation tests have been conducted on the Weathered Composite from Curiú. Gravity concentration in the process flowsheet is unlikely to benefit process performance for the Weathered Curiú mineralization. Rougher flotation tests have produced low concentrate grades at high mass recoveries.

A single batch cleaner flotation test conducted on the Weathered Composite using the flotation conditions for Fresh Composite indicated the rougher concentrate did not upgrade effectively, with a final bulk concentrate grade of about 20 g/t gold, platinum and palladium. Less than a quarter of each of these three precious metals were recovered. The flotation response of this Weathered mineralization is very different to that from the Fresh mineralization, and other options for processing it may need to be considered. Testing continues towards improving the metallurgical response of this material.

Two batch cleaner flotation tests have been conducted using blends of the Fresh and Weathered Composites. Ratios of 95:5 and 90:10 Fresh to Weathered were tested. The flowsheet for treating

Fresh material was used. Concentrate grade decreased as more Weathered Composite was blended with the Fresh Composite. Blending has not shown to improve metallurgical response of the Weathered material.

13.1.4 Conclusions and Recommendations

ValOre has conducted various mineralogical studies and test work evaluations to gain an understanding of processing options for the recovery of PGEs at Pedra Branca. Performance varied widely by methodology, as outlined above; however, the standard lock cycle test flotation test on Fresh material from the Curiú deposit performed well, and ValOre will continue to conduct test work in an ongoing effort to develop and optimize flowsheet designs.

Metallurgical testing performed since the release of the Technical Report titled “Pedra Branca Project May 2019 Resource Estimate Technical Report Updated: August 12, 2019” indicates the following:

- High platinum and palladium extractions were achieved from Platsol™ testing; however, very high sulfuric acid consumptions resulted, likely due to high MgO content in the material. It is recommended that removal of MgO material from Platsol feed continued to be investigated;
- Hot cyanide leach tests have indicated that palladium responds reasonably well while platinum responds poorly regardless of the grind size. It is recommended that additional testing is performed to investigate improving platinum recoveries. This should include addition of ferricyanide to the leach solution;
- Scouting tests to investigate heap leach amenability produced low platinum extractions (<4%) while palladium extractions were higher (~55% or higher in two of the three tests). It is recommended that additional bottle roll testing is performed to evaluate leach parametres and extractions;
- A favorable concentration of platinum was achieved by means of Sepro Mineral Systems’ Falcon UF Gravity Concentrator; however, given the poor performance of palladium, there is a low probability that this method of concentration is applicable to mineralized material from Pedra Branca;
- Assessment of PGE liberation on material ground using VeRoLiberator® grinding technology and non-VeRo technology was made difficult due to high differences in sample head grade. Palladium extractions for VeRo ground material seem to have responded less favorably than the parallel conventionally ground material. This difference may be due to sample head grade variations. Additional testing is required to verify this;
- Preliminary ore sorting tests using XRT (density) suggest a differentiation, and thus potential sortability, amongst the different rock groups. Additional testing is necessary to better define such relationships;

- Flotation test work assessing the potential to produce marketable concentrates is currently in progress. The flowsheet developed to date involves primary grinding, roughing, regrinding and three stages of dilution cleaning. Primary grinding is to a relatively fine sizing of about 53 µm K80 and reagents include PAX, Calgon, Mercaptan and MIBC. A single locked cycle test measured recoveries of approximately 85%, 83% and 71% for gold, platinum and palladium into a bulk concentrate with a combined grade of 78 g/t gold, platinum and palladium. The determination of concentrations of other elements in this concentrate that might impact marketability is in progress. Additional locked cycle tests are recommended to validate the current results. This needs to include duplicate samples from the current Curiú Fresh Composite as well as samples from other zones within the project;
- Rougher and cleaner testing on the Weathered Composite has shown very different performance to that for the Fresh Composite. Blending of the Weathered Composite with the Fresh Composite material does not improve performance. It is recommended that this test work continues to refine the flowsheet, optimize metallurgical responses as well as determine effect of head grade variability. Evaluating alternative processing routes for this material is also recommended;
- It is recommended that metallurgical test work is expanded to assess metallurgical responses associated with the different zones and material types within the project. This needs to be followed by flowsheet optimization evaluations to fine tune processing requirements and the metallurgical response for the different material types, determine the effect of head grade variability and generate engineering design criteria so as to advance the development of the project. Once a preliminary mine plan has been generated, samples consistent with the mine plan need to be generated and tested to confirm expected metallurgical responses.

14 Mineral Resource Estimates

14.1 Introduction

GE21 completed the geological modelling, the grade estimation and the classification of the mineral resources for the Pedra Branca Project (Massapê, Trapiá, Esbarro, Santo Amaro, Cedro, Cana Brava, and Curiú targets). In doing so, the following set of factors was taken into consideration: the quantity and spacing of the available data, the interpretation of the mineralization controls, the type of mineralization, and the quality of the data that was used.

The modelling and the estimation were carried out using Leapfrog GEO/EDGE 2021.2 software. The project's database was based on Projection UTM - Zone 24 South, Datum WGS84.

14.2 Drilling Database

The drilling database was received in MS-Excel format. Table 14-1 summarizes the drill holes quantity used for the mineral resource estimate of each target.

Table 14-1: Pedra Branca Drill Hole Database Summary

Target	Drilling Year	Method	Total of drill holes	Total drilling (m)	Samples with chemical results (m)
Trapiá	Previous campaigns	DD	42	3819,90	1514,97
	2020/2021	DD	37	7524,20	2128,59
		RC	15	1004,00	953,00
	Total		**94**	**12348,10**	**4596,56**
Cedro	Previous campaigns	DD	92	7221,30	3608,47
	2020/2021	DD	8	710,50	317,52
	Total		**100**	**7931,80**	**3925,99**
Esbarro	Previous campaigns	DD	107	7466,60	4939,12
	2020/2021	DD	9	523,85	378,48
		RC	9	191,00	95,00
	Total		**125**	**8181,45**	**5412,60**
Santo Amaro	Previous campaigns	DD	15	1446,00	673,92
	2020/2021	DD	36	3985,85	1923,45
		RC	5	282,00	282,00
	Total		**56**	**5713,85**	**2879,37**
Massapê	Previous campaigns	DD	5	399,10	225,20
	2020/2021	DD	11	1509,85	540,90
	Total		**16**	**1908,95**	**766,10**
Curiú	Previous campaigns	DD	52	3181,80	826,35
	2020/2021	DD	4	212,75	166,70
	Total		**56**	**3394,55**	**993,05**
Cana Brava	Previous campaigns	DD	2	71,40	27,55
	2020/2021	DD	4	199,65	83,85

Target	Drilling Year	Method	Total of drill holes	Total drilling (m)	Samples with chemical results (m)
		RC	9	351,00	351,00
	Total		**15**	**622,05**	**462,40**

GE21 carried out an electronic validation of the databases with Leapfrog GEO/EDGE software. After corrections made during data verification, no errors were found. The main internal validation made available by the software applied to the databases were related to:

- Final depth - check the consistency between the final depths recorded in the Collar, Survey and Interval tables;
- Overlapping and unknown intervals - analysis of consistency between the "From" and "To" fields of each sample;
- Collar - coordinate consistency and final depth check.

14.3 Geological Modeling

The geological model for Pedra Branca Project consists of seven separate targets that were modelled independently. Pedra Branca's mineralisation is associated with layered ultramafic (iron-magnesium-rich) intrusions that were dismembered into discrete bodies by tectonic activity, resulting in a series of boudinated lenses elongated on a trend that varies between 70 and 110 degrees (dip-direction azimuth). Layered ultramafic intrusion comprises peridotites, dunites, pyroxenites, serpentinites phlogopitites, tremolite-actinolite schists and amphibolite schists. Those lithologies were grouped and modelled as a single unit (UM) in the current modeling.

The tridimensional geological model was developed using Leapfrog implicit modelling, by drill hole interval selections and polyline edit, based on interpretations guided by structural data (structural measurements from oriented drill core and from field campaigns) and geological mapping data.

It can be observed on the probability plot of samples within ultramafic rock bodies (UM) an inflection in approximately 0.3 g/t PGE+Au (Figure 14-1). The ultramafic rock bodies (UM) were refined in the 3D geological model with a cut-off limit of 0.3 g/t PGE+Au, resulting in mineralized domains (PGE_UM) with orientation based on UM domains.

Chromitite layers (CR) were individualized only for the targets that presented representative intersections with spatial continuity through the UM layer (Trapiá, Esbarro and Curiú targets).

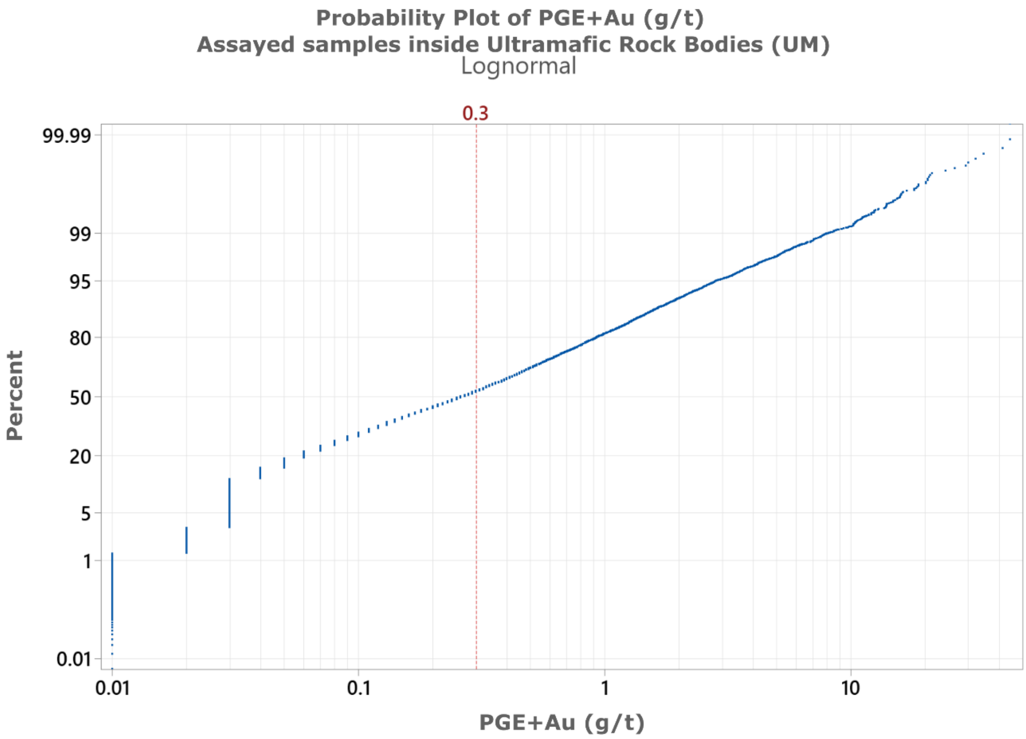


Figure 14-1: Probability Plot for PGE+Au (g/t) Assayed Samples Inside Ultramafic Rock Bodies (UM) (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Weathering surface was modelled using the description of weathering provided by ValOre for 115 drillholes. The topography surface was used to guide the interpretation of the weathering surface continuity between the drillholes.

Figure 14-2 to Figure 14-8 present plan view and vertical sections of the 3D geological model.

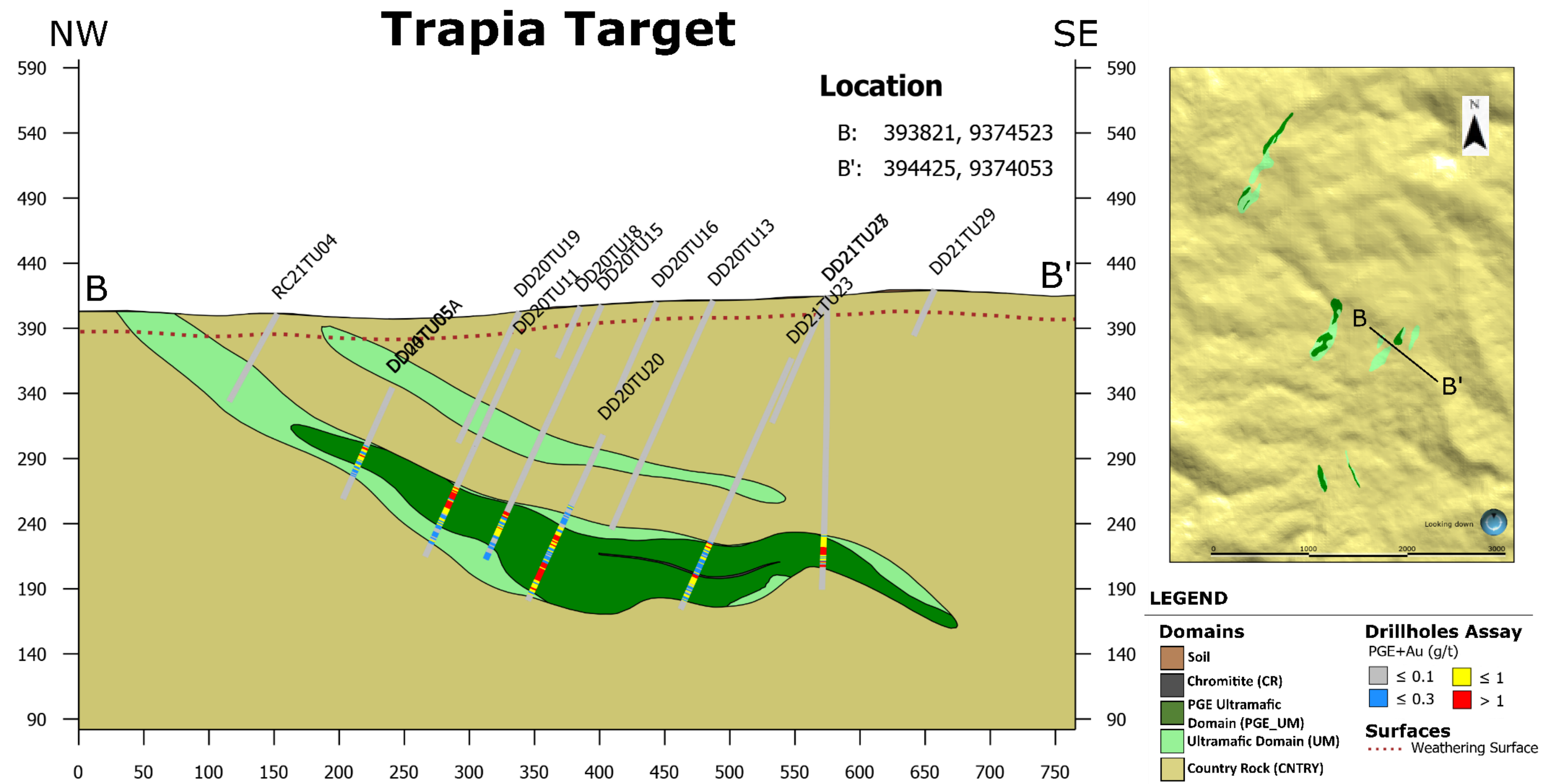


Figure 14-2: Plan View and Section Vertical of the 3D Geological Model - Trapiá Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

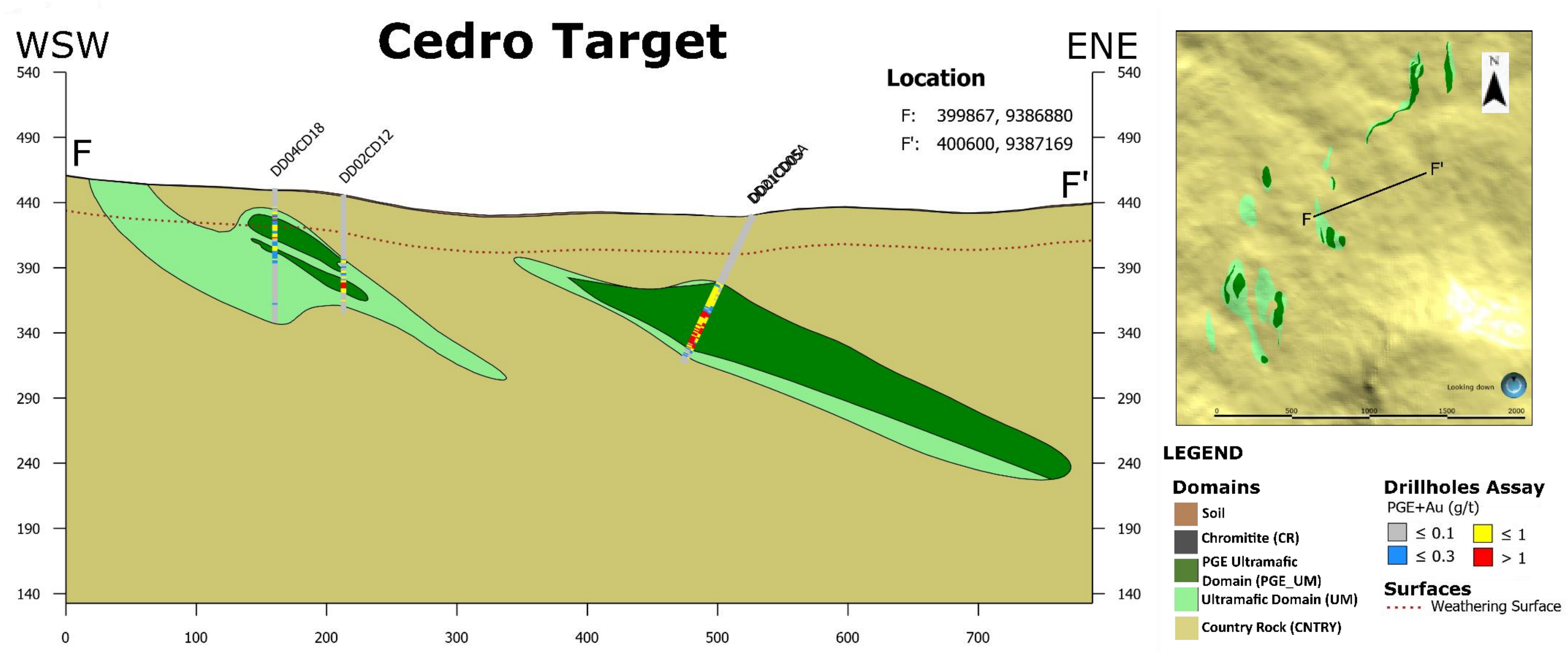


Figure 14-3: Plan View and Vertical Section of the 3D Geological Model - Cedro Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

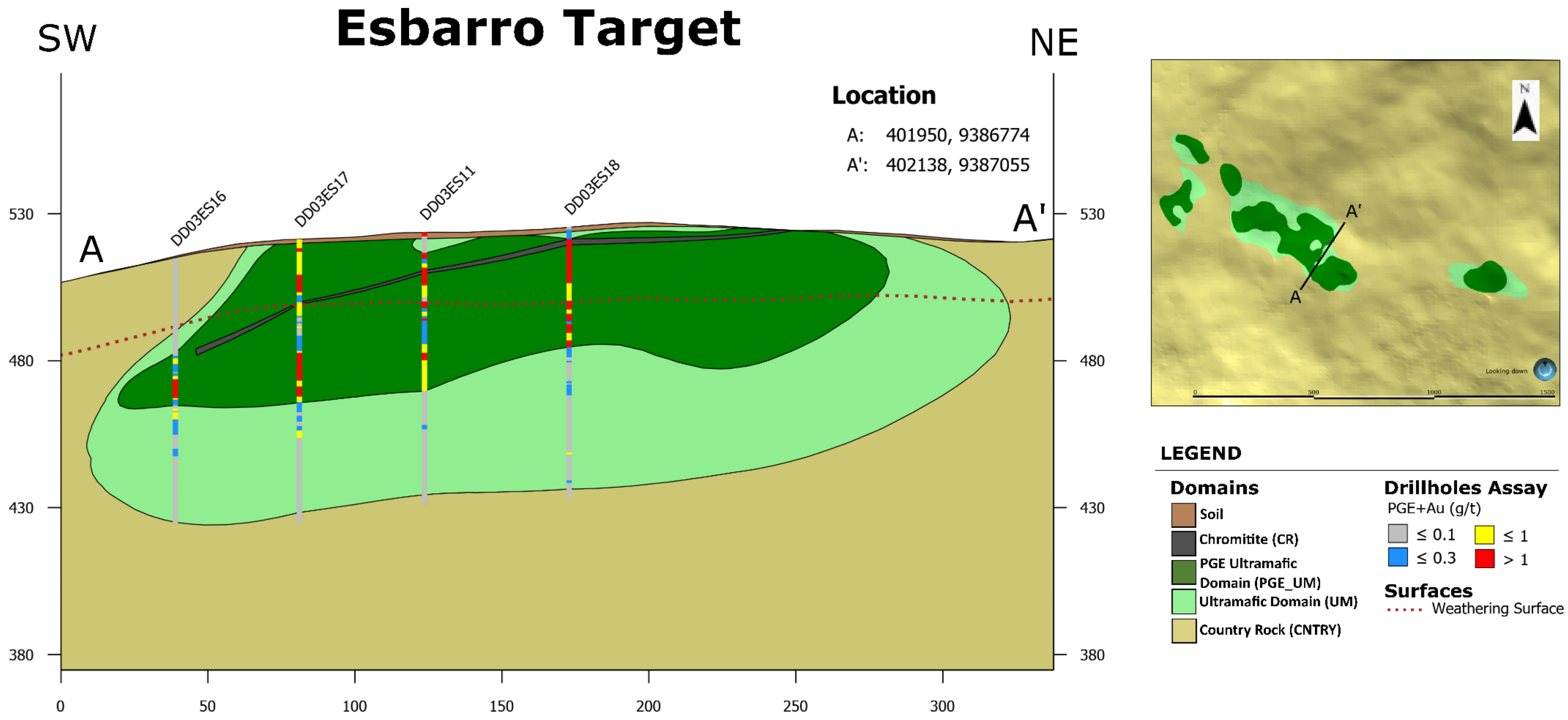


Figure 14-4: Plan View and Section of the 3D Geological Model - Esbarro Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

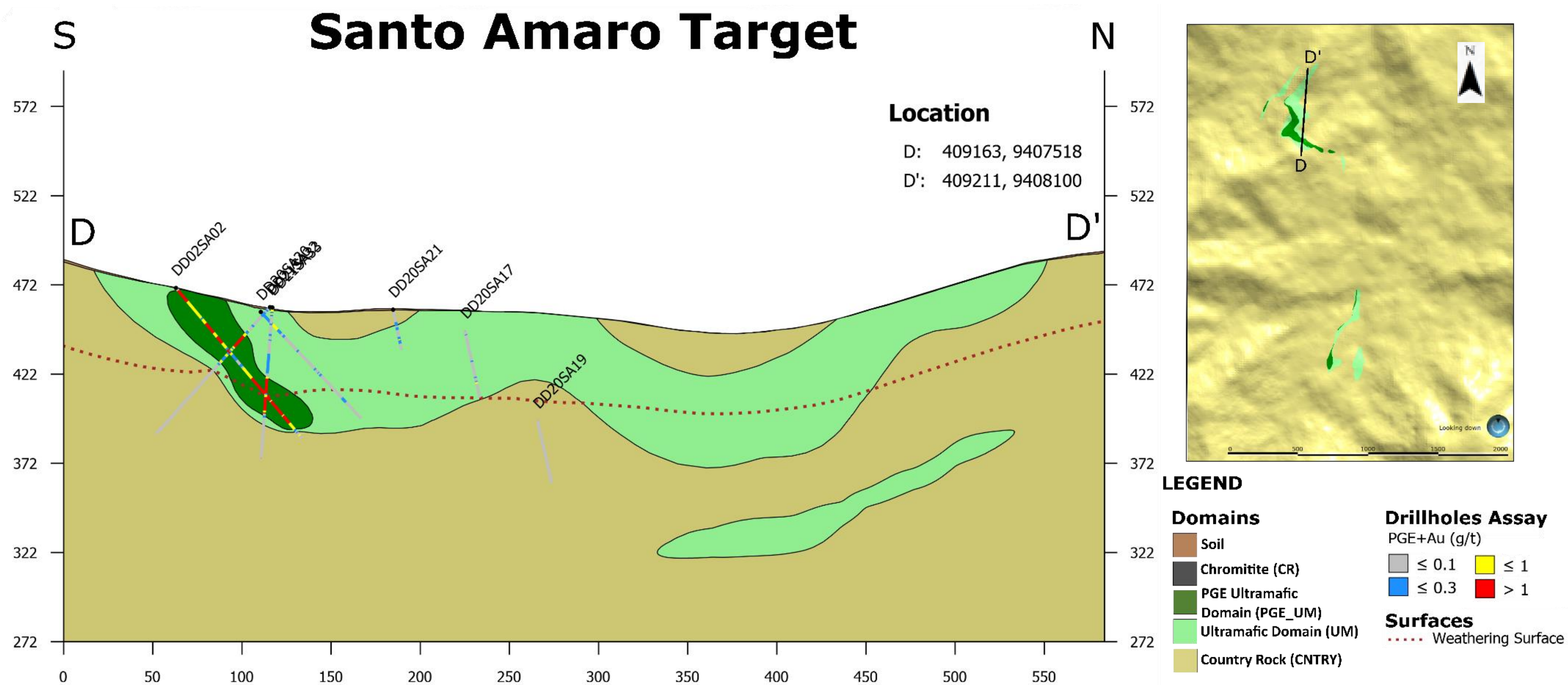


Figure 14-5: Plan View and Section of the 3D Geological Model - Santo Amaro Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

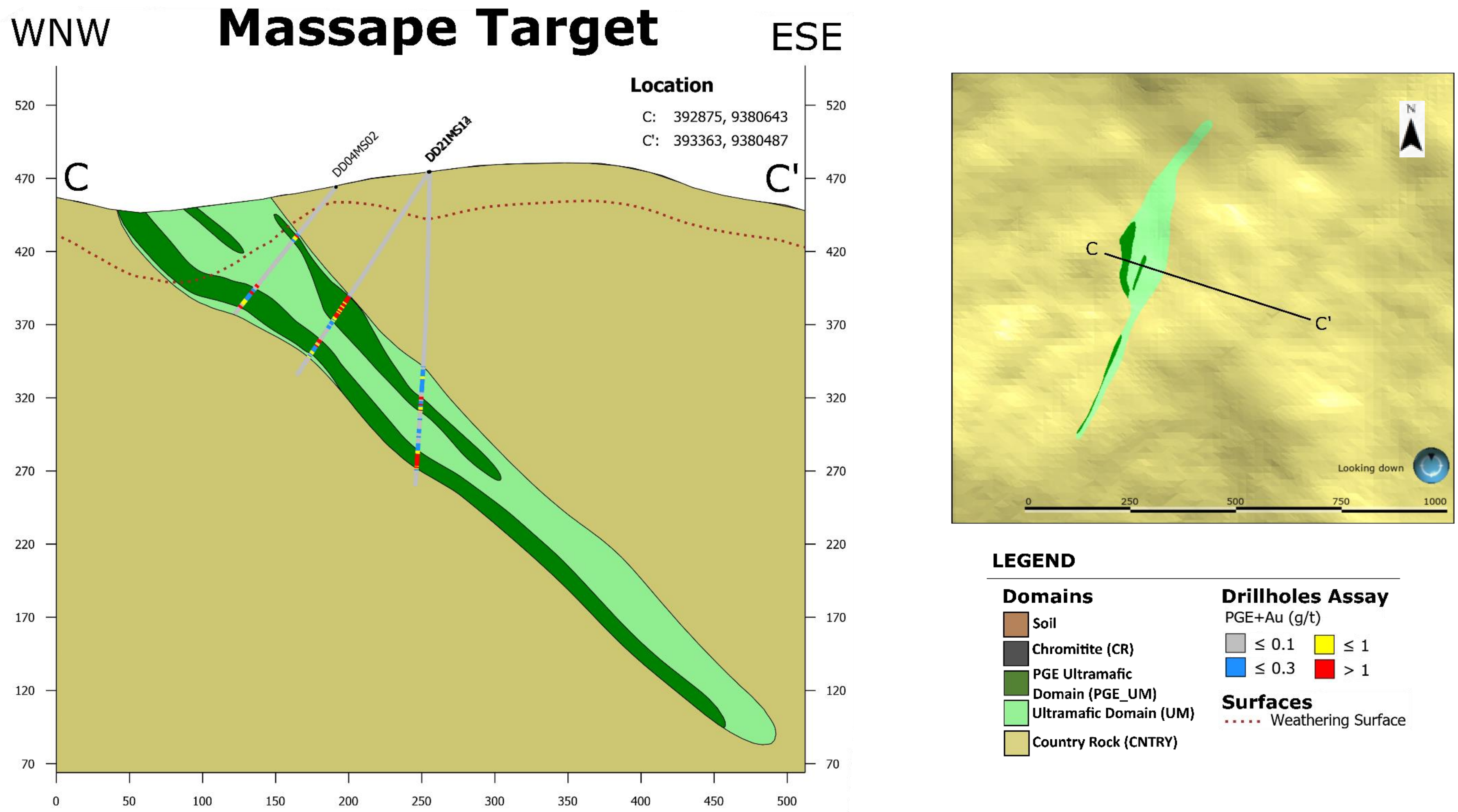


Figure 14-6: Plan View and Section of the 3D Geological Model - Massapê Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

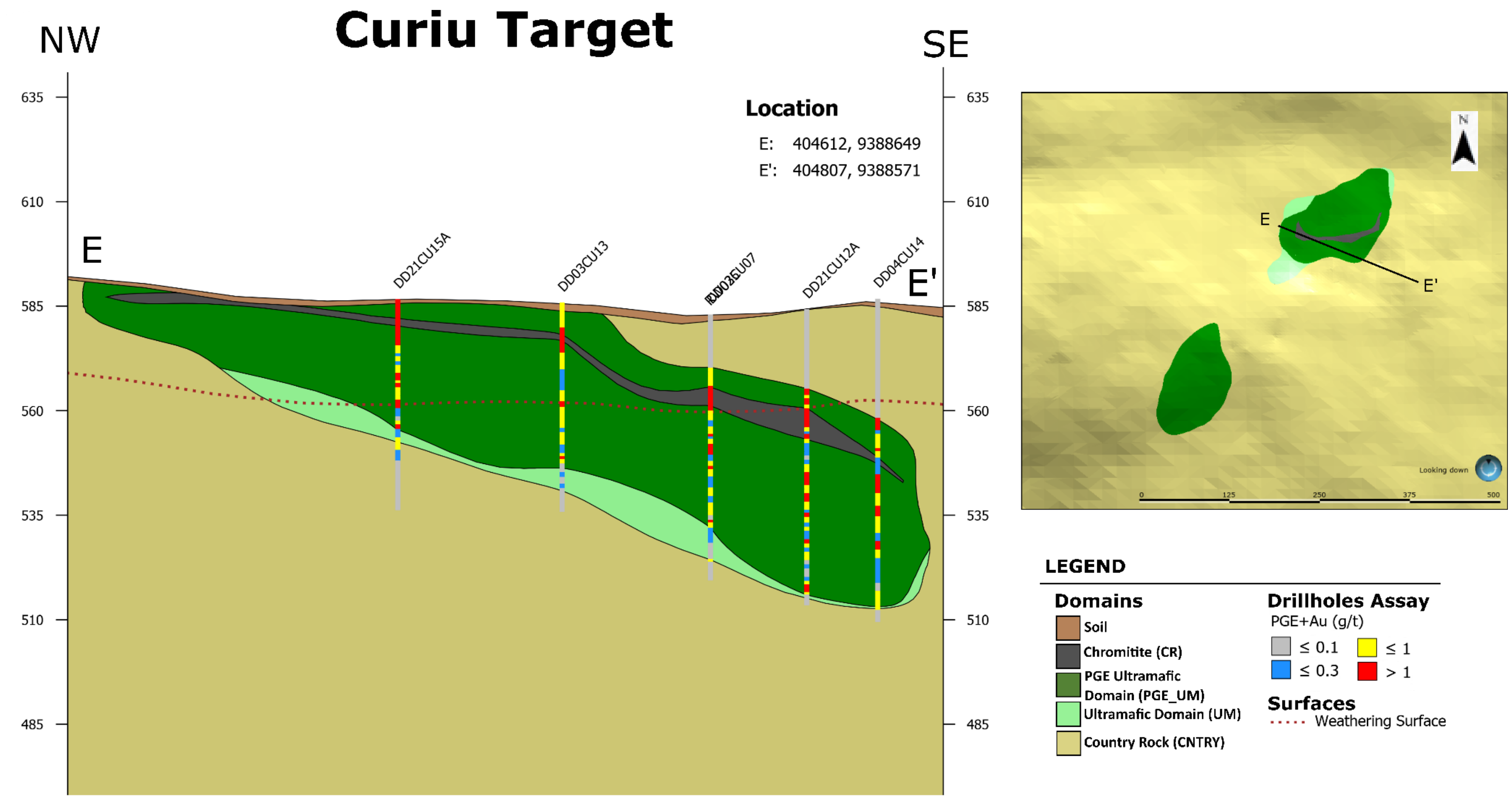


Figure 14-7: Plan View and Section of the 3D Geological Model - Curiú Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

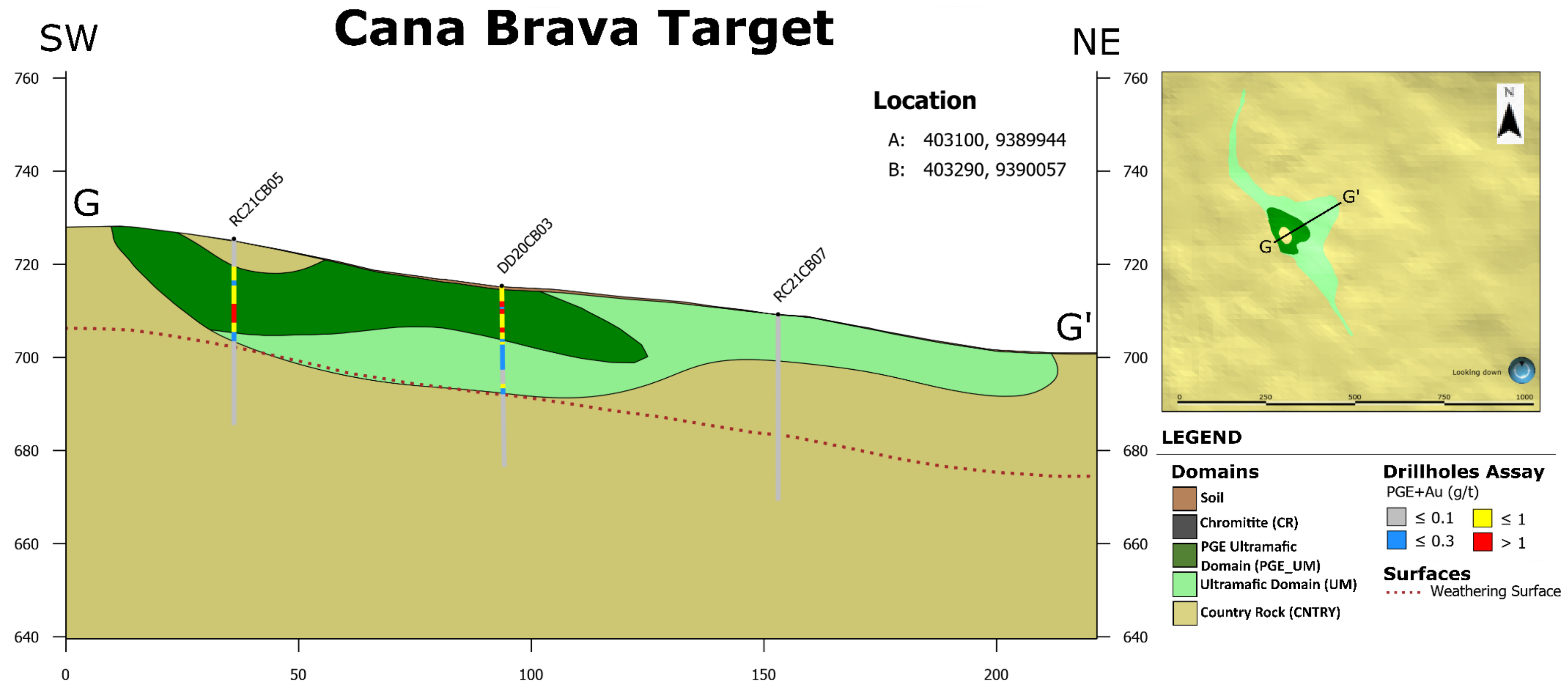


Figure 14-8: Plan View and Section of the 3D Geological Model - Cana Brava Target (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

14.4 Compositing

GE21 conducted the compositing of the samples aiming:

- To achieve uniform sample support;
- To reduce the impact of random variability; and
- To minimize the effect of averaging samples of skewed distribution.

GE21 conducted analysis of sampling support for 2020 and 2021 campaigns. The analysis showed that 1m corresponds to the modal length and that approximately 90% of the sample's interval lengths are lower than 1m. Composites with 1m were created within mineralized domains, with residual end length equally distributed if lower than 0.75m.

14.5 Exploratory Data Analysis

An Exploratory Data Analysis ("EDA") of composites was conducted upon Pd, Pt, and Au variables in the modeled domains. Weathered and fresh zones were analysed together in EDA. Leapfrog GEO/EDGE and Minitab software were used in this analysis.

Table 14-2 to Table 14-8 present the basic statistics of all targets for Pd (g/t), Pt (g/t), Au (g/t) and PGE+Au (g/t) variables. Figure 14-9 to Figure 14-12 present the boxplots for Pd (g/t), Pt (g/t), Au (g/t) and PGE+Au (g/t) grade distributions within modelled domains.

Table 14-2: Basic Statistics for Trapiá Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Median	Max	Variance	CV(%)
Trapiá	CR	Au	15	0.02	0.00	0.01	0.07	0.00	90.97
		Pd	15	4.05	0.21	3.61	11.65	16.19	99.37
		Pt	15	2.18	0.11	1.91	6.45	4.68	99.32
		PGE+Au	15	6.25	0.33	5.55	16.86	37.66	98.18
	PGE_UM	Au	1866	0.04	0.00	0.01	1.25	0.01	231.22
		Pd	1866	0.57	0.00	0.38	6.40	0.43	114.38
		Pt	1866	0.30	0.00	0.20	3.52	0.12	115.48
		PGE+Au	1866	0.91	0.00	0.63	9.17	0.95	106.54
	UM	Au	1827	0.01	0.00	0.01	0.14	0.00	142.08
		Pd	1827	0.04	0.00	0.01	1.12	0.00	156.67
		Pt	1827	0.02	0.00	0.01	0.44	0.00	143.77
		PGE+Au	1827	0.07	0.00	0.04	1.24	0.01	129.74

Table 14-3: Basic Statistics of Pd (g/t), Pt (g/t), Au (g/t) and PGE+Au (g/t) by domain for Cedro Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Median	Max	Variance	CV(%)
Cedro	PGE_UM	Au	1297	0.02	0.00	0.00	1.46	0.00	322.15
		Pd	1297	0.57	0.00	0.34	11.66	0.74	149.33
		Pt	1297	0.31	0.00	0.21	9.51	0.18	136.76
		PGE+Au	1297	0.91	0.00	0.57	20.65	1.55	137.34
	UM	Au	2518	0.00	0.00	0.00	0.28	0.00	405.12
		Pd	2518	0.05	0.00	0.03	6.83	0.02	296.75
		Pt	2518	0.04	0.00	0.03	8.16	0.03	388.15
		PGE+Au	2518	0.10	0.00	0.06	15.01	0.11	324.21

Table 14-4: Basic Statistics for Esbarro Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Median	Max	Variance	CV(%)
Esbarro	CR	Au	38	0.03	0.00	0.01	0.16	0.00	138.84
		Pd	38	4.77	0.10	2.92	19.36	20.94	95.88
		Pt	38	2.60	0.10	2.16	10.17	6.09	94.91
		PGE+Au	38	7.40	0.19	5.23	25.65	44.75	90.35
	PGE_UM	Au	2499	0.02	0.00	0.00	11.00	0.05	1395.59
		Pd	2499	0.72	0.00	0.40	10.14	1.00	139.34
		Pt	2499	0.37	0.00	0.24	24.79	0.47	183.16
		PGE+Au	2499	1.11	0.00	0.65	25.78	2.25	135.65
	UM	Au	2515	0.00	0.00	0.00	0.08	0.00	291.44
		Pd	2515	0.04	0.00	0.01	0.49	0.00	154.48
		Pt	2515	0.03	0.00	0.01	0.44	0.00	160.84
		PGE+Au	2515	0.07	0.00	0.03	0.86	0.01	133.18

Table 14-5: Basic Statistics for Santo Amaro Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Median	Max	Variance	CV(%)
Santo Amaro	PGE_UM	Au	1042	0.02	0.00	0.01	1.04	0.00	273.87
		Pd	1042	0.67	0.00	0.43	17.15	1.02	150.41
		Pt	1042	0.54	0.00	0.32	8.11	0.51	132.91
		PGE+Au	1042	1.23	0.00	0.80	26.30	2.74	134.39
	UM	Au	1440	0.01	0.00	0.01	0.08	0.00	72.05
		Pd	1440	0.06	0.00	0.04	1.75	0.01	145.02
		Pt	1440	0.03	0.00	0.02	0.40	0.00	116.92
		PGE+Au	1440	0.10	0.00	0.07	2.14	0.01	113.73

Table 14-6: Basic Statistics for Massapê Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Media	Max	Variance	CV(%)
Massapê	PGE_UM	Au	169	0.02	0.00	0.01	0.21	0.00	141.74
		Pd	169	0.94	0.03	0.42	9.02	1.68	138.57
		Pt	169	0.32	0.01	0.19	2.18	0.10	101.92
		PGE+Au	169	1.28	0.04	0.72	9.97	2.37	120.46
	UM	Au	530	0.01	0.00	0.01	0.05	0.00	81.07
		Pd	530	0.04	0.00	0.02	0.35	0.00	128.03
		Pt	530	0.02	0.00	0.01	0.21	0.00	117.89
		PGE+Au	530	0.07	0.00	0.05	0.58	0.00	104.09

Table 14-7: Basic Statistics for Curiú Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Median	Max	Variance	CV(%)
Curiú	CR	Au	45	0.21	0.00	0.15	0.60	0.03	75.97
		Pd	45	5.55	0.34	5.00	16.5	12.92	64.73
		Pt	45	3.66	0.38	3.84	9.27	3.43	50.64
		PGE+Au	45	9.42	0.83	10.03	23.5	27.95	56.12
	PGE_UM	Au	736	0.05	0.00	0.02	0.56	0.01	164.02
		Pd	736	0.87	0.01	0.44	7.98	1.15	123.20
		Pt	736	0.52	0.00	0.29	7.76	0.44	128.57
		PGE+Au	736	1.44	0.01	0.78	15.7	2.90	118.50
	UM	Au	108	0.01	0.00	0.00	0.08	0.00	149.76
		Pd	108	0.09	0.00	0.08	0.60	0.01	87.14
		Pt	108	0.07	0.00	0.06	0.29	0.00	78.52
		PGE+Au	108	0.17	0.00	0.16	0.97	0.02	75.42

Table 14-8: Basic Statistics for Cana Brava Target

Target	Domain	Variable (g/t)	Nº Samples	Mean	Min	Median	Max	Variance	CV(%)
Cana Brava	PGE_UM	Au	48	0.05	0.00	0.01	0.43	0.01	206.49
		Pd	48	0.70	0.08	0.37	4.33	0.65	115.62
		Pt	48	0.53	0.09	0.30	4.42	0.51	134.76
		PGE+Au	48	1.27	0.22	0.78	8.95	2.31	119.42
	UM	Au	129	0.01	0.00	0.01	0.03	0.00	58.28
		Pd	129	0.05	0.00	0.04	0.29	0.00	88.07
		Pt	129	0.03	0.00	0.02	0.18	0.00	99.69
		PGE+Au	129	0.10	0.00	0.07	0.49	0.01	82.58

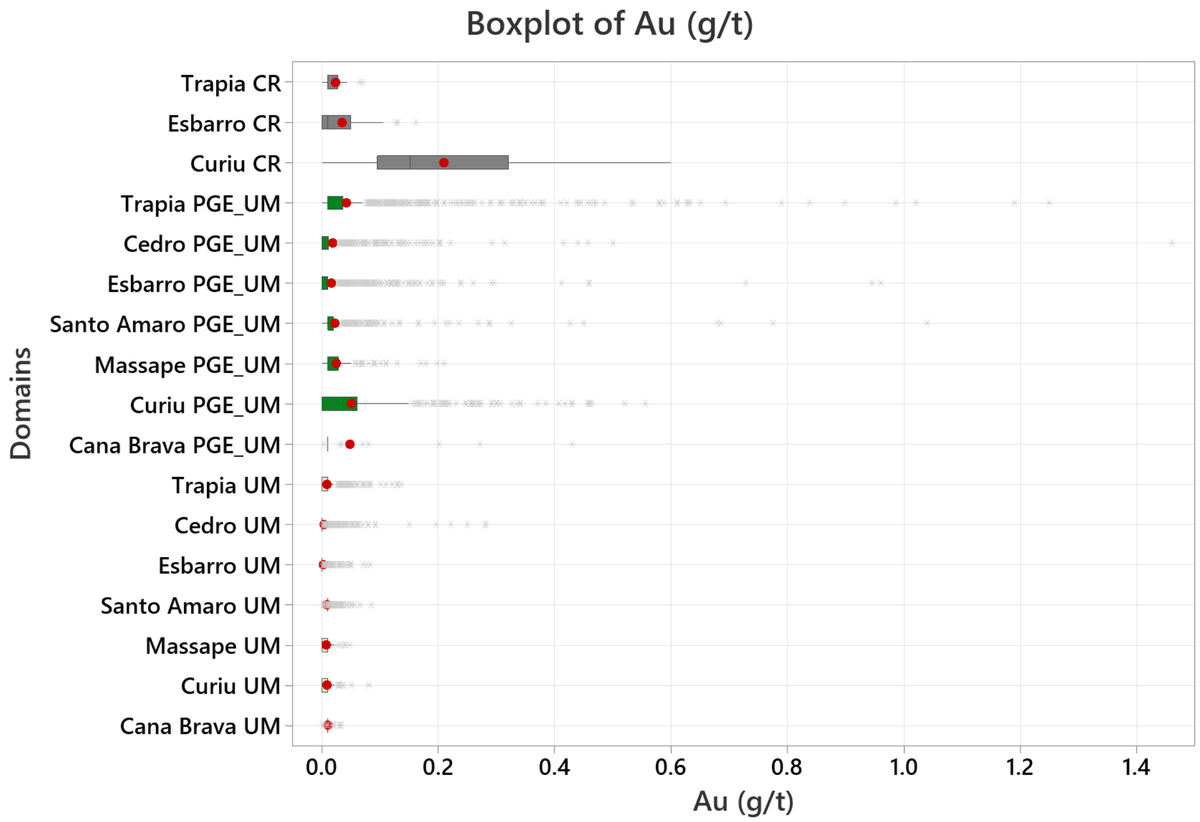


Figure 14-9: Boxplot for Au (g/t) Composites by Modelled Domain (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

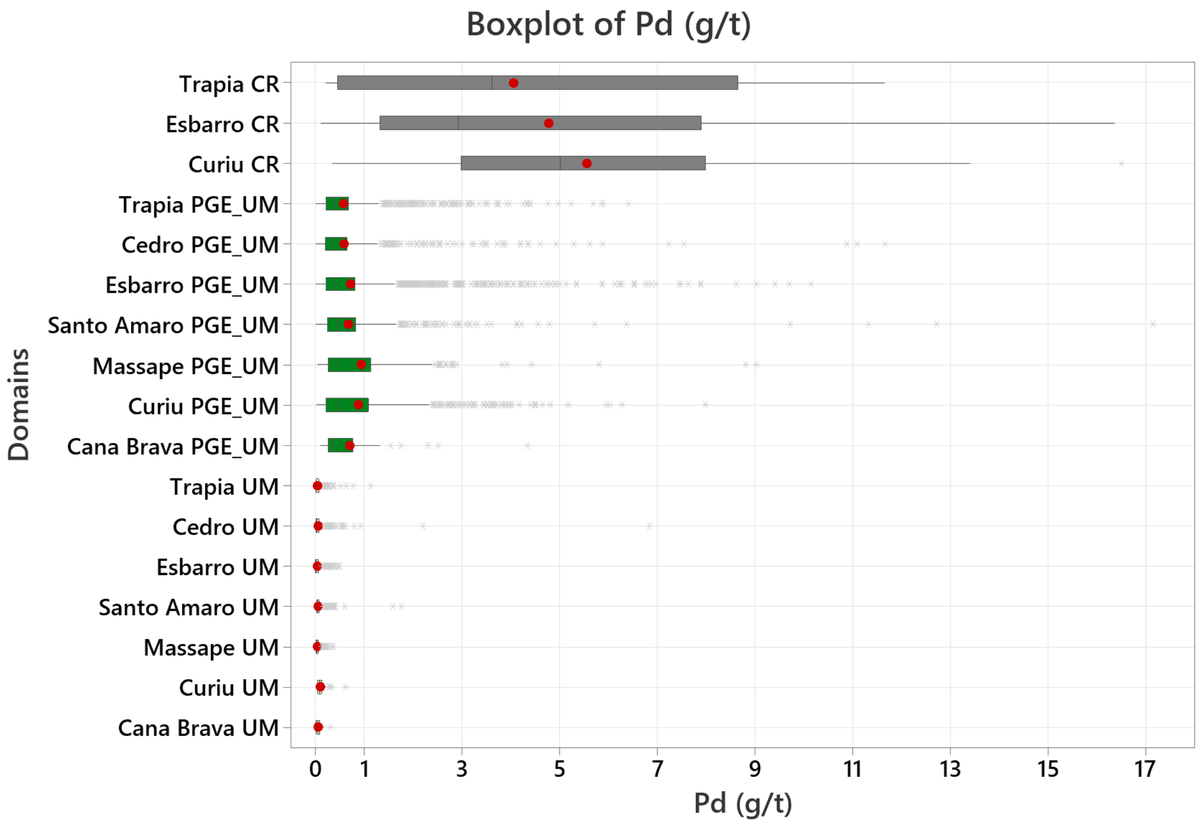


Figure 14-10: Boxplot for Pd (g/t) Composites by Modelled Domain (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

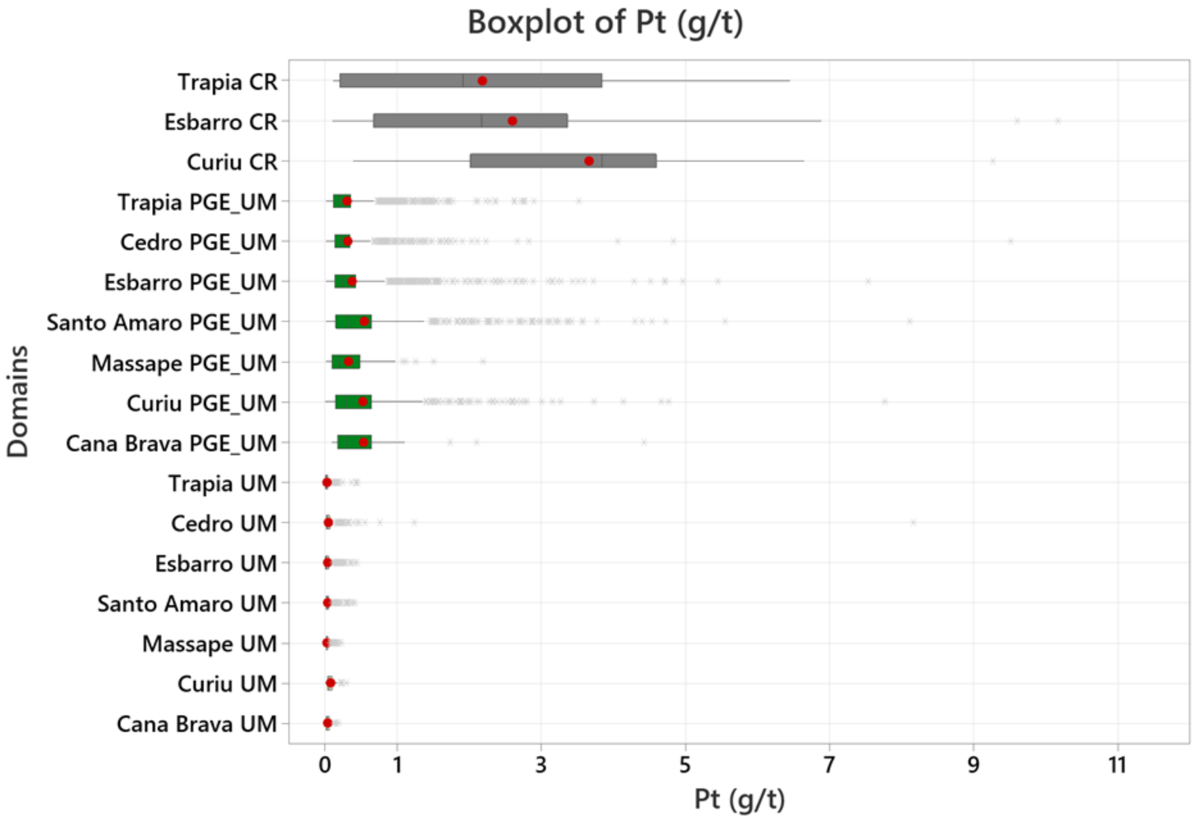


Figure 14-11: Boxplot for Pt (g/t) Composites by Modelled Domain (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

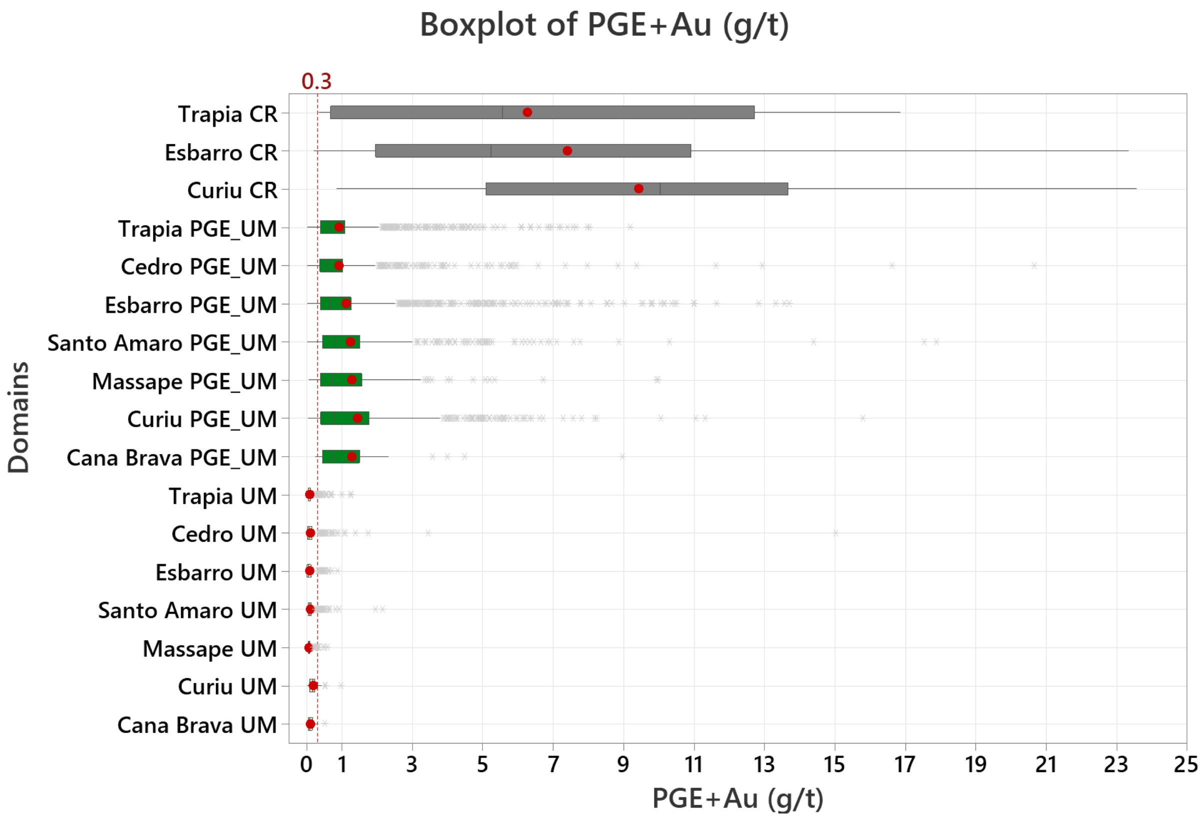


Figure 14-12: Boxplot for PGE+Au (g/t) Composites by Modelled Domain (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

14.5.1 Outliers Analysis

GE21 conducted an outlier values analysis which were defined by breaks on probability plot distribution curves from Pd and Pt inside UM and PGE_UM domains. No outlier values were defined to Au values. No outlier values were defined within CR domain.

Table 14-9 presents the results of outlier analysis for each target.

Table 14-9: Outliers Grade Values by Domains.

Target	Variable	Outlier Grade (g/t)
Trapiá	Pd	5.30
	Pt	1.90
Cedro	Pd	4.35
	Pt	1.70
Esbarro	Pd	4.90
	Pt	1.60
Santo Amaro	Pd	2.00
	Pt	2.85
Massapê	Pd	2.90
	Pt	0.90
Curiú	Pd	4.00
	Pt	2.60
Cana Brava	Pd	2.50
	Pt	2.10

14.6 Vaiogram Analysis

The variogram analysis was performed on the composited samples within PGE_UM Domain. UM and CR domains and Au variable did not present robust variograms due to low quantity of samples. All targets were evaluated individually, except the Cana Brava target that was used the Curiú variograms due to low quantity of samples. The Pd and Pt variogram models are similar and Au variogram model has low robustness. Therefore, a variogram unique was adopted for target

Figure 14-13 shows the Santo Amaro's variogram to Pd.

Table 14-10 shows a summary of variogram parametres for all targets.

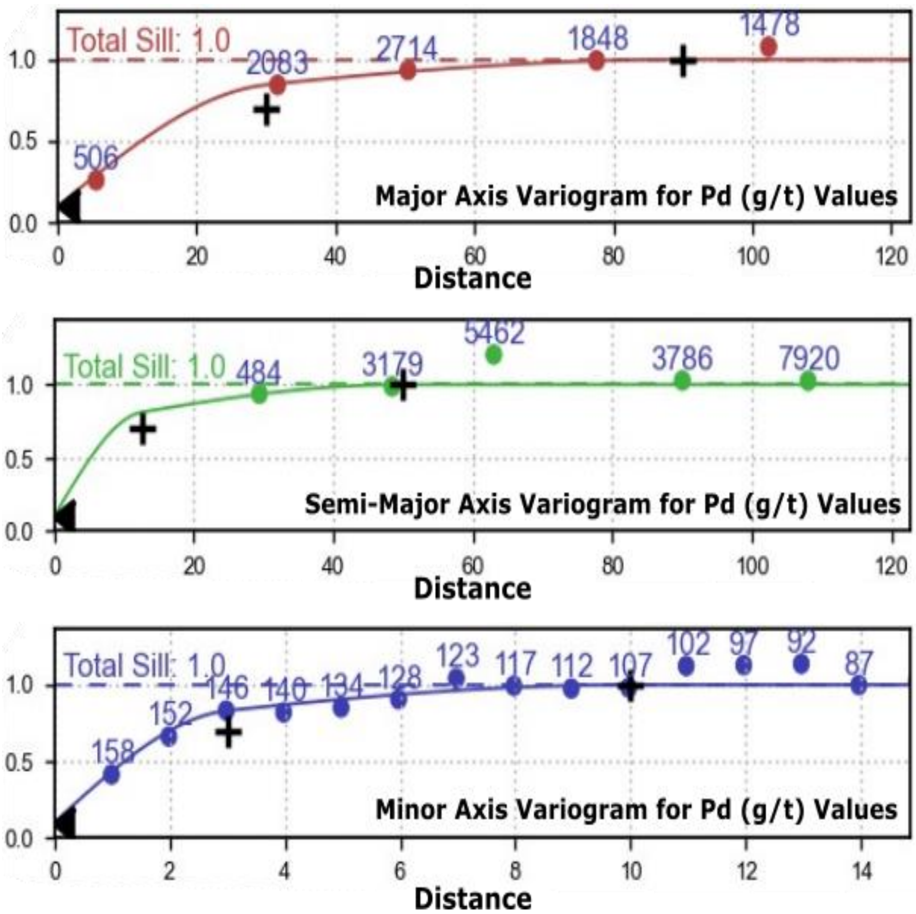


Figure 14-13: Variograms for Pd in PGE_UM Domain from Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Table 14-10: Summary of Variogram Used in the Pedra Branca Project.

General		Direction				Structure 1: Spherical				Structure 2: Spherical			
Target	Body	Dip	Dip Azimuth	Pitch	Normalised Nugget	Normalised sill	Major	Semi-major	Minor	Normalised sill	Major	Semi-major	Minor
Trapiá	1 to 4,6	25	110	10	0.12	0.4	35	35	3.5	0.48	120	120	12
	5	40	125	150	0.12	0.4	35	35	3.5	0.48	120	120	12
Cedro	1	25	95	155	0.1	0.5	25	25	3.5	0.4	70	70	12
Esbarro	1	13	215	25	0.06	0.34	7	7	3.5	0.6	24	24	12
Santo Amaro	3	20	110	0	0.1	0.6	30	12.5	3	0.3	90	50	10
	2	34	130	0	0.1	0.6	30	12.5	3	0.3	90	50	10
	1	60	30	54	0.1	0.6	30	12.5	3	0.3	90	50	10
Massapê	1	45	105	30	0.15	0.3	30	30	3	0.55	90	90	10
Curiú	1	16	130	160	0.15	0.4	25	25	3.5	0.45	85	85	12
Cana Brava	1	20	45	160	0.15	0.4	25	25	3.5	0.45	85	85	12

14.7 Block Model

Individual block models were constructed for each target for resource estimation purposes. Block dimensions, here applicable, are detailed in Table 14-11. Table 14-12 presents the block model attribute summary.

Table 14-11 Block Model Summary

Target	Coordinate	Minimum center	Maximum center	Parental Block Size (m)	Sub block size (m)	Rotation (°)
Trapiá	X	392155	394915	40	5	0
	Y	9372835	9376995	40	5	0
	Z	-146	758	4	2	0
Cedro	X	398960	401240	20	5	0
	Y	9385560	9388380	20	5	0
	Z	112	748	4	2	0
Esbarro	X	401130	403250	40	5	0
	Y	9386420	9387580	40	5	0
	Z	352	748	4	2	0
Santo Amaro	X	408660	410100	20	5	0
	Y	9405560	9408340	20	5	0
	Z	200	848	4	2	0
Massapê	X	392440	393760	40	5	0
	Y	9379550	9381470	40	5	0
	Z	4	648	4	2	0
Curiú	X	404255	405045	10	5	0
	Y	9388205	9388945	10	5	0
	Z	452	776	4	2	0
Cana Brava	X	402890	403630	20	5	0
	Y	9389570	9390470	20	5	0
	Z	602	818	4	2	0

Table 14-12 Block Model Attributes Summary

Variable Name	Type	Description
Au_ok	Numeric	Gold grade estimated by Ordinary Kriging and recorded in grams per tonnes (g/t)
Pd_ok	Numeric	Palladium grade estimated by Ordinary Kriging and recorded in grams per tonnes (g/t)
Pt_ok	Numeric	Platinum grade estimated by Ordinary Kriging and recorded in grams per tonnes (g/t)
PGE_Au_ok	Numeric	Au (g/t) + Pd (g/t) + Pt (g/t)

Pd_eq	Numeric	Palladium-equivalent (g/t)
domain	Categorical	Geological Domains
density	Numeric	Estimated Density (g/cm³)
rec_class	Categorical	Resource Classification: 0 = Not Classified; 3 = Inferred; 4 = Potential
weathering	Categorical	Weathering Domains

GE21 performed a validation of the block model by comparing the geological wireframes and the block grade model both visually and volumetrically. The results show a good fit in the volumetric ratio (defined as the block model volume/wireframe volume). Values are within the acceptable limit of variation of <0.5%. Table 14-13 present the results of volumetric validation.

Table 14-13 Volumetric Validation: Geological Model x Block Model

Target	Domain	Volume (m³)		Difference
		3D wireframes	Block Model	
Trapiá	UM	29 245 430	29 242 800	-0.01%
	PGE_UM	14 794 475	14 790 600	-0.03%
	CR	81 553	81 400	-0.19%
Cedro	UM	28 234 817	28 236 050	0.00%
	PGE_UM	8 041 160	8 040 700	-0.01%
Esbarro	UM	7 981 600	7 981 050	-0.01%
	PGE_UM	3 416 045	3 415 800	-0.01%
	CR	68 941	69 200	0.37%
Santo Amaro	UM	12 180 500	12 184 200	0.03%
	PGE_UM	2 025 500	2 030 500	0.25%
Massapê	UM	7 787 900	7 790 050	0.03%
	PGE_UM	2 346 500	2 347 950	0.06%
Curiú	UM	207 450	207 300	-0.07%
	PGE_UM	780 620	780 300	-0.04%
	CR	29 903	30 050	0.49%
Cana Brava	UM	861 120	861 650	0.06%
	PGE_UM	307 480	306 700	-0.25%

14.8 Grade Estimate

The mineral resources estimation observed orientation, type and continuity of the mineralization and the drill grid spacing, within each domain. The Ordinary Kriging ("OK") method was used for estimative of Pd (g/t), Pt (g/t) and Au (g/t) grades in modeled domains. Estimation was conducted considering the results of variogram and outliers' analysis.

The estimation was performed in 5 steps according to the parametres presented in Table 14-14. It was used a variable orientation of source ellipsoid based on general orientation of each orebody. The search radius was based on the variogram range of each domain. It was used discretization of blocks of x=4; y=4; z=2 in the estimative.

A high-grade restriction method was applied to the composite Pd and Pt grades to restrict the influence of the outliers used on the Ordinary Kriging method. Composites with grades higher than value defined as outliers (Table 14-9) and located beyond the distance of approximately 1/3 of variogram range from the block were capped to the outlier grade value. No capping was applied within CR domain.

Table 14-14: Kriging Strategy

Step	Drilling source	Search radius	Minimum number of samples	Maximum number of samples	Maximum number of samples per drill hole
1	DD 2020 e 2021	~2/3 of range	3	8	2
2	DD 2020 e 2021	~1 of range	3	8	2
3	DD 2020 e 2021	~1.5 of range	3	8	2
4	All campaigns	~2.5 of range	3	8	2
5	All campaigns	>2.5 of range	1	8	2

14.8.1 Validation

Validation for estimated grade was carried out with a comparative Nearest Neighbouring estimation (“NN”) and with a visual validation of the interpolated grades.

A visual inspection of the grades and domains block model interpolation was conducted upon the drillholes information in vertical sections. An example of a visual validation for Santo Amaro deposit is shown in Figure 14-14.

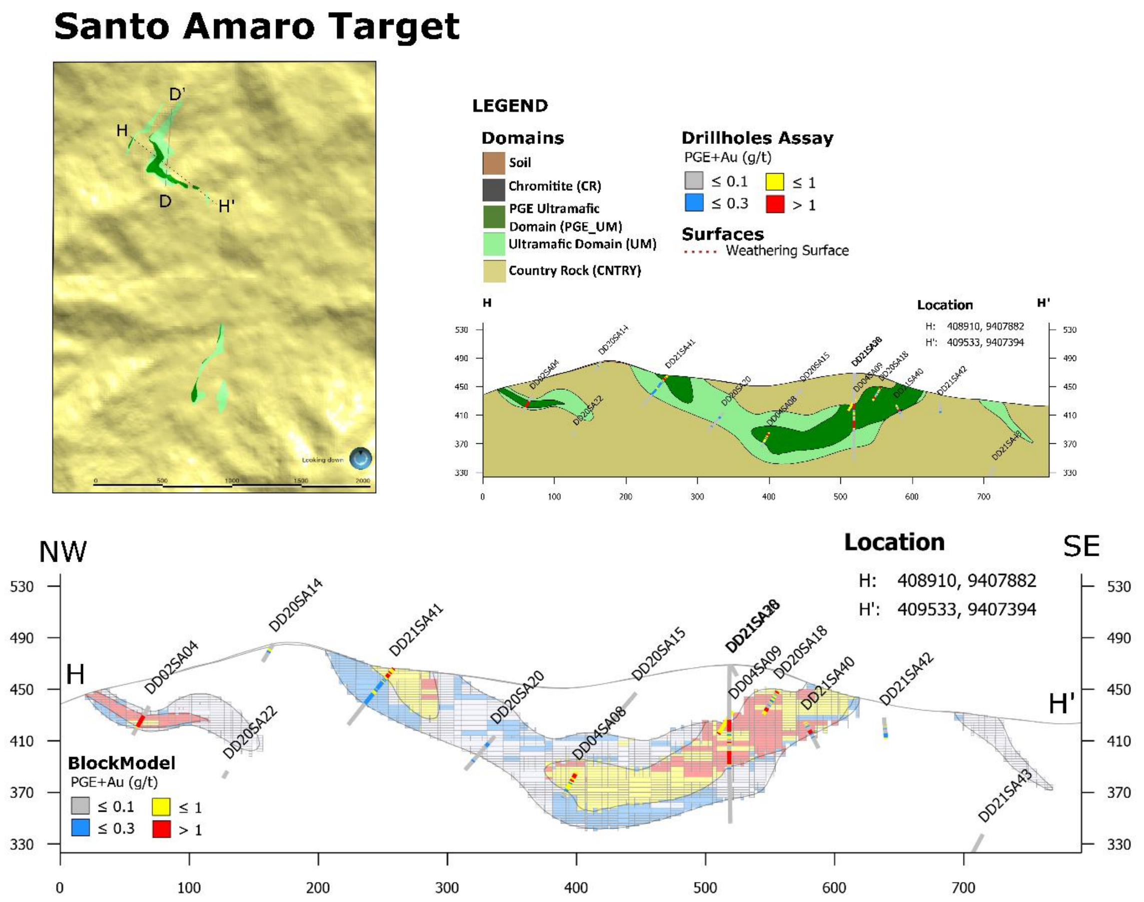


Figure 14-14: Block Model Visual Validation for Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

GE21 evaluated the overall bias of the current Mineral Resource estimate via comparison of the OK derived estimates to that of the NN method. The NN method consists of arriving at a Mineral Resource estimate using only one pass, whereby the block being estimated is designated as having the same grade as the sample that is closest to it, within the parametres of geospatial anisotropy defined by the search ellipsoid. Comparison of this grade with the grade that was estimated for the model using OK provides a check on the influence of sample bias.

The estimate validation was performed with the aid of kriging histograms, scatter plots and quantile-quantile (“Q-Q”) plots used to check for the occurrence of global bias and occurrence of smoothing due to Kriging. Figure 14-15 to Figure 14-17 present the comparative statistics between Ordinary Kriging and Nearest Neighbour estimations performed to Santo Amaro Target.

The NN validation method made it possible to check for the occurrence of estimate smoothing due to Kriging, within what is expected for the type of mine and the dimensions of the block model. The NN comparison demonstrates that the Kriging method employed for the current Mineral Resource estimate respected the average grades.

NN-Check - Santo Amaro - Pd (g/t)

Nearest Neighbour

Variable	Pd
Litology	Resource
N. of Samples	40610
Minimum	0.01
Maximum	9.72
Average	0.557
Variance	0.46
Std Deviation	0.67

Percentile

	Value
2.5%	0.01
5%	0.08
25%	0.25
Median	0.37
75%	0.7
95%	1.31
97.5%	1.8

Ordinary Kriging

Variable	Pd
Litology	Resource
N. of Samples	40610
Minimum	0.01
Maximum	3.57
Average	0.565
Variance	0.09
Std Deviation	0.3

Percentile

	Value
2.5%	0.2
5%	0.22
25%	0.34
Median	0.52
75%	0.71
95%	1.07
97.5%	1.29

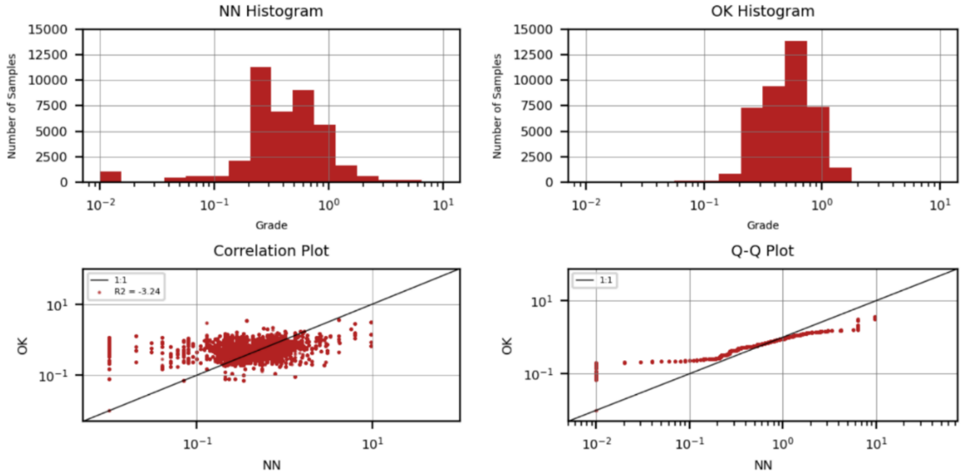


Figure 14-15: Comparative Statistics - NN Check - Pd - Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

NN-Check - Santo Amaro - Pt (g/t)

Nearest Neighbour

Variable	Pt
Litology	Resource
N. of Samples	40610
Minimum	0.01
Maximum	4.53
Average	0.441
Variance	0.3
Std Deviation	0.55

Percentile

	Value
2.5%	0.01
5%	0.04
25%	0.14
Median	0.3
75%	0.49
95%	1.64
97.5%	2.28

Ordinary Kriging

Variable	Pt
Litology	Resource
N. of Samples	40610
Minimum	0.01
Maximum	2.79
Average	0.453
Variance	0.1
Std Deviation	0.32

Percentile

	Value
2.5%	0.12
5%	0.14
25%	0.25
Median	0.35
75%	0.54
95%	1.09
97.5%	1.41

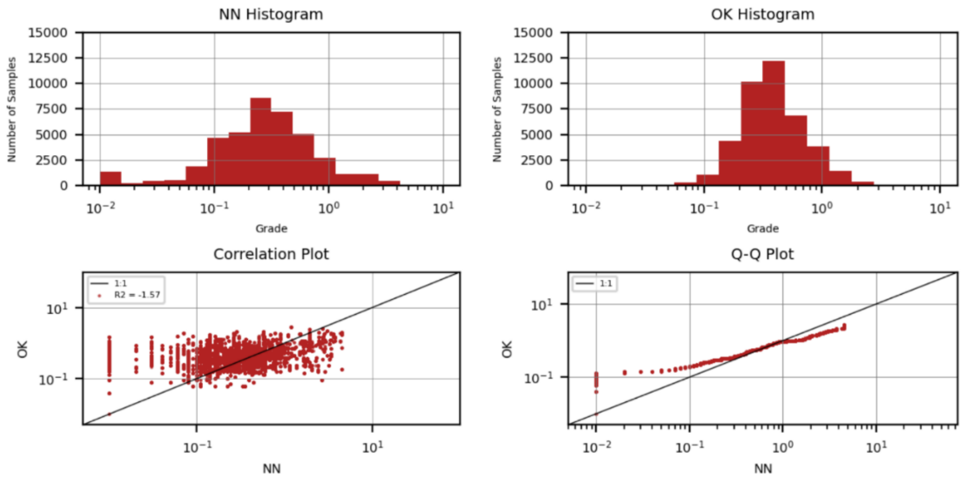


Figure 14-16: Comparative Statistics - NN Check - Pt - Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

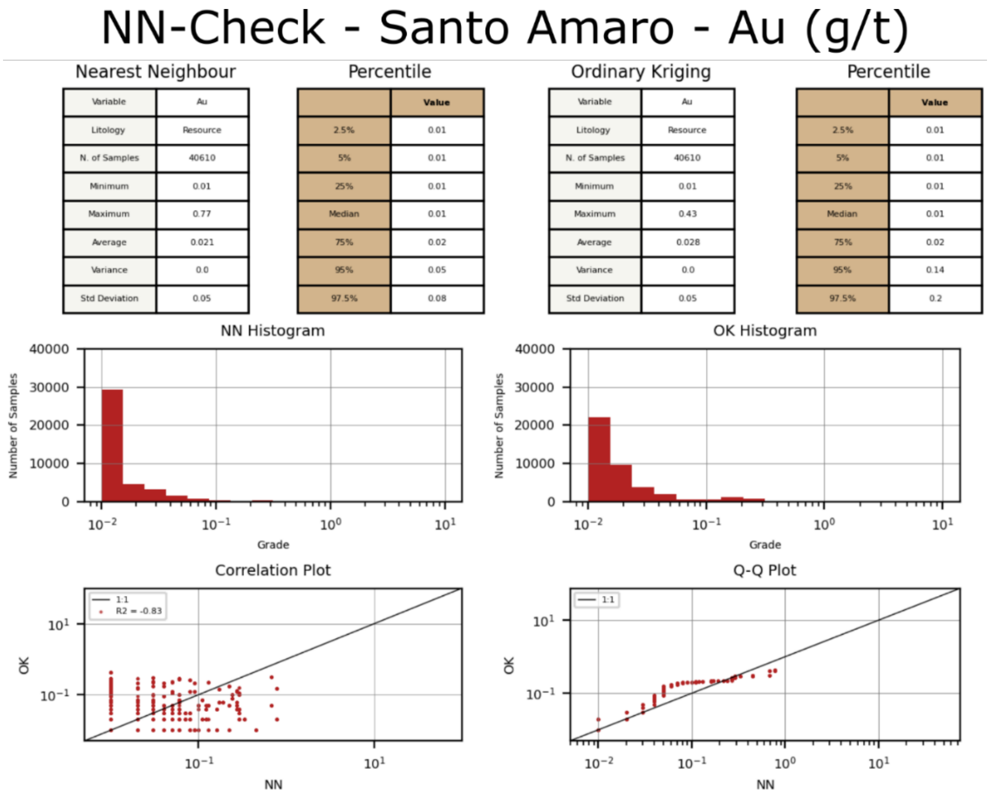


Figure 14-17: Comparative Statistics - NN Check - Au - Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Local validation via the Swath Plot method (Drift Analysis) was performed to analyse the occurrence of any localized biases. The method sought to compare the average in estimated grades for the mineral resources model obtained using the ordinary kriging methodology, with the grades that were estimated using the NN method for the same x, y or z coordinates. No significant localized biases were observed when comparing the ordinary kriging to NN methods for the mineral resource estimate. Figure 14-18 to Figure 14-20 presents the Drift Analysis performed to the Santo Amaro target.

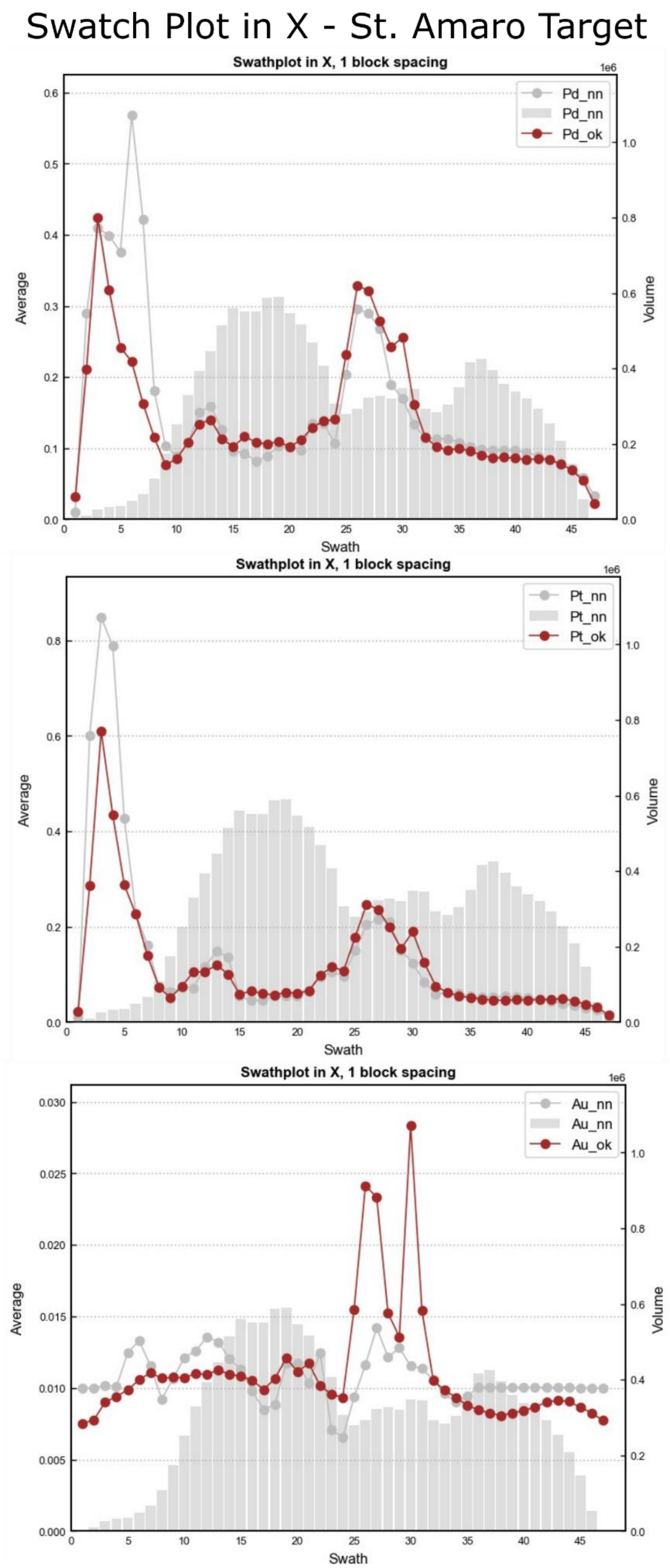


Figure 14-18: Swatch Plots in X for Pd, Pt and Au – Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

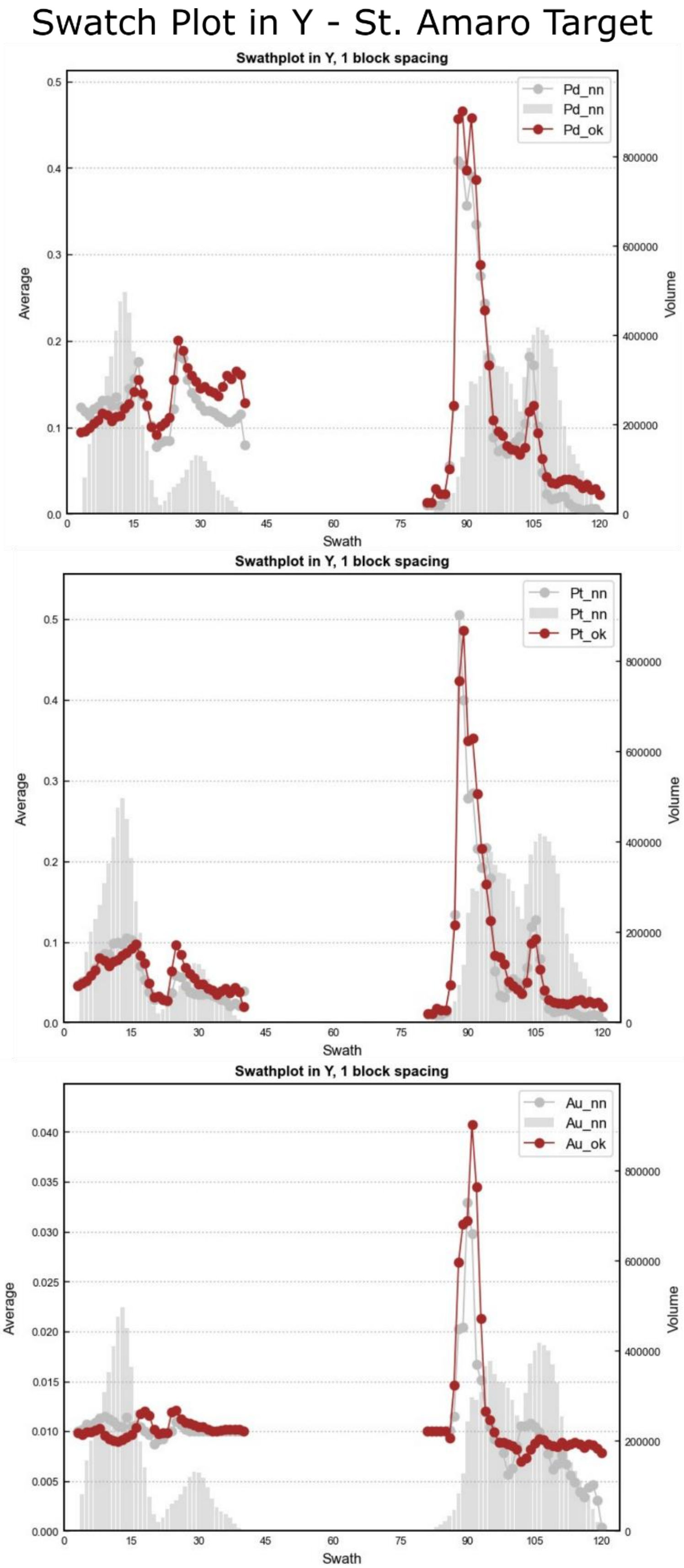


Figure 14-19: Swatch Plots in Y for Pd, Pt and Au – Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

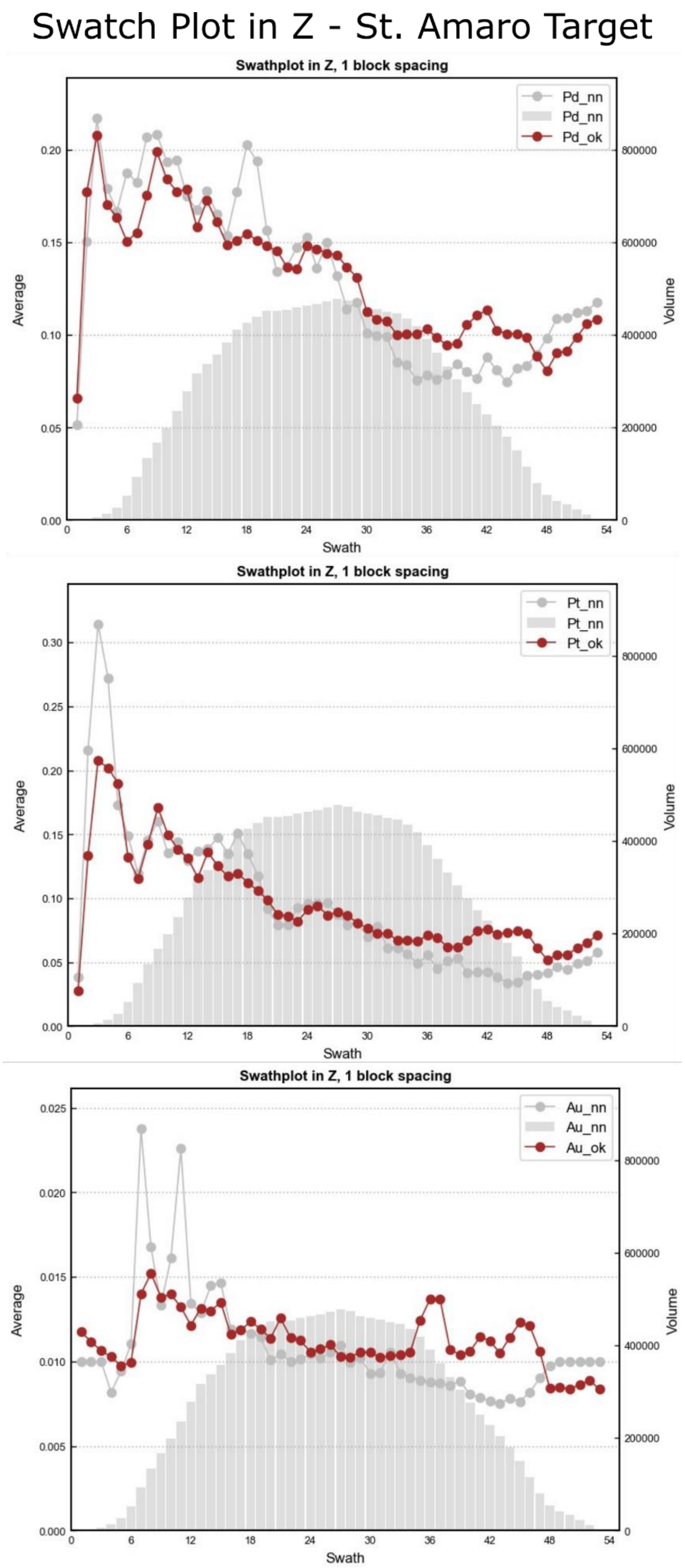


Figure 14-20: Swatch Plots in Z for Pd, Pt and Au – Santo Amaro Deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

14.9 Density Estimate

The density applied in the block model was defined by two different methodologies.

For the soil domain and for the lithologies grouped as Country Rocks, that corresponds to the host rock of the layered ultramafic sequence, density values were defined as discrete values. These values were defined from the univariate statistic of the density data within each Geological domain and separated by weathering zones (weathered and fresh rock). In the same way, discrete density values were also defined for the UM and PGE_UM domains of the Cana Brava target, since few density data were available for this target. Table 14-15 summarises the density values defined to the domains mentioned above.

Table 14-15: Discrete Density Values Defined by Univariate Statistics

Domain	Weathering	Density (g/cm³)
Soil	Weathered	1.65
Country Rock	Weathered	2.63
	Fresh	2.75
UM and PGE_UM from Cana Brava Target	Weathered	2.63
	Fresh	2.98

For UM, PGE_UM and CR domains it was estimated by Inverse Distance Weight (“IDW”). The estimative was performed separately on weathering zones without individualizing UM, PGE_UM and CR domains.

The density estimation was performed with minimum of (1), maximum of (4) samples and maximum (2) samples by drill hole. A dynamic anisotropic orientation based on bodies orientations was defined by the search ellipsoid. No compositing was applied to density samples. Table 14-16 presents basic statistics of density estimation subdivided by target, geological and weathering domains.

Table 14-16: Descriptive Statistics of Estimated Density Values Summarised by Deposit, Domain and Weathering.

Target	Domain	Weathering	Mean	Std	CV	Var	Min	Median	Max
Trapiá	CR	weathered	2.63	0	0	0	2.63	2.63	2.65
		fresh	2.82	0.16	0.06	0.02	2.5	2.79	3.39
	PGE_UM	weathered	2.67	0.13	0.05	0.02	2.18	2.64	2.96
		fresh	2.87	0.11	0.04	0.01	2.3	2.87	3.39
	UM	weathered	2.54	0.16	0.06	0.03	1.57	2.58	2.93
		fresh	2.91	0.1	0.03	0.01	2.2	2.93	3.23
Cedro	PGE_UM	weathered	2.45	0.46	0.19	0.21	1.15	2.63	3.17
		fresh	2.88	0.13	0.04	0.02	2.28	2.92	3.21
	UM	weathered	2.58	0.31	0.12	0.09	1.21	2.69	3.17
		fresh	2.82	0.11	0.04	0.01	2.28	2.83	3.21
Esbarro	CR	weathered	2.44	0.37	0.15	0.14	1.47	2.39	3.52
		fresh	2.88	0.2	0.07	0.04	1.78	2.94	3.13
	PGE_UM	weathered	2.19	0.49	0.23	0.24	1.1	2.25	3.52
		fresh	2.88	0.15	0.05	0.02	1.78	2.91	3.17
	UM	weathered	2.11	0.45	0.21	0.2	1.21	2.06	3.1
		fresh	2.86	0.12	0.04	0.01	2.29	2.88	3.17
Santo Amaro	PGE_UM	weathered	2.44	0.43	0.18	0.18	1.34	2.55	3.28
		fresh	2.91	0.12	0.04	0.02	2.1	2.93	3.22
	UM	weathered	2.3	0.38	0.17	0.15	1.27	2.37	3.28
		fresh	2.92	0.08	0.03	0.01	2.1	2.94	3.22
Massapê	PGE_UM	weathered	2.77	0.25	0.09	0.06	1.6	2.84	3.01
		fresh	2.9	0.16	0.06	0.03	1.54	2.93	3.16
	UM	weathered	2.55	0.38	0.15	0.15	1.47	2.66	3.01
		fresh	2.88	0.13	0.05	0.02	1.54	2.9	3.16
Curiú	CR	weathered	2.51	0.43	0.17	0.18	1.27	2.67	2.99
		fresh	2.96	0.2	0.07	0.04	2.5	2.92	3.58
	PGE_UM	weathered	2.42	0.4	0.16	0.16	1.22	2.46	3.11
		fresh	2.89	0.12	0.04	0.01	2.42	2.9	3.56
	UM	weathered	2.57	0.23	0.09	0.05	1.71	2.66	3.05
		fresh	2.8	0.15	0.05	0.02	2.29	2.82	3.12

14.10 Mineral Resource Classification

The definitions of Mineral Resources established by CIM are:

A "Mineral Resource" is a concentration or occurrence of solid material of economic interest in or on the earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge.

- An "Inferred Mineral Resource" is that part of a Mineral Resource for which quantity and grade or quality can be estimated on the basis of geological evidence and limited sampling and reasonably assumed, but not verified, geological and grade continuity. The estimate is based on limited information and sampling gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes;
- An "Indicated Mineral Resource" is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics, can be estimated with a level of confidence sufficient to allow the appropriate application of technical and economic parametres, to support mine planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough for geological and grade continuity to be reasonably assumed;
- A "Measured Mineral Resource" is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are so well established that they can be estimated with confidence sufficient to allow the appropriate application of technical and economic parametres, to support production planning and evaluation of the economic viability of the deposit. The estimate is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes that are spaced closely enough to confirm both geological and grade continuity.

Mineralized material was initially classified into the Mineral Resources or Potential Targets categories based on the following criteria:

- Only PGE_UM and CR domains were classified as Mineral Resources;
- Mineral Resources were limited in depth in cases where the interpreted depth of mineralization exceeded the average depth of the adjacent modeled mineralized bodies. In these cases, the underlying portions were classified as Potential Target;
- Mineral Resources were limited to tenements.

The CIM Best Practice Guidelines for estimating Mineral Resources require the factors significant to project economics be current, reasonably developed and based on generally accepted industry practice and experience. In establishing the cut-off grade, it must realistically reflect the location, deposit scale, continuity, assumed mining method, metallurgical processes, costs and reasonable long-term metal prices and foreign exchange rates.

When it comes to deposits favorable for open-pit mining methods, it is the opinion of the authors of this Report that a Lerchs-Grossman ("LG") pit of Mineral Resources categories captures the required inputs under CIM Best Practices. The LG method is an efficient means by which to assess the reasonable prospects for eventual economic extraction of material that can be mined via open pit methods.

The main parametres used to define the open pit shells for purposes of mineral resource estimation are detailed in Table 14-17. Only the blocks within the conceptual pit envelope were considered as current mineral resource. The optimization of the resource pit was performed in Geovia Whittle software.

Table 14-17: Pit Optimization Parametres

ITEM				UNIT
Domains	Fresh & Weathered Rocks			
Slope Angle	Overall		55	°
Mining	Density	Block Model		
	Reference Mining Cost	Waste	2.00	US$/t mined
		ROM	2.00	US$/t mined
	Mining Recovery	100		%
	Mining Dilution	0		%
	MCAF	Tenements		
	Cut-off grade (Whittle)	Fresh	-	g/t Au
		Weathered	-	g/t Au
Processing	Weathered	Processing Cost	12+1.5(G&A)	US$/t ROM
		Pd recovery	68.0%	Mill
		Pt recovery	67.0%	Mill
		Au recovery	40.0%	Mill
	Fresh	Processing Cost	12+1.5 (G&A)	US$/t ROM
		Pd recovery	71.0%	Mill
		Pt recovery	82.9%	Mill
		Au recovery	85.2%	Mill
Selling	Price	Au	1800	USD/t.oz
		Pd	2000	USD/t.oz
		Pt	1000	USD/t.oz
	Royalties	All	2	%

The results from the cut-off grade analysis are detailed below.

14.10.1 Cut-off Grade Analysis

A cut-off grade analysis was performed by GE21 to support the Mineral Resources Statement. The results of resources pit presented coherent with the cut-off grade 0.35 g/t equivalent Pd, calculated as showed below. This cut-off grade shows a good correlation with 0.4 g/t of PGE+Au. Table 14-17 contains the parametres applied on this calculation. Figure 14-21 shows the scatter plot Equivalent Palladium vs PGE+Au calculated from the grade estimates.

Cut Off Grade = Costs/DGV

Costs = Processing Costs + Mining Costs + G&A = 15.50 US$/t

DGV (Deposit Grade Value) = ((Equivalent palladium content price - Royalties costs) * Metallurgical recovery)

Weathered Domain

(2 000.00 US$/oz. – 40.00 US$/oz / 31.1035) * 0.68 = 42.85 US$/g

Cut Off Grade = 15.5 US$/t / 42.85 US$/g = 0.36 g/t Pd (equivalent palladium grade)

Fresh Domain

(2 000.00 US$/oz. – 40.00 US$/oz / 31.1035) * 0.71 = 44.74 US$/g

Cut Off Grade = 15.5 US$/t / 44.74 US$/g = 0.35 g/t Pd (equivalent palladium grade)

Palladium Equivalent Grades (Pd_eq) were calculated using the formula:

Pd_eq (g/t) = Pd (g/t) + (Au (g/t) * (Au Price/Pd Price) * (Au Recovery/Pd Recovery)) + ((Pt (g/t) * (Pt Price/Pd Price) * (Pt Recovery/Pd Recovery))

PGE+Au Grades were calculated using the formula:

PGE+Au = Pd (g/t) + Pt (g/t) + Au (g/t)

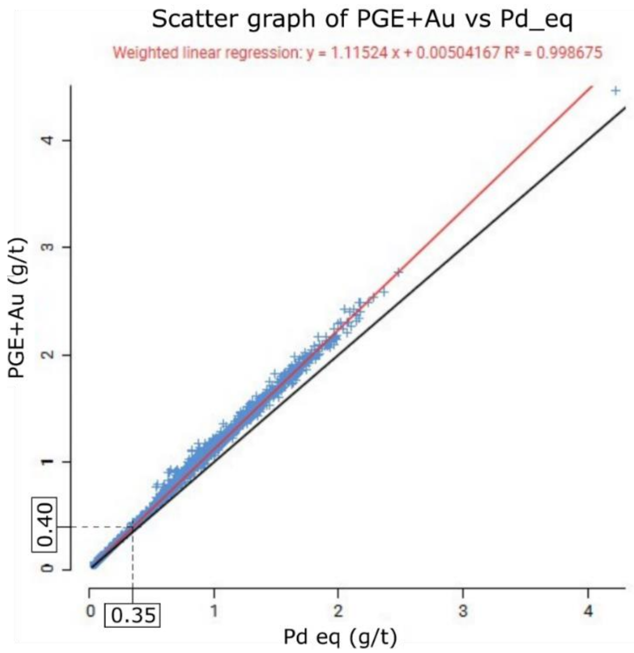


Figure 14-21: Correlation Between PGE+Au and Pd_eq Grades within UM, PGE_UM and CR Domains (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

14.10.2 Mineral Resource Statements

In considering the overall quality and quantity of data and confidence in the conceptual limits of the mining process that were utilized in the Mineral Resource estimate, the estimate was classified as Inferred using local geometric restrictions to guarantee the spatial continuity of classification.

All blocks into the UM_PGE and CR domains within the defined pit shell and tenements limits were considered as Mineral Resource aims respect the spatial continuity.

Figure 14-22 presents the Mineral Resources in perspective for the northern portion of Santo Amaro Target. Table 14-18 summarizes the Pedra Branca Resources. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Table 14-19 sows the cut-off sensibility analysis.

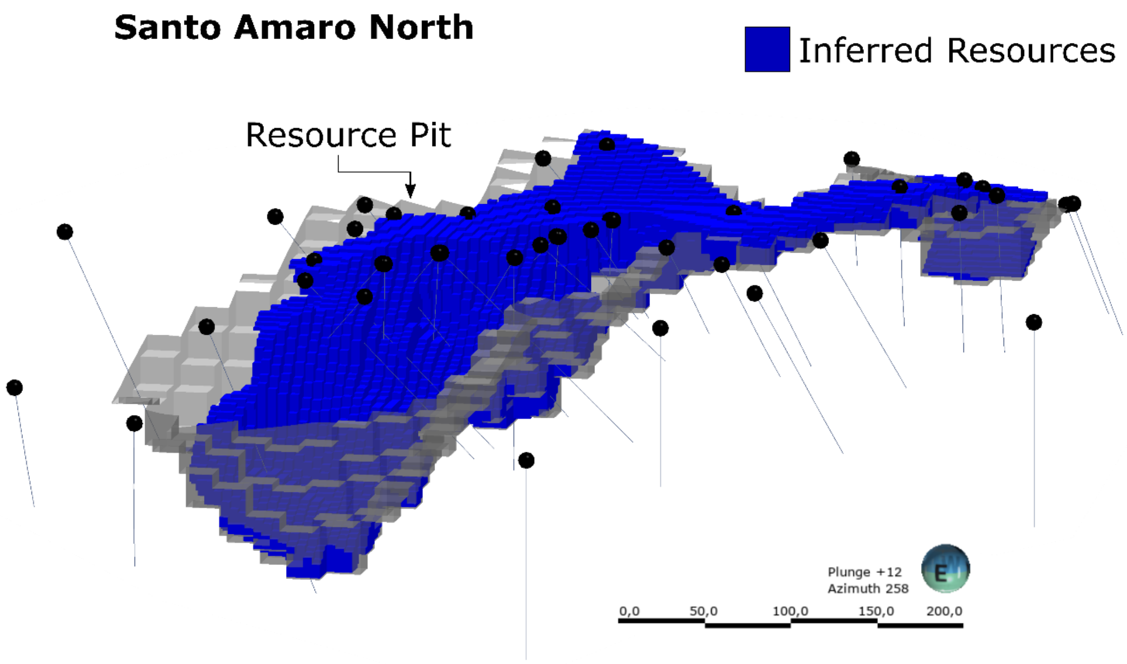


Figure 14-22: Inferred Resources in the Northern Portion of the Santo Amaro deposit (Source: Fábio Valério Câmara Xavier, Geologist, MAIG – this report).

Table 14-18: Pedra Branca Mineral Resource

Target	Weathering	Mass	Average Value					Material Content				
		Mass	**Au**	**Pd**	**Pt**	**Pd eq**	**PGE+Au**	**Au**	**Pd**	**Pt**	**Pd eq**	**PGE+Au**
		kt	g/t	g/t	g/t	g/t	g/t	koz	koz	koz	koz	koz
Trapiá	Weathered	4 547.12	0.02	0.53	0.30	0.69	0.85	3.26	77.13	44.58	100.82	124.97
	Fresh	24 238.76	0.04	0.63	0.31	0.85	0.98	30.44	488.30	241.75	662.31	760.49
	Total	**28 785.88**	**0.04**	**0.61**	**0.31**	**0.82**	**0.96**	**33.69**	**565.43**	**286.33**	**763.13**	**885.46**
Cedro	Weathered	3 023.54	0.01	0.71	0.34	0.88	1.06	1.07	69.05	32.90	85.82	103.02
	Fresh	10 610.17	0.01	0.65	0.37	0.88	1.03	4.99	220.47	124.64	298.63	350.10
	Total	**13 633.71**	**0.01**	**0.66**	**0.36**	**0.88**	**1.03**	**6.05**	**289.53**	**157.54**	**384.45**	**453.12**
Esbarro	Weathered	4 712.74	0.05	0.79	0.41	1.02	1.25	7.73	119.64	61.92	154.24	189.29
	Fresh	6 070.93	0.01	0.72	0.36	0.94	1.09	2.37	139.87	71.23	184.02	213.47
	Total	**10 783.68**	**0.03**	**0.75**	**0.38**	**0.98**	**1.16**	**10.11**	**259.51**	**133.15**	**338.26**	**402.77**
Santo Amaro	Weathered	2 104.78	0.02	0.56	0.47	0.80	1.06	1.67	37.80	32.03	54.46	71.49
	Fresh	2 169.46	0.04	0.63	0.49	0.96	1.16	2.54	44.27	34.24	66.99	81.04
	Total	**4 274.24**	**0.03**	**0.60**	**0.48**	**0.88**	**1.11**	**4.20**	**82.06**	**66.27**	**121.45**	**152.53**
Massapê	Weathered	601.27	0.03	0.88	0.33	1.05	1.23	0.57	16.94	6.31	20.35	23.82
	Fresh	2 710.42	0.02	0.85	0.33	1.07	1.20	1.79	74.25	28.89	93.04	104.92
	Total	**3 311.69**	**0.02**	**0.86**	**0.33**	**1.06**	**1.21**	**2.36**	**91.18**	**35.19**	**113.39**	**128.74**
Curiú	Weathered	1 147.91	0.06	1.64	1.07	2.20	2.77	2.39	60.37	39.54	81.11	102.30
	Fresh	974.02	0.05	0.91	0.56	1.30	1.53	1.71	28.55	17.60	40.68	47.87
	Total	**2 121.93**	**0.06**	**1.30**	**0.84**	**1.79**	**2.20**	**4.10**	**88.92**	**57.14**	**121.79**	**150.17**
Cana Brava	Weathered	523.56	0.04	0.63	0.44	0.87	1.12	0.72	10.69	7.43	14.73	18.83
	Fresh	133.80	0.02	0.84	0.59	1.20	1.44	0.07	3.61	2.53	5.16	6.21
	Total	**657.36**	**0.04**	**0.68**	**0.47**	**0.94**	**1.18**	**0.79**	**14.30**	**9.96**	**19.89**	**25.04**
All Targets	Weathered	16 660.93	0.03	0.73	0.42	0.95	1.18	17.40	391.61	224.71	511.53	633.72
	Fresh	46 907.56	0.03	0.66	0.35	0.90	1.04	43.91	999.32	520.88	1 350.84	1 564.11
	Total	**63 568.48**	**0.03**	**0.68**	**0.36**	**0.91**	**1.08**	**61.31**	**1 390.94**	**745.58**	**1 862.36**	**2 197.83**

1. Mineral Resources which are not mineral reserves, do not have demonstrated economic viability.
2. The Mineral Resource estimates were prepared in accordance with the CIM Standards, and the CIM Guidelines, using geostatistical, plus economic and mining parametres appropriate to the deposit.
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    - Curiú: 10m x 10m x 4m with sub-block 5m x 5m x 2m.
11. PGE+Au grade = Pt g/t + Pd g/t + Au g/t.

Table 14-19: Pedra Branca Mineral Resource – Cut-off Sensibility Analysis

Target	Cutoff	Mass	*Average Value*					*Material Content*				
			OK_Au	OK_Pd	OK_Pt	Pd_eq_ok	PGE_Au_ok	OK_Au	OK_Pd	OK_Pt	Pd_eq_ok	PGE_Au_ok
	g/t PGE+Au	kt	g/t	g/t	g/t	g/t	g/t	thousand t. oz	thousand t. oz	thousand t. oz	thousand t. oz	thousand t. oz
Trapia	Sem cutoff	28 785.88	0.04	0.61	0.31	0.82	0.96	33.69	565.43	286.33	763.13	885.46
	0.30	28 416.63	0.04	0.62	0.31	0.83	0.97	33.44	563.90	285.23	760.67	882.56
	0.40	27 458.69	0.04	0.63	0.32	0.85	0.99	32.59	557.52	281.47	751.22	871.57
	0.50	25 328.58	0.04	0.66	0.33	0.89	1.03	31.05	538.61	270.79	724.61	840.45
	0.60	21 808.57	0.04	0.71	0.36	0.96	1.11	27.81	500.30	249.89	671.01	778.00
Cedro	Sem cutoff	13 633.71	0.01	0.66	0.36	0.88	1.03	6.05	289.53	157.54	384.45	453.12
	0.30	13 528.27	0.01	0.66	0.36	0.88	1.04	6.04	289.12	157.23	383.85	452.39
	0.40	13 118.46	0.01	0.68	0.37	0.90	1.06	5.96	286.41	155.32	379.99	447.69
	0.50	11 929.59	0.01	0.72	0.39	0.95	1.12	5.68	276.00	148.53	365.51	430.21
	0.60	10 011.73	0.02	0.79	0.42	1.05	1.23	5.28	255.47	135.66	337.43	396.41
Esbarro	Sem cutoff	10 783.68	0.03	0.75	0.38	0.98	1.16	10.11	259.51	133.15	338.26	402.77
	0.30	10 713.14	0.03	0.75	0.39	0.98	1.17	10.10	259.22	132.81	337.79	402.14
	0.40	10 403.88	0.03	0.77	0.39	1.00	1.19	10.05	257.24	131.34	334.96	398.64
	0.50	9 594.28	0.03	0.81	0.41	1.05	1.25	9.93	250.48	126.34	325.31	386.75
	0.60	8 653.45	0.03	0.86	0.43	1.12	1.33	9.64	240.32	120.13	311.51	370.08
Santo Amaro	Sem cutoff	4 274.24	0.03	0.60	0.48	0.88	1.11	4.20	82.06	66.27	121.45	152.53
	0.30	4 233.44	0.03	0.60	0.49	0.89	1.12	4.18	81.92	66.16	121.23	152.26
	0.40	4 155.02	0.03	0.61	0.49	0.90	1.13	4.15	81.43	65.79	120.52	151.37
	0.50	3 932.10	0.03	0.63	0.51	0.93	1.17	4.05	79.63	64.46	117.96	148.14
	0.60	3 536.71	0.03	0.67	0.54	0.99	1.24	3.88	75.79	61.42	112.33	141.09
Massape	Sem cutoff	3 311.69	0.02	0.86	0.33	1.06	1.21	2.36	91.18	35.19	113.39	128.74
	0.30	3 270.23	0.02	0.87	0.33	1.08	1.22	2.35	90.98	35.08	113.11	128.41
	0.40	3 198.45	0.02	0.88	0.34	1.09	1.24	2.31	90.42	34.85	112.37	127.57
	0.50	3 046.78	0.02	0.91	0.35	1.13	1.28	2.26	89.12	34.03	110.57	125.41
	0.60	2 847.58	0.02	0.95	0.36	1.17	1.33	2.17	86.80	32.97	107.54	121.94
Curiu	Sem cutoff	2 121.93	0.06	1.30	0.84	1.79	2.20	4.10	88.92	57.14	121.79	150.17
	0.30	2 045.55	0.06	1.35	0.86	1.85	2.27	4.07	88.72	56.83	121.38	149.62
	0.40	1 998.26	0.06	1.38	0.88	1.88	2.32	4.04	88.44	56.61	120.95	149.09
	0.50	1 949.20	0.06	1.41	0.90	1.92	2.37	4.01	88.05	56.32	120.37	148.38
	0.60	1 887.08	0.07	1.44	0.92	1.97	2.43	3.95	87.41	55.93	119.46	147.29
Cana Brava	Sem cutoff	657.36	0.04	0.68	0.47	0.94	1.18	0.79	14.30	9.96	19.89	25.04
	0.30	657.36	0.04	0.68	0.47	0.94	1.18	0.79	14.30	9.96	19.89	25.04
	0.40	657.36	0.04	0.68	0.47	0.94	1.18	0.79	14.30	9.96	19.89	25.04
	0.50	642.00	0.04	0.69	0.48	0.95	1.20	0.78	14.17	9.85	19.71	24.80
	0.60	571.92	0.04	0.73	0.51	1.02	1.28	0.74	13.47	9.34	18.74	23.56
All targets	Sem cutoff	63 568.48	0.03	0.68	0.36	0.91	1.08	61.31	1 390.94	745.58	1 862.36	2 197.83
	0.30	62 864.63	0.03	0.69	0.37	0.92	1.08	60.97	1 388.16	743.30	1 857.92	2 192.42
	0.40	60 990.12	0.03	0.70	0.37	0.94	1.11	59.88	1 375.76	735.33	1 839.90	2 170.96
	0.50	56 422.54	0.03	0.74	0.39	0.98	1.16	57.75	1 336.07	710.32	1 784.03	2 104.15
	0.60	49 317.05	0.03	0.79	0.42	1.06	1.25	53.47	1 259.57	665.33	1 678.02	1 978.36

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   - Metallurgical Recoveries:
     - Weathered rock: 68% for Pd, 67% for Pt and 40% for Au;
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10. Blocks estimated by Ordinary Kriging at support of:
    - Trapiá, Massapê, Esbarro: 40m x 40m x 4m with sub-block 5m x 5m x 2m;
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    - Curiú: 10m x 10m x 4m with sub-block 5m x 5m x 2m.
11. PGE+Au grade = Pt g/t + Pd g/t + Au g/t.

15 Mineral Reserve Estimates

This section is not relevant to this report.

16 Mining Methods

This section is not relevant to this report.

17 Recovery Methods

This section is not relevant to this report.

18 Project Infrastructure

This section is not relevant to this report.

19 Market Studies and Contracts

This section is not relevant to this report.

20 Environmental Studies, Permitting and Social or Community Impact

This section is not relevant to this report.

21 Capital and Operating Costs

This section is not relevant to this report.

22 Economic Analysis

This section is not relevant to this report.

23 Adjacent Properties

South Atlantic Gold

Approximately 10 km to the west and northwest of the Pedra Branca exploration licences, South Atlantic Gold holds a 100% interest (from Jaguar Mining) in 25 active mineral exploration licenses covering nearly 40,000 ha of a regional shear zone in the Tróia Greenstone Belt (South Atlantic Gold - https://southatlanticgold.com/projects/pedra-branca/). South Atlantic completed a maiden Inferred Mineral Resource in 2021: 4,042,000 t grading 1.38 g/t Au for 180,000 ounces of gold (South Atlantic, 2019). This project is also referred to at Pedra Branca.

Jangada Mines

Jangada Mines is developing the Pitombeiras Vanadium project, bordering ValOre's on its southwest margin. Mineralization consists of iron, vanadium and titanium associated with magnetite and magnetite-rich horizons hosted in mafic sequence of the Tróia Unit.

Jangada reported in 2021 a NI 43-101 compliant mineral resource estimate update, with Measured and Indicated Resources of 5.10 Mt at 0.46% V_2O_5, 9.04% TiO_2 and 46.06% of Fe_2O_3 and an Inferred Resource of 2.33 Mt at 0.41% V_2O_5, 8.26% TiO_2 and 43.18% of Fe_2O_3.

Quarries

There are two quarries bordering the Pedra Branca licences that are currently mining dimension stone (marble).

24 Other Relevant Data and Information

No relevant information was considered by authors.

25 Interpretation and Conclusions

GE21 has been commissioned by ValOre Metals Corp (“ValOre”) to prepare a Mineral Resource Estimative for the Pedra Branca Platinum Group Metals (PGM) Project in Ceará, Brazil, in accordance with the directives of CIM National Instrument 43-101 (NI 43-101).

The effective date for the resource estimate, "Effective Date" of March 08, 2022, is based on the date of relevant metallurgical test work data (lock cycle test results).

The principal Qualified Person with respect to the objectives of this report is Fábio Valério Câmara Xavier. Mr. Xavier visited the project on January 18 to 20, 2022 and was responsible for developing the project's geological interpretations and modelling, in addition to activities related to QAQC procedures and the Mineral Resource Estimate. Mr. Xavier, a geologist, is a member of the Australian Institute of Geoscientists and has more than 19 years experience in working with mining projects.

Sampling protocols and QAQC program implemented in the 2020-2021 campaigns were considered in accordance with industry best practices. Overall, the QAQC results are of an acceptable quality to support Mineral Resource estimation proposes.

A total of 315 (23,606 m) historical drillholes and 147 (16,495 m) drillholes conducted by ValOre were used in the estimate.

The tridimensional geological model was developed using Leapfrog implicit modelling. The ultramafic rock bodies (UM) were refined in the 3D geological model with a cut-off limit of 0.3 g/t PGE+Au, resulting in mineralized domains (PGE_UM) with orientation based on UM domains. Chromitite layers (CR) were individualized only for the targets that presented representative intersections with spatial continuity through the UM layer (Trapiá, Esbarro and Curiú targets).

The estimative of Pd (g/t), Pt (g/t) and Au (g/t) grades was conducted by Ordinary Kriging supported by geostatistical analysis.

In considering the overall quality and quantity of data and confidence in the conceptual limits of the mining process that were utilized in the Mineral Resource Estimate, the estimate was classified as Inferred using local geometric restrictions to guarantee the spatial continuity of classification.

All blocks into the UM_PGE and CR domains within the defined pit shell and tenements limits were considered as Mineral Resource aims respect the spatial continuity. The pit shell was conducted to assess the reasonable prospects for economic extraction of material that can be mined via open pit methods. It was created by a pit optimization performed in Geovia Whittle software using the following the geometric and economic parametres:

- Pit slope angles: 55°;
- Price: Pd=US$2000/oz, Pt=US$1000/oz and Au=US$1800/oz;
- Costs: Mining costs=US$2.00/t; Milling=US$12.00/t; G&A=US$1.50/t;
- Metallurgical Recoveries:
    - Weathered rock: 68% for Pd, 67% for Pt and 40% for Au;
    - Fresh rock: 71% for Pd, 82.9% for Pt and 85.2% for Au.

Mineral Resources are associated to a cut-off grade of 0.4 g/t PGE+Au, correlated to Pd_eq. Grade of 0.35 g/t.

The project has the following opportunities:

- Increase the resource volumes, as many zones remain open along strike and at depth;
- Upgrade mineral resource category by increasing the drillhole density and by continuing the validation of the historic data by the completion of additional twin holes.

The risk associated with project development is water supply, and a hydrological study would help advance the understanding of groundwater resources.

Table 25-1: Pedra Branca Mineral Resource

Target	Weathering	Mass	Average Value					Material Content				
			Au	**Pd**	**Pt**	**Pd eq**	**PGE+Au**	**Au**	**Pd**	**Pt**	**Pd eq**	**PGE+Au**
		kt	g/t	g/t	g/t	g/t	g/t	koz	koz	koz	koz	koz
Trapiá	Weathered	4 547.12	0.02	0.53	0.30	0.69	0.85	3.26	77.13	44.58	100.82	124.97
	Fresh	24 238.76	0.04	0.63	0.31	0.85	0.98	30.44	488.30	241.75	662.31	760.49
	Total	**28 785.88**	**0.04**	**0.61**	**0.31**	**0.82**	**0.96**	**33.69**	**565.43**	**286.33**	**763.13**	**885.46**
Cedro	Weathered	3 023.54	0.01	0.71	0.34	0.88	1.06	1.07	69.05	32.90	85.82	103.02
	Fresh	10 610.17	0.01	0.65	0.37	0.88	1.03	4.99	220.47	124.64	298.63	350.10
	Total	**13 633.71**	**0.01**	**0.66**	**0.36**	**0.88**	**1.03**	**6.05**	**289.53**	**157.54**	**384.45**	**453.12**
Esbarro	Weathered	4 712.74	0.05	0.79	0.41	1.02	1.25	7.73	119.64	61.92	154.24	189.29
	Fresh	6 070.93	0.01	0.72	0.36	0.94	1.09	2.37	139.87	71.23	184.02	213.47
	Total	**10 783.68**	**0.03**	**0.75**	**0.38**	**0.98**	**1.16**	**10.11**	**259.51**	**133.15**	**338.26**	**402.77**
Santo Amaro	Weathered	2 104.78	0.02	0.56	0.47	0.80	1.06	1.67	37.80	32.03	54.46	71.49
	Fresh	2 169.46	0.04	0.63	0.49	0.96	1.16	2.54	44.27	34.24	66.99	81.04
	Total	**4 274.24**	**0.03**	**0.60**	**0.48**	**0.88**	**1.11**	**4.20**	**82.06**	**66.27**	**121.45**	**152.53**
Massapê	Weathered	601.27	0.03	0.88	0.33	1.05	1.23	0.57	16.94	6.31	20.35	23.82
	Fresh	2 710.42	0.02	0.85	0.33	1.07	1.20	1.79	74.25	28.89	93.04	104.92
	Total	**3 311.69**	**0.02**	**0.86**	**0.33**	**1.06**	**1.21**	**2.36**	**91.18**	**35.19**	**113.39**	**128.74**
Curiú	Weathered	1 147.91	0.06	1.64	1.07	2.20	2.77	2.39	60.37	39.54	81.11	102.30
	Fresh	974.02	0.05	0.91	0.56	1.30	1.53	1.71	28.55	17.60	40.68	47.87
	Total	**2 121.93**	**0.06**	**1.30**	**0.84**	**1.79**	**2.20**	**4.10**	**88.92**	**57.14**	**121.79**	**150.17**
Cana Brava	Weathered	523.56	0.04	0.63	0.44	0.87	1.12	0.72	10.69	7.43	14.73	18.83
	Fresh	133.80	0.02	0.84	0.59	1.20	1.44	0.07	3.61	2.53	5.16	6.21
	Total	**657.36**	**0.04**	**0.68**	**0.47**	**0.94**	**1.18**	**0.79**	**14.30**	**9.96**	**19.89**	**25.04**
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	Fresh	46 907.56	0.03	0.66	0.35	0.90	1.04	43.91	999.32	520.88	1 350.84	1 564.11
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        - Weathered rock: 68% for Pd, 67% for Pt and 40% for Au;
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10. Blocks estimated by Ordinary Kriging at support of:
    - Trapiá, Massapê, Esbarro: 40m x 40m x 4m with sub-block 5m x 5m x 2m;
    - Santo Amaro, Cedro, Cana Brava: 20m x20m x 4m with sub-block 5m x 5m x 2m;
    - Curiú: 10m x 10m x 4m with sub-block 5m x 5m x 2m.
11. PGE+Au grade = Pt g/t + Pd g/t + Au g/t.

26 Recommendations

26.1 Data Validation and QAQC

Regarding the mineral resource estimation, the authors recommend a work program to include the following:

- Validation drillhole collar survey;
- Conduct a new validation of database to confirm accuracy;
- Adopt a drill hole data management system appropriated to the project activities and geological data;
- Execute detailed topographic survey of the main resource deposit areas with appropriated precision to the level of the project;
- Complete additional twin drill holes to check pre-1997 drilling results;
- Continue to implement the QAQC protocols established for the 2020 and 2021 drilling in future programs;
- Conclude ongoing relogging of historical drill holes to standardizing litho-codes and grouping of lithotypes;
- Complete the weathering description for all drillholes, with the recommended addition of sulfur analyses in subsequent drilling programs, to potentially aid in quantitatively defining transitional surface between weathered and fresh domains;
- Conduct geotechnical studies to stablish the stability angle for the mining pits;
- Conduct the hydrological studies aiming to support the mineral reserve studies;
- Conduct drilling programs to improve the mineral resource classification.

26.2 Exploration Program

GE21 recommends the following exploration programs to further define and develop the known mineralized zones of the Pedra Branca project. Pending positive results from the proposed drill programs, further studies would be proposed.

26.2.1 Resource Upgrade and Expansion Drilling

It is recommended that resource delineation drilling continue at Trapiá, Massapê, Cedro and Santo Amaro resource deposit areas.

26.2.1.1 Trapiá 2 and Trapiá West

Current interpretations at both Trapiá 2 and Trapiá West deposits indicate a continuity of mineralization between the northern and southern mineralized zones that has not been fully investigated. Additional delineation drilling will also upgrade current inferred resources and investigate the continuity of mineralization at depth.

Approximately 1,000 m of drilling (8-10 holes) is proposed for the “gap zones” at Trapiá 2 and Trapiá West deposits.

The northern zone at Trapiá 2 is open along strike for an additional 300 to 500 m, as indicated by surface mapping and soil and Trado geochemistry. The mineralized ultramafic intrusion at Trapiá 2 is also open down-dip in several areas and warrants additional drilling.

Approximately 1,500 m of drilling (10-12 holes) is proposed for the resource expansion at the northern zone of Trapiá 2.

26.2.1.2 Trapiá 1

Trapiá 1 deposit area has a well-defined drill grid that could be upgraded to an indicated category with an infill drilling. Current interpretations also suggest continuity of the mineralization at depth, to the east and down-dip of the current modelled resource zones.

Approximately 2,000 m of drilling (6-8 holes) is suggested for Trapiá 1 delineation drilling, including down-dip potential and infill drilling at certain areas.

26.2.1.3 Trapiá South

The Trapiá South deposit is defined by only 3 drill holes, and a strong magnetic anomaly suggests its continuation to the north and along trend to the main deposit areas in the region (i.e., Trapiá 1 and Trapiá 2).

Approximately 500 m of drilling (6-8 holes) is proposed for Trapiá South.

26.2.1.4 Massapê

The Massapê deposit hosts continuity and openness of mineralization in both directions along strike and at depth down-dip. To the north of the current resource bodies, soil geochemistry, Trado and trench assays suggest a potential continuation of the mineralization along strike for approximately 300 to 400 m. Additional delineation drilling might also upgrade current inferred resources.

Approximately 2,000 m of drilling is suggested for the Massapê deposit (between 15-20 drill holes).

26.2.1.5 Santo Amaro

Given its geological complexity, GE21 recommends an additional structural geology and geochemical data review prior to additional resource expansion drilling at the main Santo Amaro deposit area. Current interpretations, suggest the deposit area is open along strike to the north and northwest, and to the south towards the Santo Amaro South deposit, located approximately 1 km from the main zone.

In addition to the strike extension potential, GE21 recommends further investigation at depth in the northwestern zone of the main Santo Amaro deposit area, where high-grade PGE mineralization intercepted in drill hole DD21SA37 appears to continue at depth to the southeast, which has not been yet tested.

The Santo Amaro South target is open in all directions, with the southern extension having the best potential (mineralized ultramafics thicken in southern drill hole DD21SAS07).

Approximately 2,500 m of drilling is proposed for the Santo Amaro region (20 to 25 holes) to test the strike and depth potential, and the gap zone between the two deposits.

26.2.1.6 Cedro

The northern resource solids at the Cedro deposit show great potential for depth extension down-dip of historical drilling.

GE21 recommends testing the down-dip potential at Cedro north, with approximately 1,500 m of diamond drilling (6 to 8 holes).

26.2.2 Target Advancement Drilling

GE21 recommends the further advancement of prospects that have returned positive results from regional exploration activities. RC drilling has been proven as an effective tool to quickly advance prospects property wide, following preliminary mapping, prospecting, soil sampling, Trado auger drilling and trenching.

Approximately 3,000 m of RC drilling (30-35 holes) is suggested for targets such as Tróia, Galante East, Ipueiras and Catingueiro.

26.2.3 Regional Exploration

ValOre continues to conduct a sequential exploration methodology that includes initial prospecting and detailed mapping, soil and rock sampling, Trado auger drilling and trenching. Targets which advance through the full exploration methodology with positive results warrant subsequent testing with RC and/or diamond drilling. GE21 agrees these exploration activities are appropriate for the continued development of the property. The following exploration totals are proposed for 2022 and should cover the advancement of numerous exploration targets property wide to a drill-ready stage.

- 3,000 soil samples, accounting for approximately 60,000 m of soil lines;
- 3,000 rock, Trado and trenching samples, including approximately 1,500 m of Trado auger drilling, and 1,000 samples collected from trench channel sampling.

26.2.4 Advanced Studies

At the time of writing, ongoing metallurgical test work is in progress, including flotation testing on composite core samples from Curiú and Esbarro deposits. Based on the positive initial metallurgical recoveries and successful definition of a flotation flowsheet for Curiú fresh material, ValOre has expanded the metallurgical program to include the other NI 43-101 resource areas, including Trapiá, Cedro, Massapê and Santo Amaro. GE21 has reviewed the program and concur that these studies are appropriate for subsequent advanced economic studies (i.e. PEA).

GE21 also recommends enhanced detailed mapping of hydrothermal and metamorphic alteration zones at the known PGE deposits, to aid in the creation of a geometallurgical modeling to guide future metallurgical test work.

To support a PEA study, GE21 recommends the completion of basic market and environmental studies, geotechnical drilling, an infrastructure assessment and continuity of metallurgical tests.

26.2.5 Detailed Topographic Survey

Perform high resolution topographic survey using LIDAR over the targets.

26.3 Estimated Budget

An estimated budget for the proposed programs totals approximately $4.6 million CAD. Table 26-1 summarizes the details and approximate costs of this development work.

Table 26-1 Estimated Budget of Proposed Work

Proposed Work		Approximate Cost ($ CAD)
Resource Delineation Drilling		
Diamond Drilling (~11,000 m)	$225 / m	$ 2,475,000
Regional Exploration Drilling		
RC Drilling (~3,000 m)	$130 / m	$ 390,000
Regional Prospecting		
Soil Samples (3,000 samples)	$25 / sample	$ 75,000
Rock/Trado/Trench Samples (3,000 samples)	$40 / sample	$ 120,000
Topography		
LiDAR (~4,000 hectares)	$20 / hectare	$ 80,000
Advanced Studies		
Metallurgy		$ 250,000
Subtotal		**$ 3,390,000**
Corporate, Site and G&A		$ 1,150,000
Contingency		$ 100,000
Total		**$ 4,640,000**

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Technical Report QP Signature Page & Certificates

FÁBIO VALÉRIO CÂMARA XAVIER

As an author of this report on certain mineral properties of ValOre Metals Corp., in Ceará State, Brazil, I, Fábio Xavier, MAIG., do hereby certify that:

1. I carried out this assignment for:

   GE21 Consultoria Mineral Ltda.
   Avenida Afonso Pena, 3130, 12° Andar
   Belo Horizonte-Minas Gerais-Brazil
   CEP: 30.130-910

   Tel.: (+55) 31 3327-4211
   Cel: (+55) 31 99191-2408
   e-mail: fabio.valerio@grupoge21.com

2. I hold the following academic qualifications:
   B.Sc. (Geology), Universidade Federal do Rio Grande do Norte (UFRN), 2003.

3. I am a registered Professional Geoscientist Member of Australian Institute Geoscientists (MAIG # 5179); as well, I am a member in good standing of CREA-MG association.

4. I have worked as a geologist in the minerals industry for over 19 years.

5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and, by reason of my education, past relevant work experience and affiliation with a professional association, fulfill the requirements to be a Qualified Person for the purposes of NI 43-101. My work experience includes 7 years as a specialist geologist on geotechnologies applied to mineral exploration and 12 as a Mineral Resource Estimation. My experience includes open pit and underground mines and considerable experience dealing with various commodities, such as phosphate, iron ore, gold and copper ore, in addition to rare earth elements, among others.

6. I visited the Pedra Branca project site in Brazil during the periods January 18 to 20, 2022, to review the results of exploration at site.

7. I am responsible for sections 1 to 12, and 14 to 27 of the Technical Report titled "Independent Technical Report –Mineral Resource Update on the Pedra Branca PGE Project, Ceará State, Brazil" dated May 08, 2022 (the "Technical Report"). The new mineral resource in this report has an effective date of March 8, 2022.

8. I am independent of the issuer and all parties involved in this Technical Report, as defined in Section 1.5 of NI 43-101.

9. I have had no prior involvement with the property that is the subject of the Technical Report.

10. I have read NI 43-101 and Form 43-101F1 and the sections of this Technical Report, for which I am responsible, have been prepared in compliance with that instrument and form.

11. As of the date of this certificate, 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 be misleading.

Report Date: May 08, 2022

Effective Date: March 08, 2022

<signed & sealed in the original>

Fábio Xavier, MAIG.

Dated: May 8, 2022, Belo Horizonte, Minas Gerais, Brazil.

PORFÍRIO CABALEIRO RODRIGUEZ

As an author of this report on certain mineral properties of ValOre Metals Corp., in Ceará State, Brazil, I, Porfirio Rodriguez, FAIG., do hereby certify that:

1. I carried out this assignment for:

   GE21 Consultoria Mineral Ltda.
   Avenida Afonso Pena, 3130, 12° Andar
   Belo Horizonte-Minas Gerais-Brazil
   CEP: 30.130-910

   Tel.: (+55) 31 3327-4211
   Cel: (+55) 31 98466-4501
   e-mail: porfirio.cabaleiro@grupoge21.com

2. I hold the following academic qualifications:
   B.A.Sc.. (Mining Engineering), Universidade Federal de Minas Gerais (UFMG), 1978.

3. I am a registered Professional Geoscientist Fellow of Australian Institute Geoscientists (FAIG # 3708); as well, I am a member in good standing of CREA-MG association.

4. I have worked as a Mining Engineering in the minerals industry for more than 43 years.

5. I have read the definition of "Qualified Person" set out in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101) and, by reason of my education, past relevant work experience and affiliation with a professional association, fulfill the requirements to be a Qualified Person for the purposes of NI 43-101. My relevant experience for the purpose of this Technical Report includes:
   - 1986 to 2015 – Consultant, manager and director with consulting engineering firms that specialize in technical studies and audits of Mineral Resource and Reserves, mine planning, geometallurgy, pit optimization and analysis of economic viability for many types of mineral deposits, including gold projects in their exploration and development phases including supervising and reporting metallurgical studies for a variety of different deposit types.
   - 2015 to present – Director of GE21 Consultoria Mineral, which provides advice, assistance and audits for the entire mining cycle, from defining strategies, generating and selecting targets and investments, mineral exploration, project development, geological assessments, resource and reserve estimation for JORC and NI 43-101 reports, conceptual technical and economic studies, metallurgical studies, and economic feasibility.

6. I visited the Pedra Branca project site in Brazil during the periods March 30 and 31, 2017.

7. I am responsible for section 14.10 of the Technical Report titled "Independent Technical Report –Mineral Resource Update on the Pedra Branca PGE Project, Ceará State, Brazil" dated May 08, 2022 (the "Technical Report"). The new mineral resource in this report has an effective date of March 8, 2022.

8. I am independent of the issuer and all parties involved in this Technical Report, as defined in Section 1.5 of NI 43-101.

9. I have had no prior involvement with the property that is the subject of the Technical Report.

10. I have read NI 43-101 and Form 43-101F1 and the sections of this Technical Report, for which I am responsible, have been prepared in compliance with that instrument and form.

11. As of the date of this certificate, 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 be misleading.

Report Date: May 08, 2022

Effective Date: March 08, 2022

<signed & sealed in the original>

Porfírio Rodriguez, FAIG.

Dated: May 8, 2022, Belo Horizonte, Minas Gerais, Brazil.

CHRISTOPHER KAYE

I, Christopher Kaye, SME Registered Member, do hereby certify that:

1. I am a Principal Process Engineer, with the firm of Mine and Quarry Engineering Services, Inc. (MQes) of 635 Mariner's Island Blvd. Suite 202, San Mateo, CA 94404, USA. I carried out this assignment for MQes.

2. This certificate applies to the Technical Report titled "Mineral Resource Update on the Pedra Branca PGE Project, Ceará State, Brazil" with an Effective Date of March 8, 2022 (the "Technical Report").

3. I am a Registered Member of the Society for Mining, Metallurgy, and Exploration (SME). I graduated from the University of Queensland, Australia, with a B. Eng. in Chemical Engineering in 1984. I have worked as a process engineer in the minerals industry for over 30 years. I have been directly involved in the mining, exploration and evaluation of mineral properties internationally for gold and base metals

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43- 101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I have not visited the Pedra Branca Project site.

6. I am responsible for the preparation of Section 13 of this Technical Report.

7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.

8. I have not had prior involvement with the property that is the subject of the Technical Report.

9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.

10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

<signed & sealed in the original>

Christopher Kaye,
SME RM Dated this
9th Day of May 2022