NI 43-101 TECHNICAL REPORT

Maria Bonita Prospect

Gold

Pará, Brazil

Prepared for:
Altamira Gold Corp.

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Endorsed by QP:
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NI 43-101 Technical Report, Mineral Resource for the Maria Bonita Prospect

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CERTIFICATE OF AUTHOR - Volodymyr Myadzel

I, Volodymyr Myadzel, MAIG, do hereby certify that:

1. I am the Principal Geologist of: VMG Consultoria e Soluções Ltda. Av. do Contorno, 2905, Sala 406, Santa Efigênia, Belo Horizonte – MG – Brasil. 30110-915
2. I graduated with a degree in Geology from Kryvyi Rih National University, Kryvyi Rih, Ukraine in 1999. In addition, I have obtained a PhD in Geology from Kryvyi Rih National University, Kryvyi Rih, Ukraine in 2004.
3. I am Member #3974 of the Australasian Institute of Geoscientists.
4. I have worked as a Geologist for a total of 26 years since my graduation from university. My relevant experience includes modeling and resource and reserve estimation of deposits, prospecting and surveying, geological mapping, mineralogy and petrology of metamorphic rocks and ore deposits.
5. 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.
6. I am responsible for the preparation of Items 1, 2,3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 23, 24, 25, 26 and 27 of the Technical Report "NI 43-101 Technical Report Maria Bonita Gold Prospect" (the "Technical Report"), I visited the Maria Bonita Project on August 3 and 4, 2026.
7. I have not had prior involvement with the property that is the subject of the Technical Report.
8. I am independent of the issuer, applying all of the tests in section 1.5 of National Instrument 43-101.
9. I have read NI 43-101 and Form 43-101F1, and the Technical Report has been prepared in compliance with that instrument and form.
10. I consent to the filing of the Technical Report with any stock exchange and other regulatory authority and any publication by them for regulatory purposes, including electronic publication in the public company files on their websites accessible by the public, of the Technical Report.
11. As of September 16, 2026, the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Signed this 04th Day of November 2026 in Belo Horizonte, Minas Gerais, Brazil.

(Original signed)

Volodymyr Myadzel
MAIG #3974, PhD

Table of Contents

Table of Contents ..... **iv**

List of Tables ..... **viii**

List of Illustrations ..... **x**

ITEM 1: SUMMARY **14**

1.1 Introduction 14

1.2 Property Location 14

1.3 Mining Rights 14

1.4 Geological Setting 14

1.5 Exploration 15

1.6 Resource Estimate 16

1.7 Interpretations and Conclusions 16

1.8 Recommendations 17

ITEM 2: INTRODUCTION **19**

2.1 Independency and Qualification of Consultants 19

2.2 Project Site Visit 19

2.3 Units of Measure 20

ITEM 3: RELIANCE ON OTHER EXPERTS **21**

3.1 Information Source 21

3.2 RespoNsibility 21

ITEM 4: Property Description and Location **24**

4.1 Location 24

4.2 Tenure 25

4.3 Maria Bonita Mining Rights 26

4.4 Royalty and Liens Agreements 26

4.5 Permits and Licenses 27

ITEM 5: ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY **28**

5.1 Topography, Elevation and Vegetation 28

5.2 Climate and Length of Operating Season 28

5.3 Accessibility and Transportation to the Property 28

5.4 Infrastructure Availability and Sources 29

5.4.1 Power 29

5.4.2 Water 30

5.4.3 Mining Personnel 30

ITEM 6: HISTORY **31**

6.1 Historical Exploration 31
ITEM 7: GEOLOGICAL SETTING AND MINERALIZATION 33
7.1 Local Geology 33
7.2 Property Geology 34
7.3 Porphyry phases and late intrusions 35
7.4 Maria bonita west and mineralized tuffs 40
ITEM 8: DEPOSIT TYPE 44
8.1 Mineral Deposit 44
8.2 Geological model 49
ITEM 9: EXPLORATION 51
9.1 Geochemical Sampling 51
9.2 Trenching 52
ITEM 10: DRILLING 56
10.1 FIRST DIAMOND DRILLING CAMPAIGN (2022) 56
10.2 AUGER DRILLING (2023) 57
10.3 SECOND DIAMOND DRILLING CAMPAIGN (2023/4) 59
10.4 THIRD DIAMOND DRILLING CAMPAIGN (2025/6) 61
10.5 DRILLHOLE MAP 63
ITEM 11: SAMPLE PREPARATION, ANALYSES AND SECURITY 65
11.1 Core Handling and Splitting Methods 65
11.2 Security Measures 67
11.3 Sample Preparation and Analysis 67
11.4 Sampling QA/QC Program 68
11.4.1 Historical QA/QC Analysis 68
11.4.1.1 Sampling Precision 69
11.4.1.2 Standards 71
11.4.1.3 Blank Samples 74
11.4.2 QA/QC Analysis – 2025–2026 Exploration Campaign 75
11.4.2.1 Sampling Precision 76
11.4.2.2 Standards 78
11.4.2.3 Blank Samples 91
11.5 Density Determination 93
11.5.1 Density Calculation For Fresh Rock 94
11.5.2 Calculation Of Density Tests For Oxidized Materials (Saprolite) From The Maria Bonita Project 96
ITEM 12: DATA VERIFICATION 100
12.1 Site Visit 100
12.2 Data Import And Validation 104

12.2.1 Database 104
12.2.2 Database Verification USING The Micromine System 107
12.3 Author's Considerations 108
ITEM 13: Mineral Processing and Metallurgical Testing 109
13.1 Stage 1 Metallurgical tests: 109
13.2 Stage 2 Metallurgical Tests 112
13.3 Stage 3 Metallurgical Tests 114
13.4 Next stage testwork 117
ITEM 14: MINERAL RESOURCE ESTIMATE 118
14.1 Introduction 118
14.2 General Economic factors 118
14.3 Statistical Analysis 120
14.4 Interpretation 123
14.4.1 Geological Interpretation Methodology 123
14.4.2 Geological Interpretation 125
14.5 Triangulation 127
14.4.1. Topography 127
14.4.2 Weathering Zone 128
14.4.3. Wireframe Closed 129
14.6 Data Selection 131
14.7 Capping 133
14.8 Modelling 134
14.9 Geostatistical Analysis 134
14.9.1 Domain 1 135
14.9.1 Domain 2 139
14.10 Grade Interpolation And Mineral Resource Classification 143
14.10.1. Grade Interpolation 143
14.10.2. Mineral Resource Classification 145
14.11 Density Values For The Block Model 146
14.12 Verification Of The Block Model 147
14.13 Results Of the Resource Evaluation 151
ITEM 23: ADJACENT PROPERTIES 156
ITEM 24: OTHER RELEVANT DATA AND INFORMATION 157
ITEM 25: INTERPRETATION AND CONCLUSIONS 158
ITEM 26: RECOMMENDATIONS 160
26.1 Work Program 160
26.2 Budget 160

ITEM 27: REFERENCES 162
GLOSSARY 163
Appendix I - STANDARDS CERTIFICATES 165
Appendix II - BLANK CERTIFICATES 178
Appendix III - THE RESOURCES ESTIMATED FOR GOLD WITH THE APPLICATION OF SEVERAL CUT-OFF GRADES 184

List of Tables

Table 1-1 - Maria Bonita Exploration Work Summary. 16

Table 1-2 - Gold Resources Calculated by Ordinary Kriging (OK) Method Assuming a 0.24 ppm Au cut-off grade. 16

Table 1-3 - Estimated Budget. 18

Table 3-1 - List of press releases of exploration. 22

Table 4-1 - Maria Bonita Project licenses. 26

Table 6-1 - Maria Bonita Exploration Work Summary. 32

Table 10-1 - Drillhole Summary for 2022 Drilling Program. 57

Table 10-2 - Auger Drilling Hole Summary 2023. 58

Table 10-3 - Drill hole summary for the 2023/2024 drilling program. 61

Table 10-4 - Drill hole summary for the 2025/2026 drilling programme. 62

Table 11-1 - Summary of Sample Preparation and Assay Procedures. 68

Table 11-2 - Descriptive statistics of the chemical analysis results of the blank samples. 75

Table 11-2 - Descriptive statistics of the chemical analysis results of the blank samples. 92

Table 11-4 - Example of table used for samples in density test for fresh rock. 99

Table 12-1 - Presentation of initial data 105

Table 12-2 – The other analyzed elements. 106

Table 12-3 - Gold Analysis for all samples in the database. 107

Table 13-1 - Estimated head grades (from drill assay composites) versus calculated head grades (from laboratory sizing analysis). 110

Table 13-2 - ICP scan of minor elements in head sample (conducted via Testwork Ltda.). 111

Table 13-3 - Gold recovery from direct leach tests. 111

Table 13-4 - Main reagent consumption for direct leach tests. 112

Table 13-5 - Summary for leach test results for Maria Bonita project. 114

Table 13-6 - Estimated head grades (from weighted drill assay composites) versus average assayed head grades at the metallurgical laboratory. 115

Table 13-7 - Summary of results. CN is cyanide reagent. 116

Table 13-8 - Metallurgical drill sample available. 117

Table 14-1 - Summary of the statistical analysis of gold grades. 122

Table 14-2 - Results of statistical analysis performed. 132

Table 14-3 - Block model parameters. 134

Table 14-4 - Cross-Validation verification results for Au (ppm), Domain 1. 138

Table 14-5 - Cross-Validation verification results for Au (ppm), Domain 2. 142

Table 14-6 - Direction of the search ellipsoid axes for Au (ppm). 144

Table 14-7 - Direction of the search ellipsoid axes and search ellipse parameters for Au (ppm). 144

Table 14-8 - Search radius and interpolation parameters for Au (ppm) and interpolation methods. 144

Table 14-9 - Cut-off grade values(capping). 145

Table 14-10 - Data comparison between different estimation methods for Au (ppm). 151

Table 14-11 - Resource calculation comparison with and without capping for gold. 151

Table 14-12 – Open Pit Constrained Resource Inputs and Assumptions 152

Table 14-13 - Gold Resources Calculated by Ordinary Kriging (OK) Method Assuming a 0.24 ppm Au cut-off grade. 155

Table 26-1 - Estimated Budget. 160

List of Illustrations

Figure 1-1 - Geological Map of the Maria Bonita Project. (AFGM 2025). 15

Figure 4-1 - Maria Bonita location. 24

Figure 4-2 - Cajueiro project mineral claims. 25

Figure 5-1 - Maria Bonita Site Map. 29

Figure 7-1 - Geological Map of the Maria Bonita Project. (AFGM 2025). 34

Figure 7-2 - Interpreted geological map of Maria Bonita showing the porphyry phases, veined crystal tuffs, later dykes and drill-hole locations. (AFGM 2025). 35

Figure 7-3 - Petrographic characteristics of the Maria Bonita porphyries: UST textures and quartz-vein arrays in DDMBA-0003 and DDMBA-0029. Source: Altamira Gold, original photographs. 37

Figure 7-4 - Petrographic characteristics of successive porphyry phases, including brecciation and variable quartz-vein intensity. Source: Altamira Gold, original photographs. 38

Figure 7-5 - Late, barren mafic dyke in DDMBA-0014 with quartz–carbonate veins. (A) 139.50–139.70 m. (B) 143.15–143.21 m. Source: Altamira Gold, original photographs 39

Figure 7-6 - Porphyritic rhyolite hosting gold mineralization at Maria Bonita, with quartz and feldspar phenocrysts in a reddish groundmass. Source: Altamira Gold, original photograph. 39

Figure 7-7 - North–south section through MBA013 and MBA029 illustrating mineralized rhyolite porphyry cut by feldspar porphyry and mafic dykes. Source: AFGM, 2025. 40

Figure 7-8 - Quartz veining in early porphyry of Maria Bonita West, MBA036 at approximately 295 m. The corresponding 1 m assay interval returned 1.61 g/t Au. Source: Altamira Gold, 12 May 2026. 41

Figure 7-9 - Schematic section of MBA038 showing gold assays and quartz-vein frequency across the porphyry–tuff contact. The reported intersection of 74 m at 0.3 g/t Au spans porphyry and adjacent tuff wall rocks. Intervals are downhole lengths; true widths have not been determined. Source: Altamira Gold, press release dated 23 July 2026. 42

Figure 7-10 - Type-A quartz veins in crystal tuff, MBA039 at approximately 110 m. The corresponding 1 m assay interval returned 0.9 g/t Au. Source: Altamira Gold, 23 July 2026. 43

Figure 8-1 - MBA-016 with example of veining present in phase MBA02, (Altamira 2025). 45

Figure 8-2 - MBA-003 with example of veining in the initial phase MBA01, (Altamira 2025). 46

Figure 8-3 - Strip Log of MBA-015 hole showing gold distribution downhole (Altamira 2025). 47

Figure 8-4 - Quartz veining in mineralized porphyry at Maria Bonita West, MBA043 at 234.80 m. Sample 96959, from 234.00 to 235.00 m, returned 0.886 g/t Au over 1.00 m. Source: Altamira Gold, 2026. 48

Figure 8-5 - Quartz veining in mineralized tuff, MBA037 at 132.50 m. The corresponding 1 m assay interval returned 1.69 g/t Au. Source: Altamira Gold, photograph published on 20 May 2026. 49

Figure 9-1 Soil anomaly map for the Maria Bonita Project 51

Figure 9-2 - General view of the exploration trenches at Maria Bonita. 53

Figure 9-3 - Geological map of Maria Bonita showing trench locations and sampled intervals. 54
Figure 9-4 - Ground mag map – Something like this – update with DDH collars. 55
Figure 10-1 - Diamond drill drill hole location map, (AFGM 2026). 63
Figure 10-2 - Mechanized auger drill holes location map, (AFGM 2026). 64
Figure 11-1 - Core Logging Table. 66
Figure 11-2 - Linear Regression Diagram for Au ppm, field duplicate, class: all data, internal control results. 70
Figure 11-3 - Quantis plotting for Au ppm, field duplicate, class: all data, internal control results. 71
Figure 11-4 - Standard ITAK-577, element Au ppm. 72
Figure 11-5 - Standard ITAK-644, element Au ppm. 73
Figure 11-6 - Standard ITAK-659, element Au ppm. 73
Figure 11-7 - Standard ITAK-663, element Au ppm. 74
Figure 11-8 - Histogram of the distribution of blank sample analysis results. 75
Figure 11-8 - Linear Regression Diagram for Au ppm, field duplicate, class: all data, internal control results. 77
Figure 11-9 - Quantis plotting for Au ppm, field duplicate, class: all data, internal control results. 78
Figure 11-10 - Standard CTRS-901B, element Au ppm. 80
Figure 11-11 - Standard ITAK-577, element Au ppm. 81
Figure 11-12 - Standard ITAK-644, element Au ppm. 82
Figure 11-13 - Standard ITAK-645, element Au ppm. 83
Figure 11-14 - Standard ITAK-648, element Au ppm. 84
Figure 11-15 - Standard ITAK-655, element Au ppm. 85
Figure 11-16 - Standard ITAK-659, element Au ppm. 86
Figure 11-17 - Standard ITAK-663, element Au ppm. 87
Figure 11-18 - Standard ITAK-669, element Au ppm. 88
Figure 11-19 - Standard ITAK-670, element Au ppm. 89
Figure 11-20 - Standard ITAK-683, element Au ppm. 90
Figure 11-21 - Standard OREAS 504c, element Au ppm. 91
Figure 11-22 - Histogram of the distribution of blank sample analysis results. 93
Figure 11-24 - Core lithology selection and sample size marking. 95
Figure 11-25 - Weighing the sample in air and water (Archimedes' Principle). 96

Figure 11-26 - Sample collection from the core box. 97

Figure 11-27 - Weighing of the wet sample and use of the container to determine the displaced volume. 98

Figure 11-28 - Mass of water obtained by displaced volume and drying of the sample for dry weighing. 98

Figure 12-1 - Core Box–Technical site visit (2026). 100

Figure 12-2 - Visit to the Field Camp, Drill Core Processing and Temporary Storage Facilities. 101

Figure 12-3 - Drill Hole Collar - Technical site visit (2026). 102

Figure 12-4 - Trench and Sampling Line - Technical site visit (2026). 103

Figure 12-5 - Diamond drill holes and trench used for the interpretation of the Maria Bonita Project. 105

Figure 13-1 - Progressive leach recovery of gold using CET and conventional cyanide leach reagents. 114

Figure 14-1 - Histogram of Au (ppm) grade distribution for all samples. 121

Figure 14-2 - Histogram of Au (ppm) grade distribution for samples inside the mineralization zone. 122

Figure 14-3 - Geological interpretation and three-dimensional wireframe models of the post-mineralization rhyolitic feldspar porphyry and mafic dykes. 123

Figure 14-4 - Three-dimensional interpretation of the mineralized zone as a continuous geological envelope, without subdivision by post-mineralization dykes. 124

Figure 14-5 - Three-dimensional view of the mineralized zone and crosscutting post-mineralization dykes, with dyke wireframes extending above and below the mineralized zone. 125

Figure 14-6 - Geological interpretation, section 12. 126

Figure 14-7 - Surface digital topographic base – Plan View. 127

Figure 14-8 - Surface digital topographic base – – 3D View. 128

Figure 14-9 - Surface digital alteration zone. 129

Figure 14-10 - Triangulation of mineralized zones. 130

Figure 14-11 - Triangulation of the mineralized zones cut by the topographic surface. View shows all mineralized zones in the area. 131

Figure 14-12 - Histogram of size distribution of samples inside the mineralized zone. 132

Figure 14-13 - Graph of the probability of distribution of Au (ppm). 133

Figure 14-14 - The spatial distribution of the two structural domains 135

Figure 14-15 - First axis to Au (ppm), Domain 1. 136

Figure 14-16 - Second axis to Au (ppm), Domain 1. 137

Figure 14-17 - Third axis to Au (ppm), Domain 1. 138

Figure 14-18 - Linear diagram of dependence between composite samples data and Au grade (ppm) estimates, Domain 1. 139

Figure 14-19 - First axis to Au (ppm), Domain 2. 140

Figure 14-20 - Second axis to Au (ppm), Domain 2. 141

Figure 14-21 - Third axis to Au (ppm), Domain 2. 142

Figure 14-22 - Linear diagram of dependence between composite samples data and Au grade (ppm) estimates, Domain 2. 143

Figure 14-23 - Resources classified as Indicated and Inferred. 146

Figure 14-24 - Histogram and graph of the probability of distribution of Au (ppm) in composite samples (left) and block model interpolated by the Ordinary Kriging method (right). 148

Figure 14-25 - Au (ppm) visualization with block model - Section Sec_MBA-0005-29. 149

Figure 14-26 - Au (ppm) visualization with block model – Section Sec_MBA-0010-11. 149

Figure 14-27 - Au (ppm) visualization with block model – Section Sec_MBA-0030-02. 150

Figure 14-28 – Pit Constraining surface around estimated Block Model – Plan View. 154

Figure 14-29 – Pit Constraining Surface around estimated Block Model – Section View Looking North. 154

ITEM 1: SUMMARY

1.1 INTRODUCTION

VMG Consultoria ("VMG") has been retained by Altamira Gold Corp. ("Altamira" or the "Company") to prepare a technical report and gold resource estimate for the Maria Bonita Project ("Project"). This report has been prepared in accordance with Canadian Securities Administrators' National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101" or "43-101") and its related Form 43-101F1.

1.2 PROPERTY LOCATION

The Project area is located in the Juruena Gold Province in central Brazil, within the states of Para, approximately 100km northwest of the city of Alta Floresta in central Brasil. The Teles Pires River runs through the project area. Access from Alta Floresta is via paved highway MT-208, 55 kilometers to the town of Paranaíta. From Paranaita another 10 kilometers of paved road and 30 kilometers of dirt road, crossing the Teles Pires River, provides access to the project.

1.3 MINING RIGHTS

The Maria Bonita Project is currently held under an exploration license. The process to convert the exploration license to a mining license is currently in progress. This involves two stages consisting of i) obtaining an environmental permit to operate bulk sampling of the identified mineralization and ii) conversion to a full mining permit following submission of a Plan for Economic Exploitation (PAE). An application has been lodged with the relevant environmental authorities in Para State.

1.4 GEOLOGICAL SETTING

The rocks located in the Project area are characterized by volcanism associated with the Colíder Group, including both effusive and explosive phases, plutonism of the Teles Pires Suite, and mafic dikes. The Maria Bonita host-rock is a multiphase rhyolitic porphyritic intrusion interpreted as being emplaced into volcanic rocks of the Colíder Group.

Maria Bonita is a porphyry gold deposit hosted by a multiphase rhyolitic intrusive complex and adjacent volcanic tuffs. Gold mineralization is closely associated with Type-A quartz veins forming sheeted arrays and stockworks, with grades generally increasing with quartz-vein

intensity. The main eastern porphyry body is notably sulphide-poor and exhibits potassic and hematitic alteration.

Drilling during 2025 and 2026 expanded the interpreted porphyry footprint to approximately 800 × 600 m and identified an additional mineralized intrusive body at Maria Bonita West. This western body contains more abundant accessory pyrite and magnetite and is interpreted to be separated from the eastern body by a northeast-trending fault corridor occupied by late post-mineral dykes.

Drilling also confirmed that gold-bearing quartz veins extend into the surrounding volcanic tuffs, demonstrating that mineralization is not restricted to the porphyry intrusions. The geological model therefore encompasses both intrusive-hosted and wall-rock-hosted mineralization. Maria Bonita West remains open to the west and at depth, supporting further exploration for extensions to the known mineralized system, Figure 7-1.

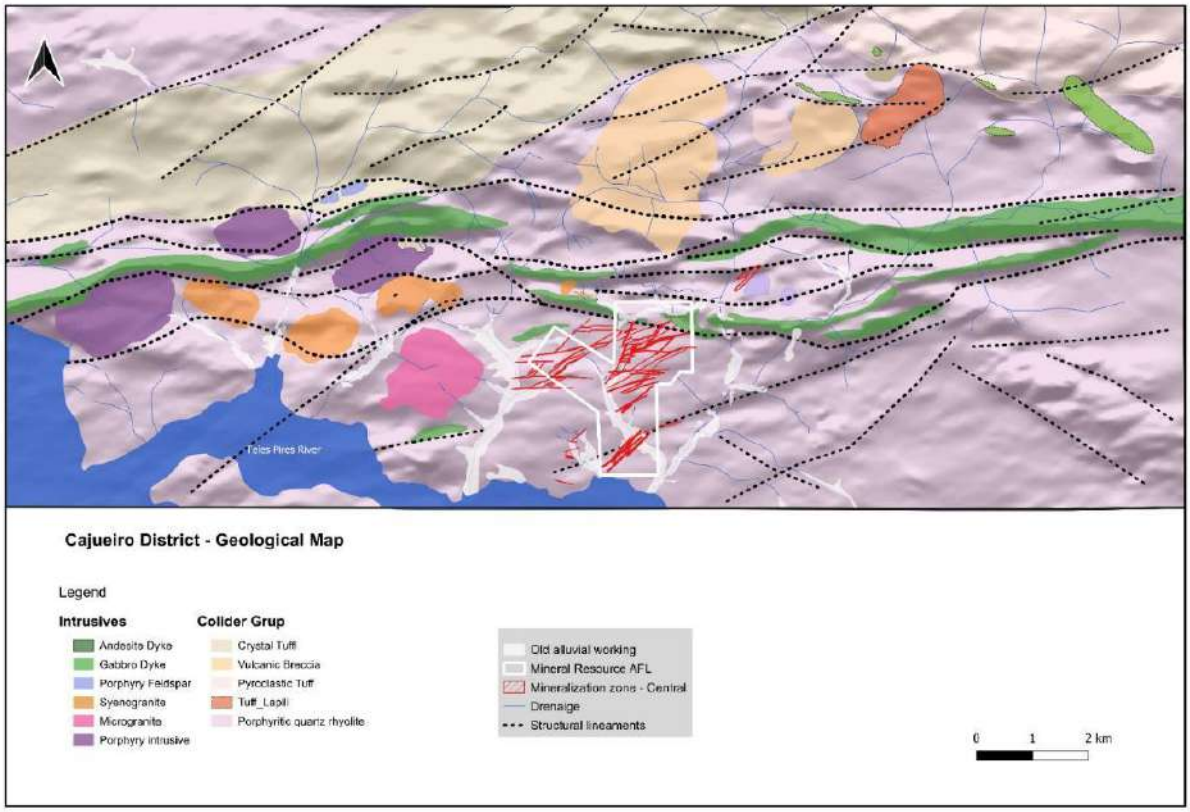


Figure 1-1 - Geological **Map of the Maria Bonita Project. (AFGM 2025).**

1.5 EXPLORATION

Exploration on the property consists of geologic mapping, airborne and ground geophysics, soil sampling, trenching, and diamond drilling. Table 1-1 summarizes the drilling programs conducted on the Project.

Table 1-1 - Maria Bonita Exploration Work Summary.

Year	Description
2022	09 - HQ and NQ diamond drill holes totaling 1,134.78 meters
2023	59 - 76.2mm diameter mechanized auger holes totaling 544.70 meters
2024	22 - HQ and NQ diamond drill holes totaling 3,575.70 meters
2025-26	12 - HQ and NQ diamond drill holes totaling 3983.88 meters

1.6 RESOURCE ESTIMATE

VMG have estimated Indicated and Inferred Mineral Resources for the Project in accordance with the CIM guidelines (CIM 2005) which have been adopted as part of NI 43-101.

The results of the evaluation of resources, based on the block model interpolated by the Ordinary Kriging (OK) method, of gold mineralization for the Project are presented in Table 1-2.

To determine the influence of the nugget effect on the geological resource estimation, the results of the calculation for interpolated grades, with and without capping, were compared. The highest one-metre sample interval in the drill database is 7.73 g/t gold. A total of 12 sample intervals exceeding this grade were cut to 3.9 ppm Au.

The difference in relative percentage of contained gold ounces in the geological resource estimate is 1.228% (for the uncut sample population), which indicates the low influence of the high-grade samples in the geological resource estimation.

Table 1-2 - Gold Resources Calculated by Ordinary Kriging (OK) Method Assuming a 0.24 ppm Au cut-off grade.

CUT-OFF Au ppm	CLASS	CATEGORY	VOLUME m3	TONNES t	DENSITY (t / m3)	Au ppm	Au Oz
0.24	Indicated	Saprolite	886,756	1,489,751	1.68	0.65	30,898
		Fresh Rock	9,067,869	23,848,495	2.63	0.49	372,978
	Inferred	Saprolite	846,475	1,422,078	1.68	0.38	17,171
		Fresh Rock	25,902,138	68,122.622	2.63	0.41	891,305
	TOTAL		**36,703,238**	**94,882,945**	**2.59**	**0.43**	**1,312,353**

1.7 INTERPRETATIONS AND CONCLUSIONS

This report refers to the Maria Bonita Project located within exploration permit 850.224/2009.

The Maria Bonita Project is an an uncommon type of porphyry gold deposit. The Maria Bonita gold mineralization is intrinsically associated with A-type quartz veining, occurring as swarms of straight and irregular veins that intersect in "sheets" and/or "stockwork" patterns. Two

main types of veins are observed: the first is colorless, composed mostly of quartz; the second, associated with the first, consists of fine-grained dark green (largely chlorite) minerals. Bulk gold grades vary directly with the intensity of veining. Macroscopically, sulfides are rare to absent in the majority of the project area currently drilled.

The author is of the opinion that Altamira has successfully highlighted the mineral resource potential at the Project and considers the Project to be sufficiently robust to warrant conducting additional definition drilling to increase the Mineral Resources, conduct metallurgical testing and to complete a Preliminary Economic Evaluation of the Maria Bonita Project for a potential open pit mining operation as a prelude to a future Feasibility Study.

VMG conducted the evaluation of Mineral Resources of Altamira's Maria Bonita Project in compliance with NI 43-101. The work took place from August 2026 to November 2026.

The main activities developed by VMG were:

- Site visit, discussions with the Altamira technical staff, understanding of the geology and mineralization of the deposit, and verification of the geological work performed by Altamira and contractors on site, and in off-site laboratories, as well as verification of the materiality of the achieved results.
- Validation of the drilling database and the topographic information.
- Verification of the QA/QC program established by Altamira for geological work and of its application to the work program.
- Selection of the drilling data used in the definition of Mineral Resources.
- Interpretation of the geological model.
- Conduction of statistical and geostatistical studies.
- Estimation of Mineral Resources, as well as their quantification and classification.
- Disclosure of the Mineral Resources for the Maria Bonita Project in accordance with NI-43-101.

VMG observed that the results obtained from QA/QC were acceptable. VMG did not visit the assay laboratories, but the SGS Geosol laboratory is a reputable international company which meets or exceeds the industry standards for sample preparation and analysis.

The materiality of the work developed by Altamira, as well as the materiality of the deposit and the developed studies, are sufficient to support the disclosure of Mineral Resources of the Maria Bonita Project in accordance with NI-43-101.

1.8 RECOMMENDATIONS

VMG, based on the studies and work carried out on the Mineral Resources of the Maria Bonita Project, owned by Altamira, makes the following recommendations:

- Complete a 10,000 m drilling program targeting resource extensions and infill areas to support the potential conversion of Inferred Resources to Indicated and Indicated Resources to Measured.
- Analyze approximately 11,000 samples, including appropriate QA/QC control samples.
- Strengthen the QA/QC program through the systematic inclusion of coarse reject duplicates and laboratory pulp duplicates.
- Complete 200 density determinations, with particular emphasis on obtaining representative coverage of the saprolite and principal geological domains.
- Undertake 50 mineralogical studies to characterize the principal mineralized domains and support metallurgical testwork.
- Complete metallurgical testwork on 10 representative samples or composites covering the main mineralized lithologies, weathering profiles and depth intervals.
- Undertake environmental studies to support project development and permitting.
- Conduct geotechnical studies to characterize the rock mass and establish preliminary pit slope design parameters.
- Provide administrative and logistical support for the proposed work program.

The estimated budget for this work program is shown in Table 26-1.

Table 1-3 - Estimated Budget.

Work Program	Units Type Work	Units	Unit Cost	Cost US$
Drilling	Meters	10,000	211.54	2,115,384.62
Assaying	Sample	11,000	23.27	255,961.54
Density test	Sample	200	3.17	634.62
Mineralogical studies	Study	50	287.69	14,384.62
Metallurgical tests	Sample	10	10,576.92	105,769.23
Environmental studies	Study	1	317,307.69	317,307.69
Geotechnical studies	Study	1	158,653.85	158,653.85
Administrative expenses	Adm	1	48,076.35	48,076.35
TOTAL				3,016,172.50

ITEM 2: INTRODUCTION

VMG Consultoria ("VMG") has been retained by Altamira Gold Corp. ("Altamira" or the "Company") to prepare a technical report and resource estimate for gold in the Maria Bonita Project ("Project"). This report has been prepared in accordance with Canadian Securities Administrators' National Instrument 43-101 *Standards of Disclosure for Mineral Projects* ("NI 43-101" or "43-101") and its related Form 43-101F1.

NI 43-101 is used to report results of exploration, mineral resources, and ore reserves, and was formulated by the Canadian Institute of Mining.

2.1 INDEPENDENCY AND QUALIFICATION OF CONSULTANTS

VMG has no interest in the Project and is therefore independent. This enables VMG to offer objective and unbiased recommendations on issues that are critical to the Project assessment. VMG has a proven track record in conducting independent evaluations of mineral resources.

This report was prepared by VMG. VMG are experts in the field of geology and mineral resource estimation. Neither VMG nor any of its associates who participated in the preparation of this report have any financial or other interest or benefit in the assets of Altamira Gold. VMG will be paid for this work in accordance with standard professional consulting practice.

Data evaluation, geological modeling, geostatistical analysis, variography, selection of resource estimation parameters and, grade interpolation were performed by consulting geologist Volodymyr Myadzel (PhD; MAIG – CP, QP).

2.2 PROJECT SITE VISIT

VMG, represented by geologist Volodymyr Myadzel, visited the Project area between April 30 and May 01, 2025. The visit was attended by Altamira officials led by Elvis Alves (Project Manager).

The purpose of the visit was to familiarize the author with the Project and verify the work done in the field, in terms of geological exploration, in accordance with the basic requirements governing the application and operation of the NI-43.101 form: transparency, materiality and competence, and also in accordance with the best practices of the mineral industry.

The technical visit covered the core storage shed, and field visits to the Project area, and the mineralized zone.

2.3 UNITS OF MEASURE

In this report the metric measurement system was adopted, except when the unit is expressly mentioned.

The datum used is SIRGAS 2000 DATUM, in UTM zone 21L, except when the unit is expressly mentioned.

ITEM 3: RELIANCE ON OTHER EXPERTS

3.1 INFORMATION SOURCE

VMG's opinions are based on information provided Altamira that reflects the technical conditions at the time of preparation of the study. VMG is dependent on information and data provided by Altamira. However, whenever possible, VMG verified the provided data independently. VMG made a technical visit to the Project site in order to check the physical evidence available on the deposit in terms of field locations, drill core storage, sample preparation facilities and sample storage facilities.

3.2 RESPONSIBILITY

VMG has not carried out detailed checks of, and is not responsible for the legal status and environmental issues of the Project. VMG did not carry out check sampling on the stored Project materials as part of the preparation of this study.

The information presented herein on the status of the exploration and mining rights constituting the project is based on open-file information published by the government's Agência Nacional de Mineração (ANM).

It is not within the scope of this report to conduct a detailed assessment of legal issues regarding the Mining Law as it affects the Project.

Likewise, it is not within the scope of this report to conduct a detailed assessment of the environmental and legal issues relating to the Project.

VMG did not visit the geochemical analysis laboratories used by Altamira to provide independent chemical analysis of samples used in the mineral resource estimation work. The relevant analytical work had already been completed before the work commissioned to VMG was undertaken. However, it is noteworthy that VMG has visited the relevant commercial laboratories used by Altamira several times and is familiar with the routines and procedures used by them.

VMG is not aware of any other information that may have an impact on the results and conclusions of this report.

VMG is not an insider, associate nor an affiliate of Altamira nor any of its associates acted as a consultant to Altamira or its affiliates involved in the Project. The results of the technical evaluation produced by VMG do not depend on any prior agreement on the purposes to be

achieved, and there are no undisclosed understandings regarding potential future business between VMG and Altamira.

In presenting this report, and due to the absence of any outcropping geology within the area of the Mineral Resource, VMG has relied on geological data and the interpretation thereof, provided by the geological staff of Altamira.

The interpretation of the porphyry-style origin of the mineralization has been independently assessed by a leading expert in this style of mineralization (Sillitoe, 2024, 2026).

Altamira has published Maria Bonita technical data and their interpretation in the form of 29 press releases issued under the direction of Altamira Competent Person, Fernando Benegas F AusIMM, consultants to the Company, as well as Qualified Persons as defined by National Instrument 43-101. This information is summarised below, Table 3-1.

Table 3-1 - List of press releases of exploration.

Date	Press release
28/10/2020	Soil sample anomaly definition
18/08/2022	Commencement of drilling at Maria Bonita
07/09/2022	Drill results MBA 001 & 002
16/11/2022	Drill results MBA 003 & 004
23/11/2022	Acquisition of surface rights at Maria Bonita
18/01/2023	Drill results MBA 005-009
02/03/2023	Metallurgical characterization test results
12/04/2023	Agitated leach tests Clean Mining
12/09/2023	Auger drill results 001-059
29/11/2023	Ground magnetic survey results
05/12/2023	Re-commencement of diamond drilling
16/01/2024	Second diamond rig added
07/02/2024	Column leach test results
17/04/2024	Drill results MBA 010-015
22/05/2024	Drill results MBA 016-029
07/08/2024	Drill results MBA 030-031
21/08/2024	New porphyry outcrops 1.6km east of Maria Bonita
05/05/2025	Maiden mineral resource estimate at Maria Bonita
19/06/2025	Filing of NI 43-101 technical report
17/07/2025	Drill rig mobilized for resource extension drilling
02/09/2025	First deep drill hole completed at Maria Bonita
15/10/2025	Drill results MBA 032

03/11/2025	Drilling update and second rig mobilized to Cajueiro
18/03/2026	Drill results MBA 033-034
12/05/2026	Drill results MBA 036
20/05/2026	Drill results MBA 037
23/07/2026	Drill results MBA 038-039
19/08/2026	Land access secured for western exploration
25/08/2026	Drill results MBA 040-043 — new porphyry body at Maria Bonita West

Volodymyr Myadzel, Qualified Person, has relied on the following experts in the writing of this report:

- Fernando Banegas from Altamira Gold for exploration information;
- Ian Gordon Hall Dun BSc (Eng), MSc consultant to Altamira Gold for interpretation of metallurgical tests.

ITEM 4: PROPERTY DESCRIPTION AND LOCATION

4.1 LOCATION

The Maria Bonita Project area is located in the Juruena Gold Province in central Brazil, within the states of Para and Mato Grosso. The Teles Pires River runs through the Project area, Figure 4-1.

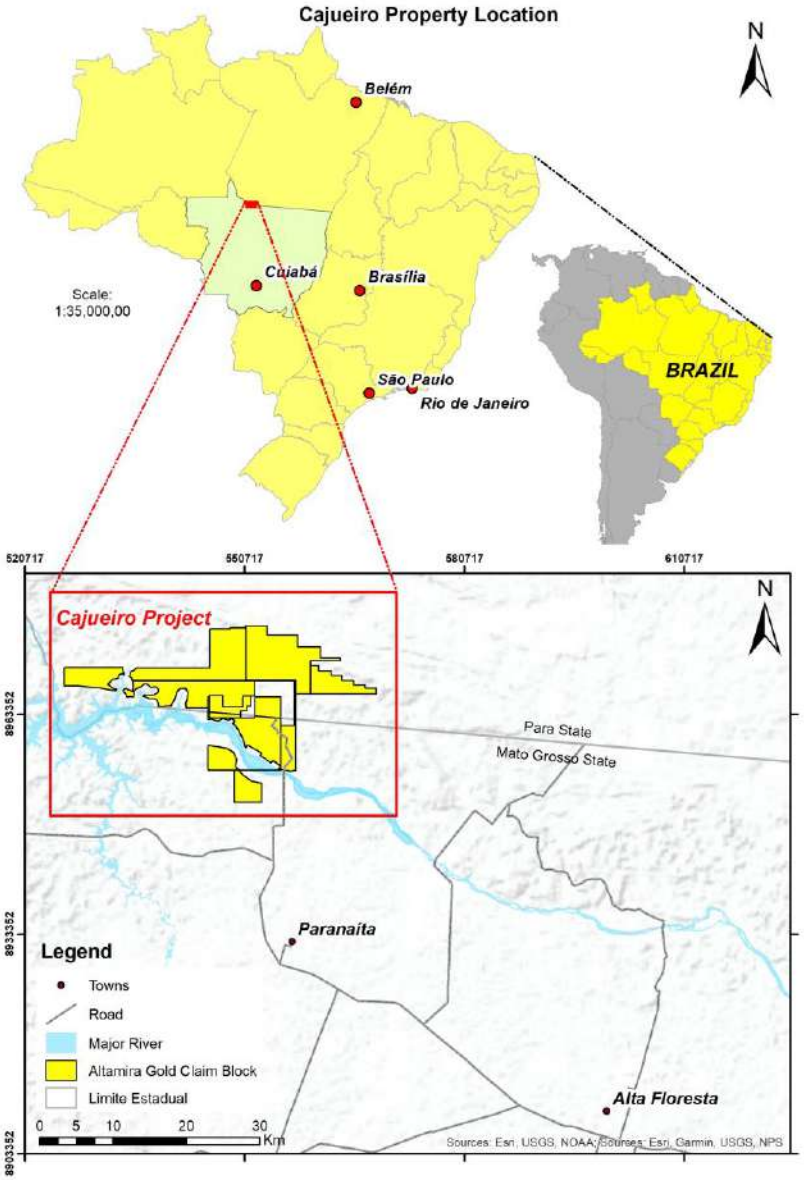


Figure 4-1 - Maria Bonita location.

4.2 TENURE

The Maria Bonita Project area Cajueiro is permitted for exploration by the Brazilian national mining agency, Agência Nacional de Mineração (ANM) under title No 850224/2009 (Figure 4-1 and Figure 4-2). This title is held by Alta Floresta Gold Mining, a wholly owned subsidiary of Altamira.

ANM or the National Mining Agency, was created on December 26, 2017, through Law No. 13.575 / 2017 and assumed the functions performed by the prior National Department of Mineral Production – DNPM. ANM is responsible for granting and inspecting mineral concessions in Brazil.

The exploration permit status for the Maria Bonita Project was provided to VMG by Altamira in September 2026. The exploration permits form part of the Altamira Cajueiro Project which consists of a total permitted area of 28,767.65 hectares, consisting of 12 permits.

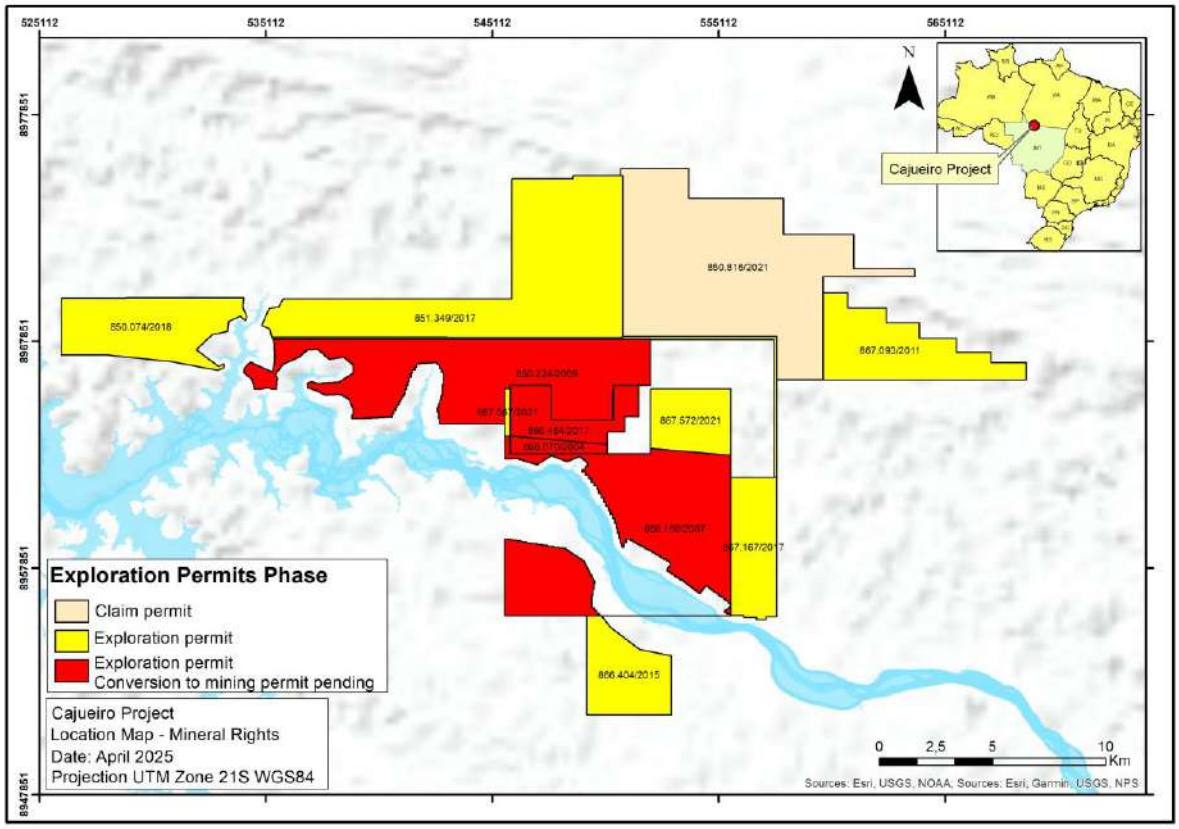


Figure 4-2 - Cajueiro project mineral claims.

Table 4-1 - Maria Bonita Project licenses.

Field	Value
Process	850.224/2009
Area (ha)	4,283.50
Permit	2558
Publication	24/03/2010
Lim. Renewal	23/01/2013
End Permit	24/03/2013
Pub. Renewal	12/08/2013
Final Report	12/08/2016
Phase	Application for mining

Based on the information provided by Altamira in September 2026, all claims are in good standing with ANM.

4.3 MARIA BONITA MINING RIGHTS

The Maria Bonita Project is currently held under an exploration license (see Section 4.1). The process to convert the exploration license to a mining license is currently in progress. This involves two stages consisting of i) obtaining an environmental permit to operate bulk sampling of the identified mineralization and ii) conversion to a full mining permit following submission of a Plan for Economic Exploitation (PAE). An application has been lodged with the relevant environmental authorities in Para State.

4.4 ROYALTY AND LIENS AGREEMENTS

Gold production from the Maria Bonita permit area is subject to a 1.5% net smelter royalty, known as a CFEM tax, payable to the government.

As an original owner of the mineral exploration title on which the Project is located, ECI Exploration and Mining Ltd. holds a 1.75% NSR royalty on all production from the Project lying within the permit areas originally acquired from ECI by Altamira or its predecessors.

4.5 PERMITS AND LICENSES

Altamira advised that the company will apply for bulk mining permits through the ANM mining office and environmental permits through the SEMA offices in the state of Para for trial mining activities. This is a process, whereby permitting for trial mining and/or bulk sampling can be achieved for an initial 50,000t/y of extraction.

ITEM 5: ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

5.1 TOPOGRAPHY, ELEVATION AND VEGETATION

The Maria Bonita Project is located in the catchment of the Teles Pires River, which flows to the northwest where it drains into the Tapajos River, and ultimately to the Amazon River. Topography is characterized by low hills with perennial and ephemeral streams that flow into the Teles Pires River. Vegetation is formerly dry forest, now largely cleared for arable agriculture.

5.2 CLIMATE AND LENGTH OF OPERATING SEASON

The climate at the Project is marked by a rainy season from December through May, and a dry season that extends from May through November. The average annual rainfall ranges between 1,500 to 2,000 millimeters per year. Annual average high temperature ranges from 30 to 34° Celsius, and annual average low temperature ranges from 18 to 22° Celsius (World Weather, 2013).

Exploration activities can be conducted on the Maria Bonita property year-round.

5.3 ACCESSIBILITY AND TRANSPORTATION TO THE PROPERTY

The nearest international airport to the Project is in the city of Cuiabá, in the state of Mato Grosso. Commercial daily flight services are available from Cuiabá to Alta Floresta, the nearest population center (95km south-east from the Project). Access from Alta Floresta is via paved highway MT-208, 55 kilometers to the town of Paranaíta. From Paranaíta, another 40 kilometers of dirt road, crossing the Teles Pires River, provides access to the project. River crossing requires a minimal toll fee and is managed by a local company operating a river barge and tugboat. The barge is of sufficient size to transport large tractor trailers and small-scale mining and processing equipment. The Maria Bonita property shown on Figure 5-1.

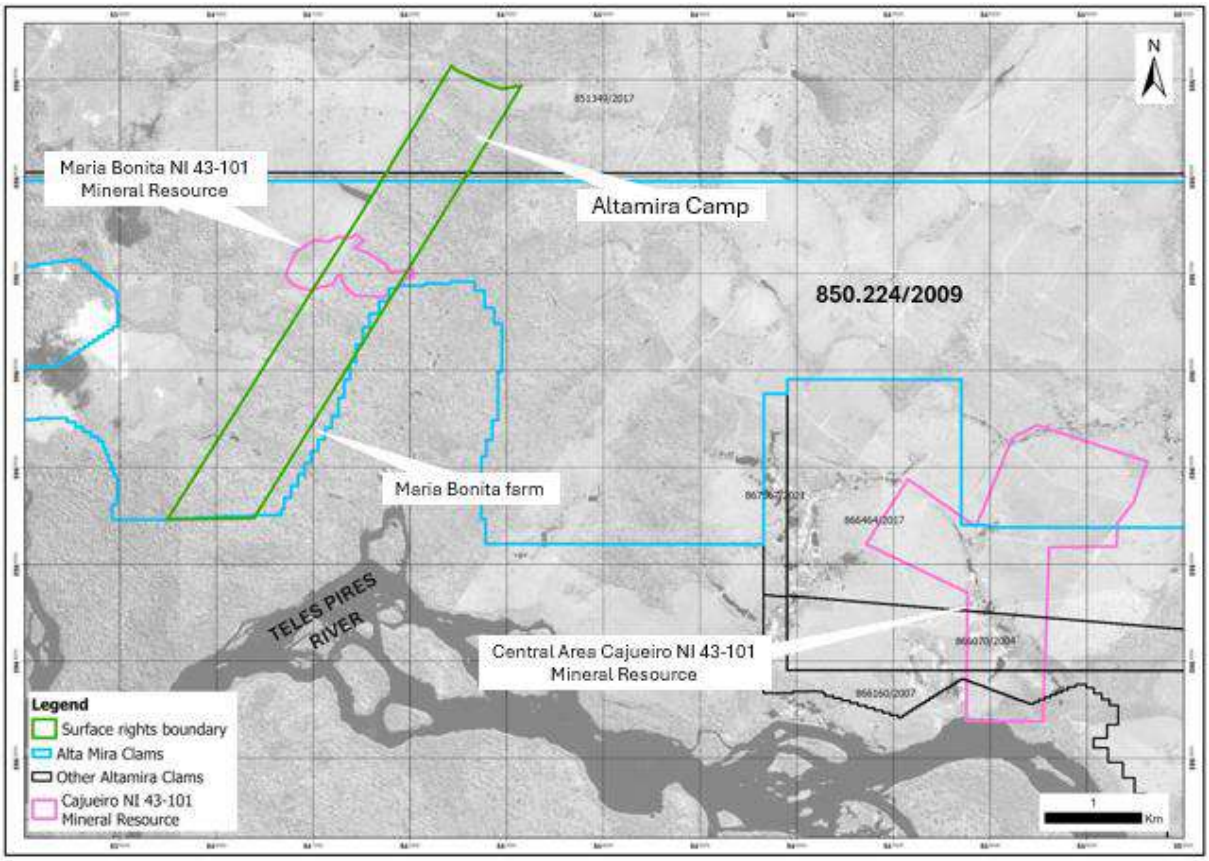


Figure 5-1 - Maria Bonita Site Map.

5.4 INFRASTRUCTURE AVAILABILITY AND SOURCES

The Teles Pires and its tributaries were the site of artisanal alluvial mining (garimpos) from the 1970s to 1990s. Notably, there was no significant alluvial garimpeiro mining in the close vicinity of the Project and very few of the alluvial sources in the district were traced to their hard-rock sources. Since 2007, modern exploration and drilling activities have been carried out. Altamira has established a camp and sample storage facility within the Project area to support exploration activities, and the camp is currently sufficient for up to 30 people.

5.4.1 POWER

The Project is provided with electrical power by CENTRAIS ELETRICAS DO PARA S/A CELPA. The current is sufficient for lighting and operation of appliances at the camp. For future construction of a mine and processing plant, Altamira is requesting the services of the company LÍDER CONSTRUÇÕES ELÉTRICAS LTDA.

At the Altamira camp, there is also a 33 kW diesel powered generator with a 10,000 liter fuel tank with sufficient capacity for approximately 3 months of use. Diesel is brought to the Project by truck and storage tanks are refilled year-round.

Existing power infrastructure is not adequate for mining activities as the power demand is likely to be greater than what can be reasonably supplied by one diesel generator. A potential future power source may be a major hydroelectric power plant on the Teles Pires River, such as the Teles Pires hydroelectric dam which is located approximately 22 kilometers west of the Project. Unit one of this plant was commissioned in November 2015 and a new power line serving the Project area is planned. The current design capacity is 1820 megawatts.

Existing power infrastructure is adequate for foreseeable exploration activities. Connection to the existing power grid or installation of a multiple unit diesel generating station will be required for a future mineral process plant.

5.4.2 WATER

Process water, such as for drilling purposes, is pumped from shallow lakes or flooded pits to the site of utilization. In some instances, a water truck is used to transport water to the drill sites.

Drinking water is supplied in 20 liter bottles purchased in Paranaita or in Alta Floresta. Bathing water is pumped from the well on site to tanks in the different blocks of the camp accommodation. The well has provided all required water to date.

The existing water supply is adequate for foreseeable exploration activities; however, it is not expected to be adequate for mining activities. Water rights may be claimed with ANM for areas that are permitted for mining. The water source for the planned process plant are currently being investigated by Altamira.

5.4.3 MINING PERSONNEL

The population centers in the vicinity of the Project include Paranaíta, located approximately 40 kilometers south of the Project area, and Alta Floresta, located approximately 95 kilometers south-east of the Project area. The populations are approximately 10,000 in Paranaíta, and 50,000 in Alta Floresta. The capital city of the state of Mato Grosso is Cuiabá, located 900 kilometers south of the Project area, with a population of 650,000.

The availability of professional exploration and support staff has been good, with professionals based in Alta Floresta or commuting from Cuiaba. Contractor drilling crews, oversight and support personnel were mobilized from Belo Horizonte, Brazil. For the foreseeable activities, personnel availability is not foreseen as an issue.

For future mining activities, several producing gold mines are located in the state of Mato Grosso and mining personnel are expected to be available within the region. Altamira plans to source experienced personnel from existing operations and supplement them with the local workforce.

ITEM 6: HISTORY

During the late 1980s and 1990s, primary gold mineralization in the Juruena Belt was worked from alluvial and saprolitic material in drainages and less frequently from mineralized fracture zones using high power water hoses. Chapleau (2007) cites an “official government estimate of total placer gold production (to 1993) is between 7 million and 10 million ounces, but actual production is believed to be two to three times higher.” Within the Cajueiro district, which includes the Project area, gold was historically extracted from both alluvial and saprolitic sources on the property of Alvaro Tavares, where Filao Alemao, Filao Alvaro, Filao Espiro, Grota Baldo, Grota Crente, Filao do Torinho, and Garimpo do Caretinha were worked. It is noteworthy that there is no evidence that the Maria Bonita mineralization was traced to its source as there are no outcrops nor surface workings at the project site.

Historical processing methods included gravity concentration and amalgamation of gold using mercury.

6.1 HISTORICAL EXPLORATION

In 2016, Altamira received the first soil sample results from the area now known as Maria Bonita. At the time, results were obtained from only a single soil line, with values ranging from 60 ppb to 370 ppb Au. In the context of soil sampling within the Cajueiro district, these results were highly anomalous.

In 2020, the company carried out an extensive follow-up soil sampling program, and the analytical results outlined a large anomalous area of approximately 1km^2, with an average gold grade of 260 ppb and a range from 30 ppb to 3,243 ppb**.**

Following definition of this large, coherent soil anomaly, supported by anomalous airborne and ground magnetic responses, indicating a magnetic low interpreted as evidence of potential hydrothermal alteration, experimental pitting was trialed. However, the soil and saprolite cover was too thick to reach bedrock. In the absence of any outcrop in the Project area, it was decided to drill test the center of the soil anomaly.

Altamira began drilling campaigns on the Project in 2022. The Table 6-1 presents a summary of the campaigns carried out.

Table 6-1 - Maria Bonita Exploration Work Summary.

Year	Description
2022	09 HQ and NQ diamond drill holes with 1,134.78 meters
2023	59 auger holes with 544.70 meters
2024	22 HQ and NQ diamond drill holes with 3,575.70 meters
2025	03 HQ and NQ diamond drill holes with 1.647,47 meters
2026	09 HQ and NQ diamond drill holes with 2.336,35 meters

Following successful completion of the first diamond drilling campaign and the identification of consistent gold mineralization over downhole widths of more than 50m, a second campaign of mechanized augur drilling was trialed to better understand the relationship between the soil anomaly and the underlying saprolite mineralization.

With the confirmation of a potential mineral deposit, a third program of diamond drilling was conducted to determine the limits of the known mineralization and commence infill data collection.

ITEM 7: GEOLOGICAL SETTING AND MINERALIZATION

7.1 LOCAL GEOLOGY

The rocks located in the Project area are, in order of age, inferred oldest to youngest, volcanics associated with the Colíder Group, including both effusive and explosive phases, plutonism of the Teles Pires Suite, and mafic dikes. The Maria Bonita intrusive body is a multiphase rhyolitic porphyritic intrusion emplaced into host rocks of the Colíder Group.

Maria Bonita is interpreted as an unusual example of a Proterozoic porphyry gold system. The preservation of such ancient systems is relatively uncommon because their shallow crustal setting makes them susceptible to erosion during subsequent tectonic and orogenic events. A further distinctive feature is the very low sulphide content of the, to date, main eastern mineralized body.

The lithological, mineralogical and textural characteristics of Maria Bonita, particularly the abundant Type-A quartz veins forming sheeted arrays and stockworks, together with the distribution of gold mineralization, support its interpretation as a porphyry gold deposit (Sillitoe, 2024). Contacts between successive intrusive phases are locally marked by unidirectional solidification textures (USTs), interpreted to have developed near the upper margins of individual intrusive pulses. Fragments of earlier intrusive phases enclosed within younger intrusions locally form magmatic breccias.

The mineralized intrusions and their volcanic country rocks are cut by late, generally barren feldspar porphyry intrusions and associated mafic rocks, interpreted to represent a bimodal intrusive assemblage. Aphanitic mafic rocks locally occur along the margins of the feldspar porphyry intrusions. Relict feldspar-porphyry textures within some mafic intervals suggest a genetic relationship between these components, although their precise origin remains interpretative. The latest mafic dykes crosscut both the mineralized porphyries and the later barren felsic intrusions, Figure 7-1.

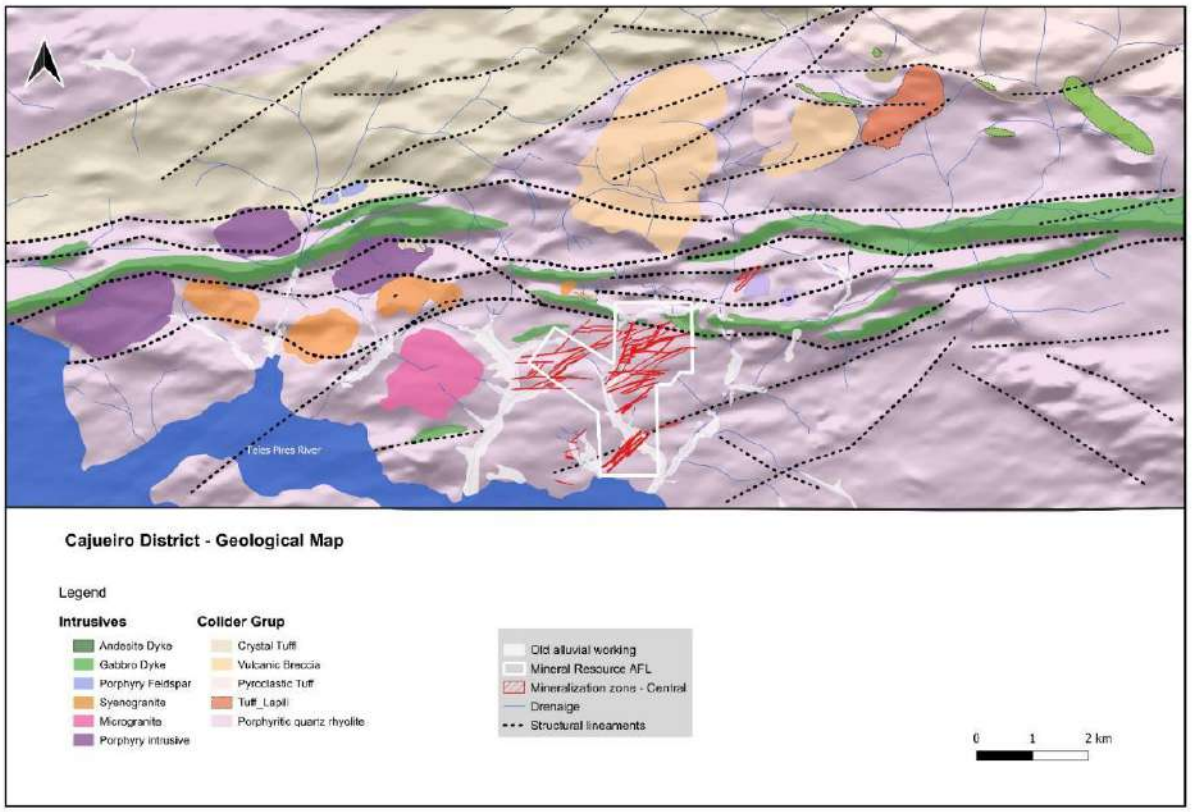


Figure 7-1 - Geological Map of the Maria Bonita Project. (AFGM 2025).

7.2 PROPERTY GEOLOGY

The Maria Bonita system is interpreted as being hosted in volcanic rocks of the Colíder Group, Figure 7-2. The geological map is interpreted from drillcore as there is no outcrop within the drilling area. The rocks that make up the Maria Bonita intrusive are multiphase and rhyolite in composition. Post-mineral barren aplite and mafic dikes of bimodal magma composition, include a felsic facies (feldspar porphyry) and a mafic facies (fine grained diorite).

The northern margin of the porphyry intrusive has been intersected in several drillholes. The wall rocks to the north are tuffs interpreted as part of the Collider volcanics. In places, these tuffs host porphyry-related mineralized quartz veining of a similar style to those found in the porphyry itself. The southern and eastern contacts of the main porphyry have not yet been defined by drilling. To the west, the character of the porphyry hosted mineralization changes and is accompanied by minor disseminated and vein sulphides (pyrite). A fault zone, now occupied by post-mineral felspar porphyry dykes is interpreted between the two porphyry bodies.

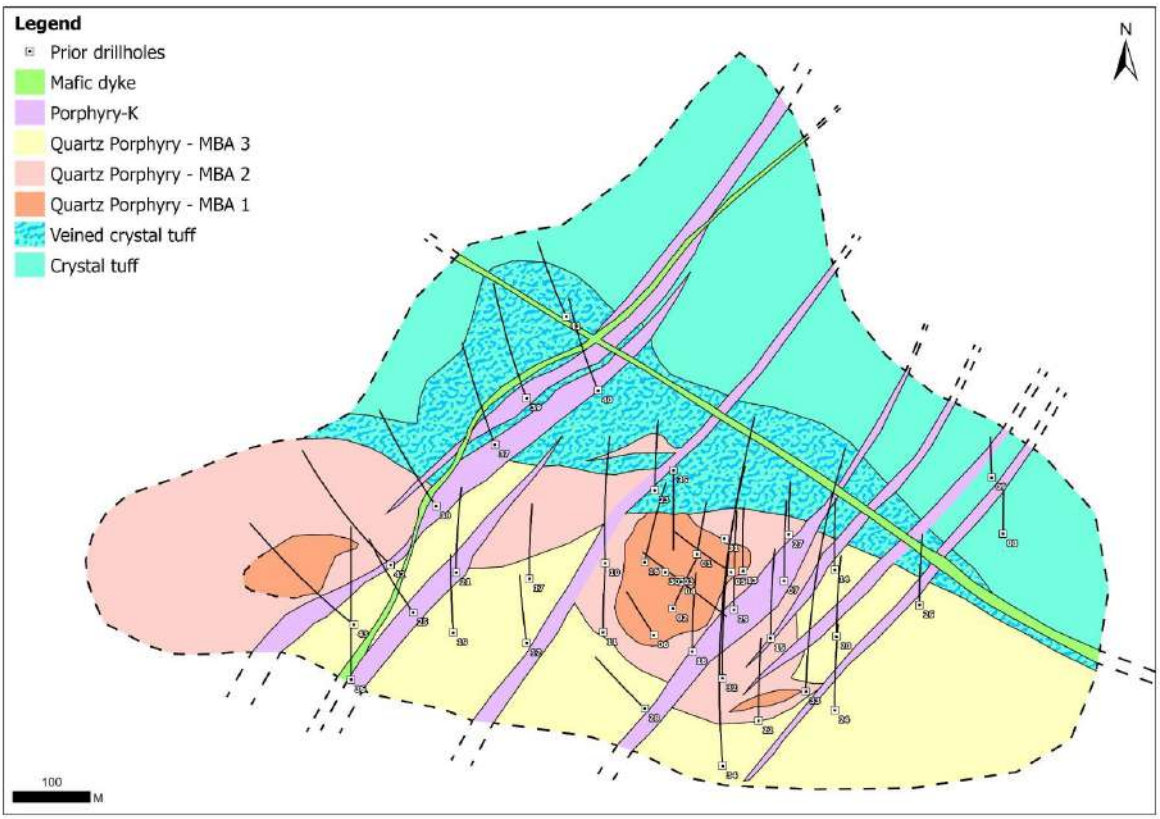


Figure 7-2 - Interpreted geological map of Maria Bonita showing the porphyry phases, veined crystal tuffs, later dykes and drill-hole locations. (AFGM 2025).

7.3 PORPHYRY PHASES AND LATE INTRUSIONS

The mineralized rhyolite porphyries are generally pink to dark red, with a fine-grained to aphanitic groundmass and approximately 5–10% quartz and feldspar phenocrysts. Quartz, alkali feldspar and plagioclase occur as phenocrysts, locally with subrounded outlines. Differences in phenocryst abundance, groundmass texture, alteration and vein intensity distinguish successive intrusive phases. A representative hand specimen is shown in Figure 7-6.

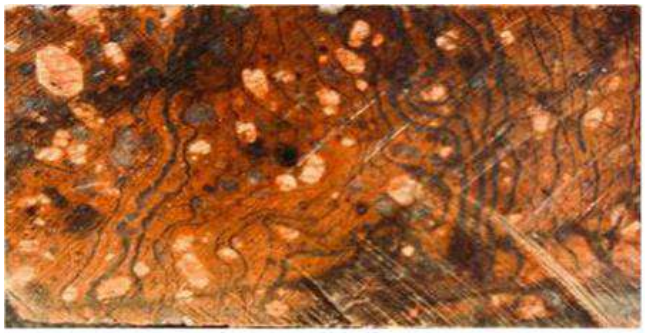
The porphyries are cut by straight to irregular quartz veins forming sheeted arrays and stockworks. Clear quartz-dominant veins occur with darker veinlets containing quartz, biotite variably altered to chlorite, chlorite, fluorite and iron oxides. Type-A quartz veins locally display regular crack-seal textures or more irregular syntaxial growth. Pyrite is generally sparse in the main eastern body, although its abundance varies between intrusive domains. Representative textures and vein relationships are illustrated in Figure 7-3 and Figure 7-4.

The earliest recognized mineralized porphyry phases generally contain the most intense quartz veining and hydrothermal alteration. Subsequent pulses may be similar in composition and appearance but commonly display weaker veining and lower gold **grades**. This

relationship is interpreted as reflecting successive intrusive and hydrothermal events rather than a single homogeneous mineralized body (Altamira Gold, 12 May 2026).

Late feldspar porphyry, aplite and mafic dykes cut the earlier mineralized phases and locally interrupt mineralized intervals. The felsic dykes contain quartz, alkali feldspar and plagioclase phenocrysts in a felsitic groundmass, with variable sericitization and saussuritization.

Mafic dykes are dark green, massive and locally magnetic, with chlorite, biotite and epidote alteration and quartz–carbonate veinlets. These late intrusions are generally weakly mineralized or barren relative to the earlier quartz-veined porphyries. Examples of the late mafic dyke are shown in Figure 7-5.



DDMBA-0003: From 28.30 m to 28.40m (1.0m@1.14 g/t_Au from 28m) UST's zones, interminerals - MBA01



DDMBA-0003: From 37.40 m to 37,57m (1.0m@1.31 g/t_Au from 37m) UST's zones, interminerals - MBA01



DDMBA-0029: From 50,50m to 50,65m (1.0m@1,6 g/t_Au from 50m) stockwork_sheets de Venulets A-type , interminerals - MBA01



DDMBA-0029: From 50,38m to 50,50m (1.0m@1,6 g/t_Au from 50m) stockwork Venulets A-type , interminerals - MBA01

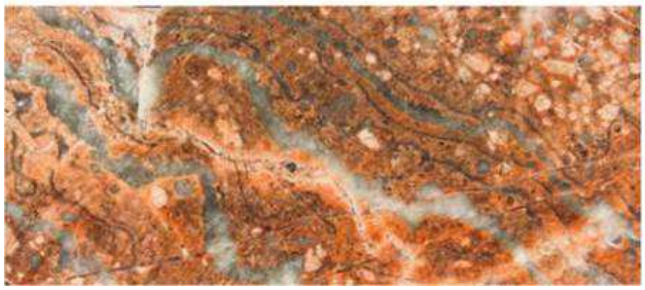




Figure 7-3 - Petrographic characteristics of the Maria Bonita porphyries: UST textures and quartz-vein arrays in DDMBA-0003 and DDMBA-0029. Source: Altamira Gold, original photographs.



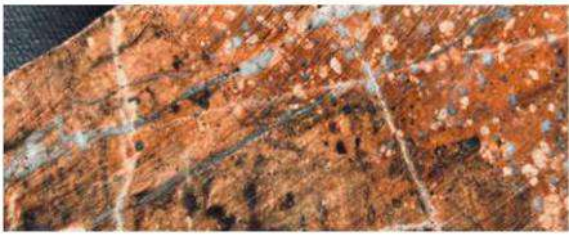
DDMBA-0029: From 60,90m to 61,00m (1.0m@ 2,4 g/t_Au from 60m) stockwork Venulets A-type, breccied , interminerals - MBA01 (BRI-001)



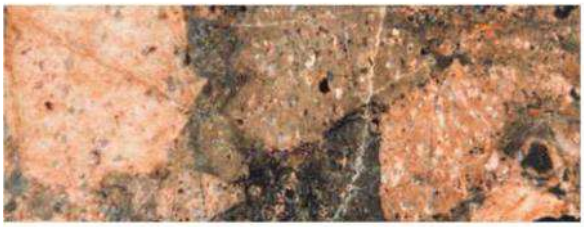
DDMBA-0029: From 38,60m to 38,70m (1.0m@0,94 g/t_Au from 38m) breccied Venulets A-type , interminerals - MBA01 (BRI-001)



DDMBA-0020: From 113,50m to 113,80m (1,00m@0,57g/t_Au from 113m) Intermineral –MBA02/BRI02



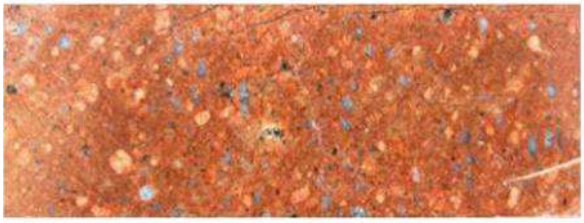
DDMBA-0029: From 212,00m to 212,20m (1.0m@0,48g/t_Au from 212m) breccia igneous zone BRI-03



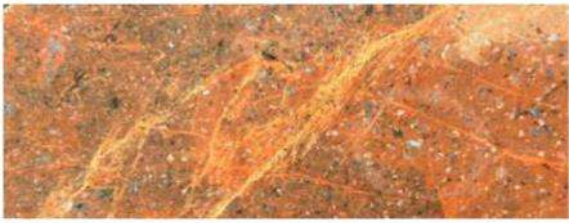
DDMBA-0029: From 151,80m to 151,95m (1.0m@0,33 g/t_Au from 151m) breccia igneous zone MBA03/BRI-03



DDMBA-0024: From 191,10m to 161,30m (1,00m@0,4g/t_Au from 191m) Intermineral –MBA03 with chlorite sheerts



DDMBA-0024: From 51,70m to 51,90m (1,00m@0,13g/t_Au from 51m) Intermineral –MBA04



DDMBA-0014: From 49,40m to 49,50m (1,00m@0,1g/t_Au from 94m) Intermineral –MBA04/BRI04.

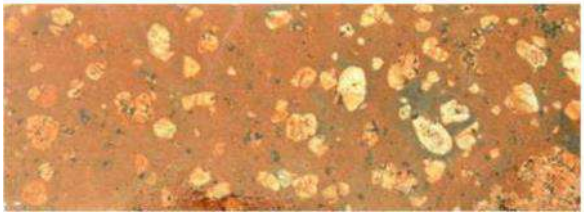




Figure 7-4 - Petrographic characteristics of successive porphyry phases, including brecciation and variable quartz-vein intensity. Source: Altamira Gold, original photographs.

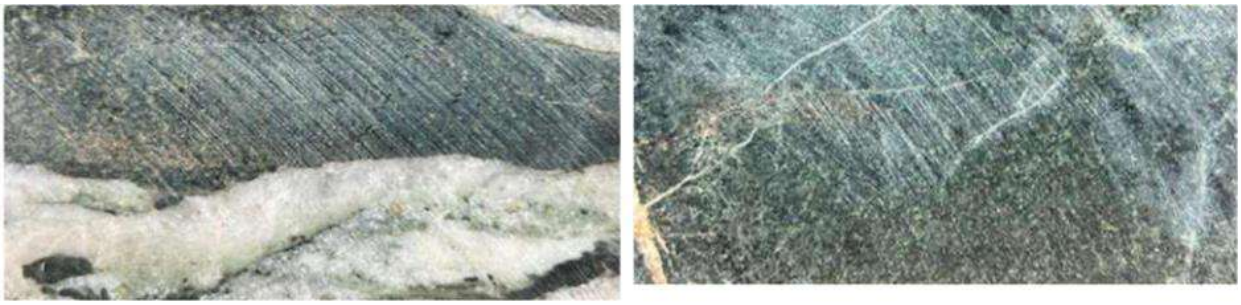


Figure 7-5 - Late, barren mafic dyke in DDMBA-0014 with quartz–carbonate veins. (A) 139.50–139.70 m. (B) 143.15–143.21 m. Source: Altamira Gold, original photographs

The felsic rocks hosting mineralization are pink to light red rhyolites with a porphyritic texture. Their phenocrysts comprise quartz, alkali feldspar and plagioclase. Euhedral pyrite is rarely observed in the main eastern body. The original geological description records an east–west-trending shear fabric and fractures filled with quartz, carbonate and chlorite (Figure 7-6).



Figure 7-6 - Porphyritic rhyolite hosting gold mineralization at Maria Bonita, with quartz and feldspar phenocrysts in a reddish groundmass. Source: Altamira Gold, original photograph.

The MBA013–MBA029 drill section illustrates repeated porphyry phases with differing vein intensities and gold grades (Figure 7-7). Late feldspar porphyry and mafic dykes commonly dip south at approximately 50–60°. A working hypothesis proposes emplacement of successive, originally shallow-dipping porphyry sheets or sills, locally approximately 50 m thick, followed by tilting to their present orientation. Unidirectional solidification textures (USTs) are interpreted to record localized magmatic–hydrothermal growth near intrusive contacts. The original geometry and subsequent tilting remain interpretations requiring further structural and petrographic assessment.

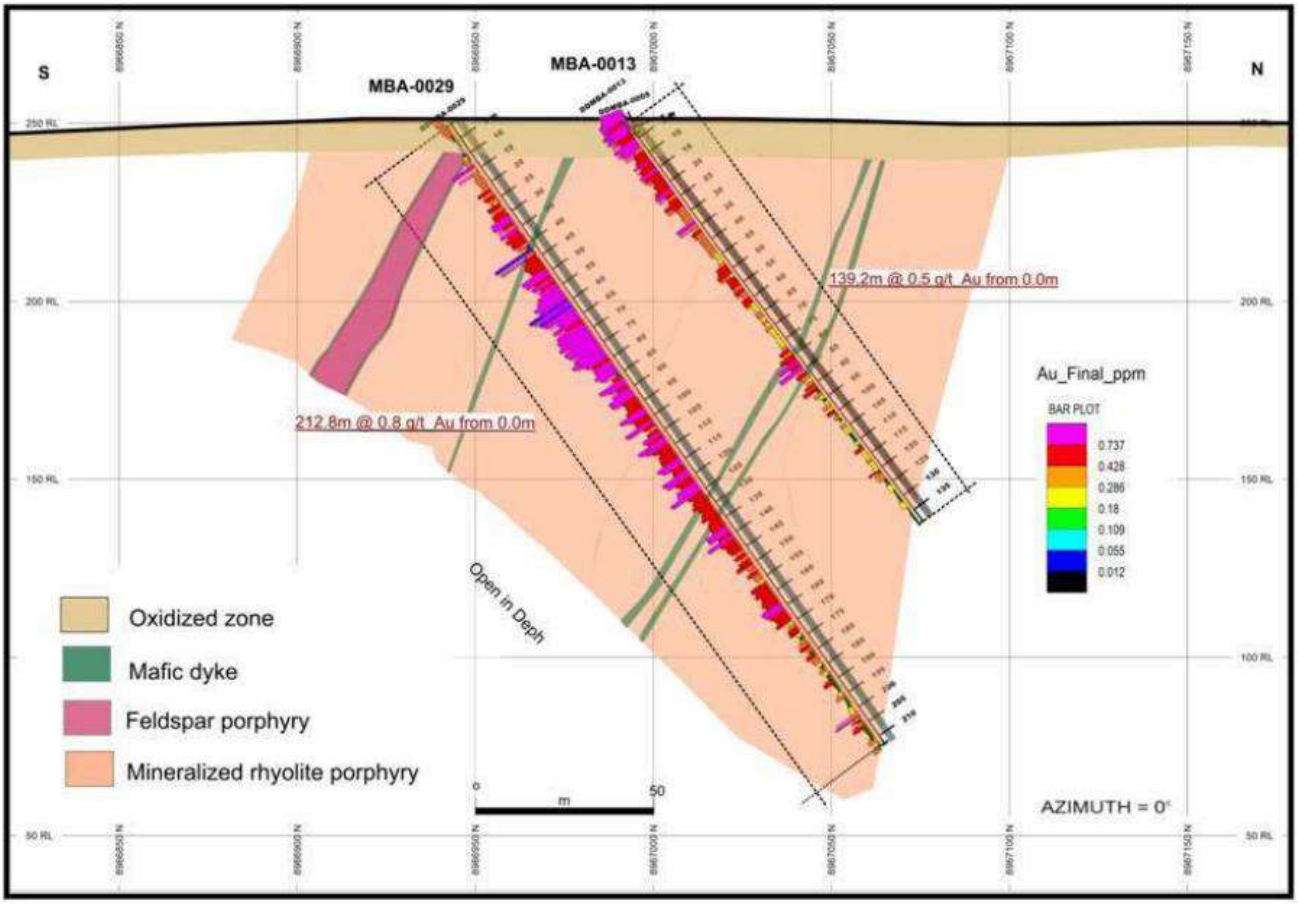


Figure 7-7 - North–south section through MBA013 and MBA029 illustrating mineralized rhyolite porphyry cut by feldspar porphyry and mafic dykes. Source: AFGM, 2025.

7.4 MARIA BONITA WEST AND MINERALIZED TUFFS

The progression of exploration led to recognition of Maria Bonita West as a separate mineralized early porphyry body. MBA036 first intersected this western body, returning 70.6 m at 0.5 g/t Au from 277 m downhole. Subsequent drilling, particularly MBA042 and MBA043, confirmed its extent. The eastern and western bodies are interpreted to be separated by a northeast-trending fault corridor occupied by late post-mineral dykes (Altamira Gold, 12 May and 25 August 2026).

The western porphyry retains the quartz-vein and stockwork style of the main deposit, but contains magnetite and more abundant accessory pyrite, locally up to approximately 1% by volume, with predominantly potassic alteration. These features distinguish it from the sulphide-poor main eastern body (Altamira Gold, 23 July 2026). Quartz veining in the western porphyry is illustrated in Figure 7-8.



Figure 7-8 - Quartz veining in early porphyry of Maria Bonita West, MBA036 at approximately 295 m. The corresponding 1 m assay interval returned 1.61 g/t Au. Source: Altamira Gold, 12 May 2026.

Crystal tuffs form country rocks adjacent to the intrusive complex. They are grey, massive to poorly sorted rocks containing quartz and feldspar crystals and lithic fragments in a finer matrix. Drilling in 2026 established mineralized quartz-vein zones beyond the porphyry contacts. Gold distribution is associated with vein intensity; un-veined tuffs are generally poorly mineralized. MBA039 returned 117 m at 0.4 g/t Au from surface, predominantly in tuffs, while MBA038 intersected mineralization across the intrusive–tuff contact (Altamira Gold, 23 July 2026). Type-A quartz veins in mineralized crystal tuff are shown in Figure 7-10. The MBA038 section shows gold values and quartz-vein frequency across the porphyry–tuff contact, demonstrating that mineralization extends into the volcanic wall rocks (Figure 7-9).

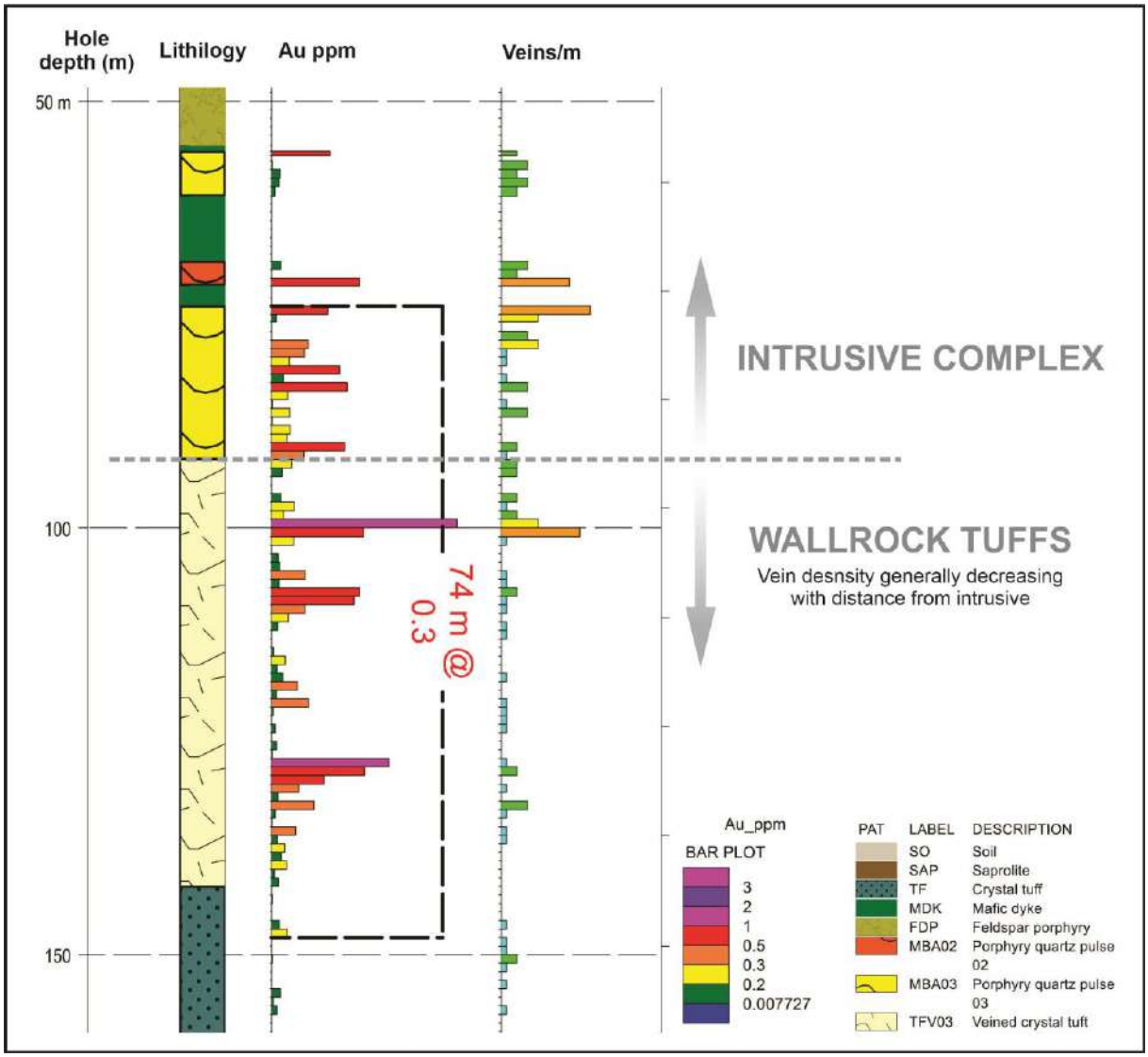


Figure 7-9 - Schematic section of MBA038 showing gold assays and quartz-vein frequency across the porphyry–tuff contact. The reported intersection of 74 m at 0.3 g/t Au spans porphyry and adjacent tuff wall rocks. Intervals are downhole lengths; true widths have not been determined. Source: Altamira Gold, press release dated 23 July 2026.



Figure 7-10 - Type-A quartz veins in crystal tuff, MBA039 at approximately 110 m. The corresponding 1 m assay interval returned 0.9 g/t Au. Source: Altamira Gold, 23 July 2026.

ITEM 8: DEPOSIT TYPE

8.1 MINERAL DEPOSIT

The Maria Bonita gold deposit is characterized as a porphyry gold deposit (Sillitoe, 2024, 2026) The gold mineralization is closely associated with A-Type quartz veining, occurring as swarms of straight and irregular quartz veins that intersect in "sheets" and/or "stockwork" patterns. Two types of veins are observed: the first is colorless, composed mostly of quartz; the second, spatially associated with the first, consists of straight black veins composed of fine-grained dark green minerals (now mostly chlorite). Bulk gold grades vary directly with the intensity of quartz veining. Macroscopically, sulfides are rare to absent in the eastern porphyry and reach minor percentages in the western intrusive.

The early porphyritic phases at Maria Bonita exhibit potassic alteration, with the intensity of alteration decreasing progressively in the younger phases. The alteration is dominated by potassium feldspar, but small amounts of biotite, fluorite, and magnetite are also present. Magnetite has undergone martitization to hematite, as the entire system was affected by alteration, turning the rock red — a phenomenon caused by the impregnation of fine-grained hematite into feldspars. Translucent, grayish quartz veins, without observable alteration halos, were introduced during the potassic event and are considered to belong to the Type-A family. Sulfide content — mainly pyrite and very subordinate chalcopyrite — is extraordinarily low, as evidenced by the average sulfur content of only 200 ppm. Therefore, most of the gold likely occurs as submicroscopic particles within the quartz veins, although minor amounts may occur with rare chalcopyrite.

Sericitic alteration, poor in pyrite, overprints the potassically altered porphyries and their quartz veins but does not appear to have introduced additional gold. In fact, it may have resulted in partial gold depletion. Where sericitic zones have sharp contacts, they are perpendicular to the core axis, implying a dip of approximately 35°, potentially to the southeast — similar to the post-mineral felspar porphyry described by Sillitoe (2024).

Four distinct intrusion phases are observed within the Maria Bonita porphyry gold deposit: one initial strongly mineralized phase and three successive pulses, each with generally lower gold contents. Their contacts are marked by the occurrence of UST-type veins and/or magmatic breccias, Figure 8-1 and Figure 8-2.

- **Initial phase (MBA01):** Composed of reddish quartz porphyry with intense potassic/hematitic alteration and abundant Type-A veining. This phase hosts the highest gold grades associated with the veining.

- **MBA02**: Veining occurs at moderate frequency, and gold grades are intermediate compared to MBA01. UST-type veins mark the contact and top of the MBA02 pulse. Xenoliths of MBA01 veins occur in magmatic breccia near the contact. Potassic/hematitic alteration is moderate, and phenocrysts are finer than in the first pulse.

- **MBA03**: Veining becomes sparse, and gold grades are low. Potassic alteration is moderate and overprinted by chloritic alteration, replacing biotite. MBA03 displays magmatic breccia textures with xenoliths from earlier pulses (MBA02).

- **MBA04**: The final magmatic pulse with low gold grades. Veining is rare, and potassic alteration is weak. It features fine phenocrysts of quartz and feldspar and contains xenoliths from MBA03.

Post-mineral intrusions consist of feldspar porphyry dikes with K-feldspar phenocrysts in a felsic matrix.

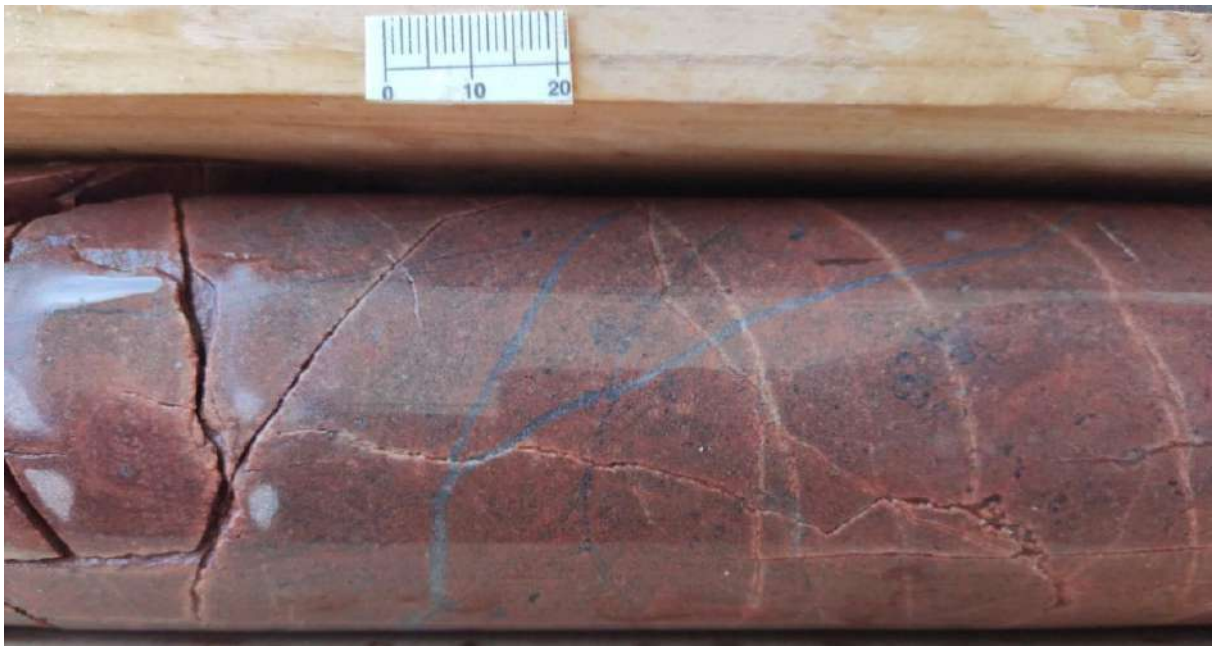


Figure 8-1 - MBA-016 with example of veining present in phase MBA02, (Altamira 2025).



Figure 8-2 - MBA-003 with example of veining in the initial phase MBA01, (Altamira 2025).

The downhole distribution of gold in MBA015 illustrates variability in mineralization within the intrusive complex (Figure 8-3). Correlation of logged phases between holes remains subject to refinement as drilling progresses.

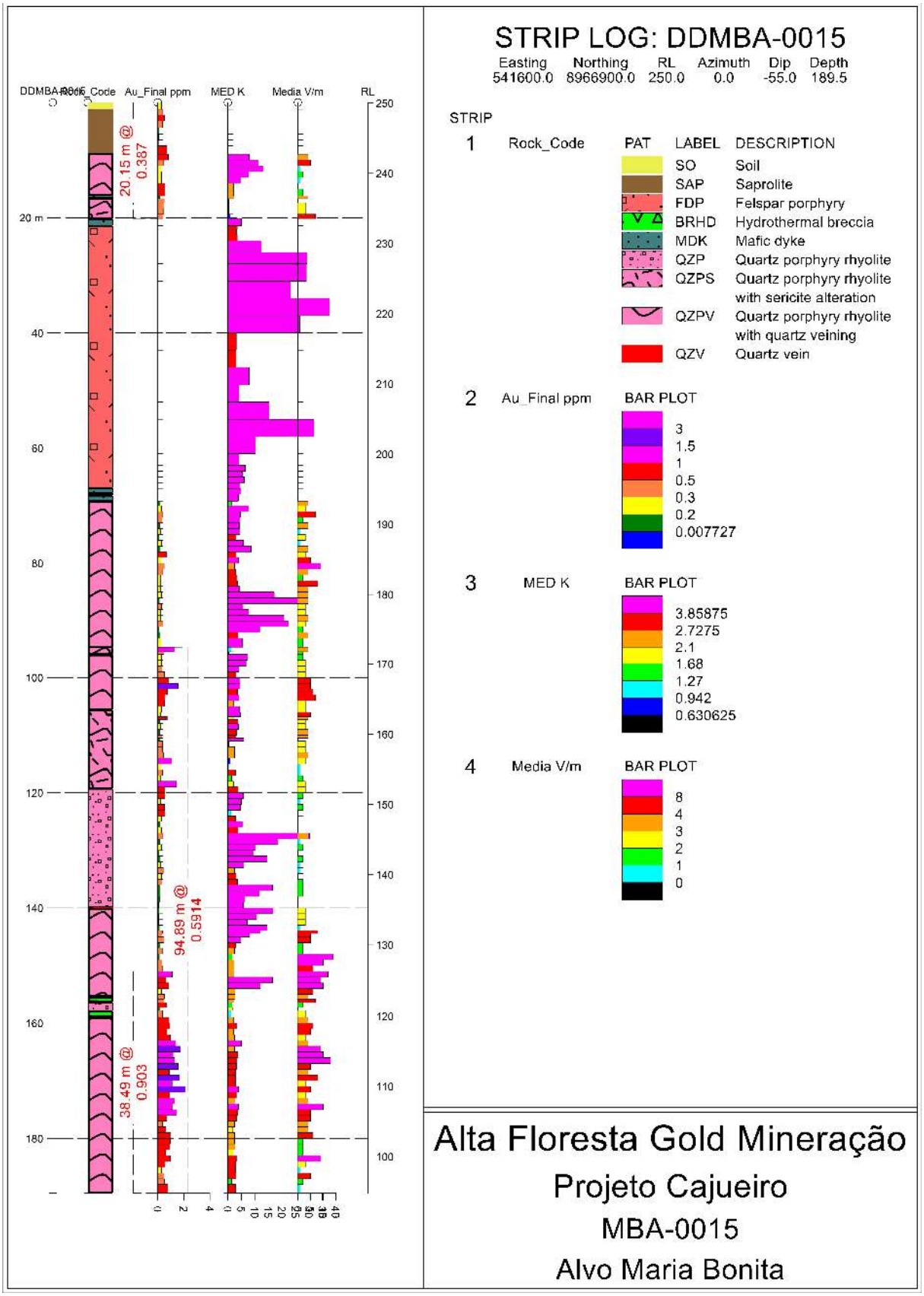


Figure 8-3 - Strip Log of MBA-015 hole showing gold distribution downhole (Altamira 2025).

Exploration during 2026 extended the deposit model beyond the main eastern porphyry. MBA036 first identified a separate mineralized early porphyry body to the west, subsequently confirmed by MBA042 and MBA043. The western and eastern bodies are interpreted to be separated by a northeast-trending fault corridor occupied by late post-mineral dykes (Altamira Gold, 12 May and 25 August 2026).

Maria Bonita West shares the quartz-vein and stockwork style of the main deposit but is distinguished by its minor magnetite content and a greater abundance of accessory pyrite, locally reported at up to approximately 1% by volume, together with predominantly potassic alteration (Altamira Gold, 23 July 2026). The MBA043 specimen at 234.80 m illustrates quartz veins and dark veinlets cutting the reddish porphyry (Figure 8-4**Erro! Fonte de referência não encontrada.**). The corresponding sample interval, 234.00–235.00 m, returned 0.886 g/t Au over 1.00 m.



Figure 8-4 - Quartz veining in mineralized porphyry at Maria Bonita West, MBA043 at 234.80 m. Sample 96959, from 234.00 to 235.00 m, returned 0.886 g/t Au over 1.00 m. Source: Altamira Gold, 2026.

Drilling also demonstrated that gold-bearing quartz veins extend into tuffaceous country rocks beyond the porphyry contacts. These mineralized wall rocks form an additional host domain within the Maria Bonita system. Gold distribution is associated with quartz-vein intensity, whereas tuffs lacking hydrothermal veining are generally weakly mineralized (Altamira Gold, 23 July 2026).

The MBA037 specimen at 132.50 m illustrates quartz veining within mineralized tuff (Figure 8-5). The corresponding 1 m assay interval returned 1.69 g/t Au. The lithological identification follows the project geological interpretation, which identifies the photographed host rock as tuff.



Figure 8-5 - Quartz veining in mineralized tuff, MBA037 at 132.50 m. The corresponding 1 m assay interval returned 1.69 g/t Au. Source: Altamira Gold, photograph published on 20 May 2026.

The recognition of mineralized tuffs broadens the deposit model to include both intrusive-hosted and wall-rock-hosted mineralization. Accordingly, the limits of individual porphyry bodies do not necessarily define the limits of the gold-bearing hydrothermal system.

8.2 GEOLOGICAL MODEL

The Maria Bonita deposit is interpreted as a porphyry gold system developed within a multiphase rhyolitic intrusive complex and its volcanic country rocks. This interpretation is supported by successive porphyry phases, abundant type-A quartz veins forming sheeted arrays and stockworks, potassic alteration, and the relationship between gold grades and quartz-vein intensity. The inferred Proterozoic age and felsic composition of the intrusive complex distinguish Maria Bonita from many younger porphyry systems. Fluorite and weakly anomalous tin and tungsten contents provide additional indications of the evolved felsic character of the system (Sillitoe, 2024).

The originally delineated eastern porphyry complex occupied an area of approximately 600 × 400 m. Exploration during 2025 and 2026 identified a separate mineralized intrusive body at Maria Bonita West and expanded the currently interpreted footprint of the porphyry complex to at least approximately 800 × 600 m, broadly elongated east–west. Drilling also confirmed quartz-veined, gold-bearing tuffs beyond the intrusive contacts. Consequently, the geological model encompasses both intrusive-hosted and wall-rock-hosted mineralization, and the limits of the porphyry complex do not necessarily define the full extent of the mineralized system.

The eastern and western porphyry bodies are interpreted to be separated by a northeast-trending fault corridor occupied by late feldspar porphyry and associated mafic dykes. Maria Bonita West shares the quartz-vein and stockwork characteristics of the eastern body but contains magnetite and more abundant accessory pyrite, together with predominantly potassic alteration. In contrast, the main eastern body is generally sulphide-poor and displays

more prominent hematitic alteration. These differences indicate variability in alteration and sulphide distribution within the broader intrusive–hydrothermal system.

At the district scale, the Project lies within an interpreted east-west trending structural corridor containing northeast–southwest fault components. These structures are considered to have influenced intrusive emplacement and subsequent reactivation. Late mafic intrusions occupy parts of the regional structural network and locally crosscut the mineralized felsic rocks.

A working hypothesis proposes that successive porphyry phases were emplaced as shallow-dipping sheets or sills and subsequently tilted towards the south to southeast. Present intrusive and dyke contacts locally dip approximately 45–70°S. USTs, magmatic breccias and systematic variations in vein intensity support the interpretation of repeated intrusive pulses, although the original emplacement geometry and the extent and timing of subsequent rotation remain incompletely constrained. Vein orientations provide additional structural information, but consistent treatment of plane and pole measurements is required before these data can be used to quantify post-mineralization tilting.

Within the intrusive complex, early porphyry phases generally contain the most intense quartz veining and strongest gold mineralization, whereas later pulses commonly display weaker veining and lower gold grades. Mineralized quartz veins also extend into adjacent tuffs, forming an external mineralized domain. Late feldspar porphyry and mafic dykes locally interrupt these zones and are generally weakly mineralized or barren.

The geological model therefore integrates successive intrusive phases, contrasting alteration and vein intensities, mineralized tuffaceous wall rocks, and late crosscutting intrusions. These relationships provide the framework for geological domaining and resource estimation, as discussed in Section 14.

ITEM 9: EXPLORATION

Exploration at Maria Bonita began in 2016, when Altamira Gold obtained the first soil geochemical results from a single sampling line across the area. Gold concentrations ranged from 60 to 370 ppb Au, identifying a significant anomaly that warranted follow-up exploration.

9.1 GEOCHEMICAL SAMPLING

In 2020, an expanded soil sampling programme delineated a gold-in-soil anomaly covering approximately 1 km². Reported gold concentrations ranged from 30 to 3,243 ppb Au, with an average of 260 ppb Au (Figure 9-1). This anomaly provided the initial focus for subsequent geological mapping and drilling, which led to the discovery and delineation of the Maria Bonita porphyry gold deposit.

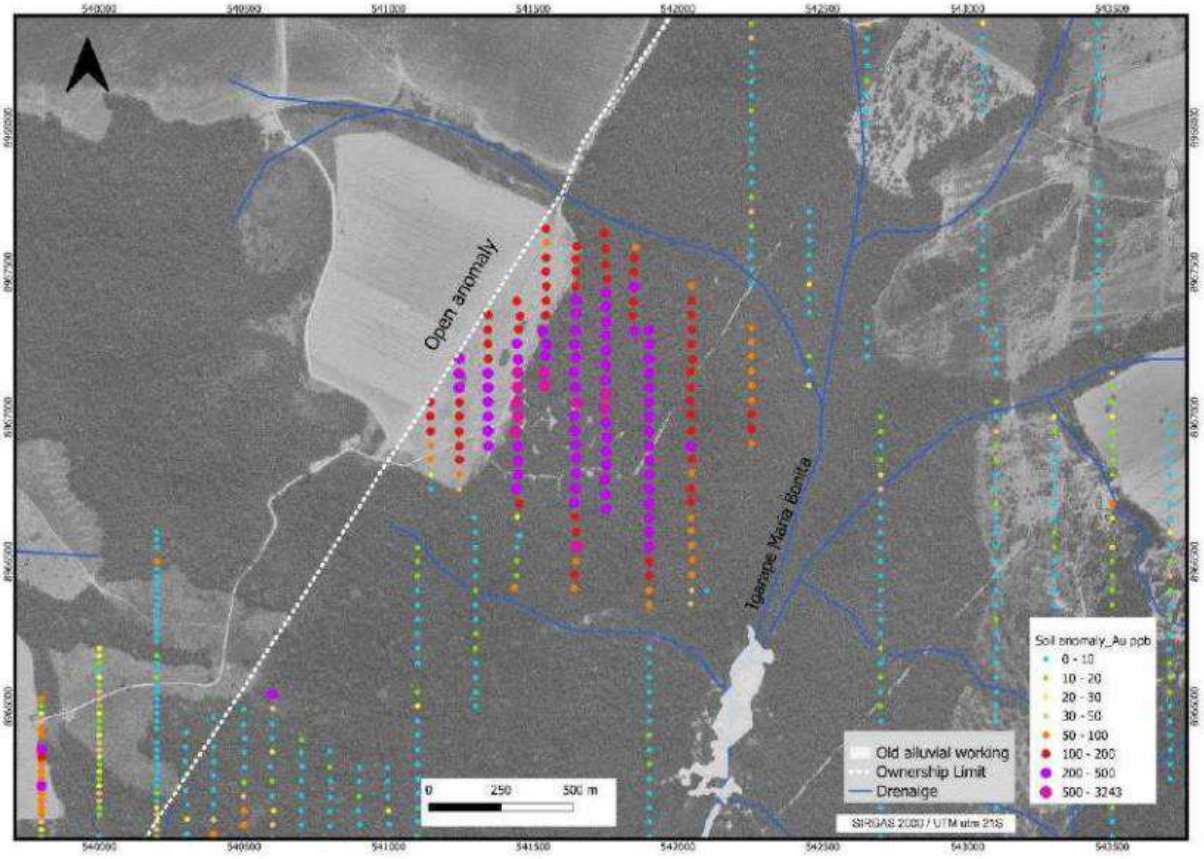


Figure 9-1 Soil anomaly map for the Maria Bonita Project

Grid mapping did not reveal any outcrops in the area of the soil anomaly. There is also no evidence of surface workings for gold within the soil anomaly.

Although there has been some previous alluvial garimpo gold extraction in the lower reaches of the stream draining south from the prospect, the closest former alluvial workings to the site of the soil anomaly are approximately 2km.

Attempts were made to open a bulldozer trench in the eastern section of the soil anomaly, along an existing farm track (TCMBA-0001), however bedrock was not reached.

Until mid 2026, exploration activities were constrained by lack of access to the farm property to the west of the Maria Bonita farm (Figures 5-1 and 9-1). This limited surface sampling, drilling and airborne drone magnetic surveying. Subsequently, an access agreement was concluded which now allows exploration to extend to the west.

9.2 TRENCHING

Trenching at Maria Bonita was undertaken to investigate near-surface gold mineralization and improve the geological interpretation of the porphyry intrusive complex and its surrounding volcanic rocks. The sampling database contains 788 sample intervals representing a cumulative sampled length of 897.3 m from five trenches, TCMBA-0001 to TCMBA-0005. This comprises 228 m sampled in TCMBA-0001 in 2022 and 669.3 m sampled in four additional trenches in 2026.

The trenches were excavated using a front-end loader, with excavation continuing to the saprolitic horizon where accessible. Geological logging documented weathered porphyry intrusions, tuffs, feldspar porphyry and mafic dykes, together with quartz veining, stockwork zones and geological contacts. Residual soil and colluvium were also recorded along portions of the trenches; consequently, the sampled material does not consist exclusively of in situ saprolite, Figure 9-2.

Samples were collected from the trench walls at nominal 1 m intervals during the 2026 programme, with interval boundaries adjusted to respect lithological contacts. Samples from TCMBA-0001 were collected at 2 m intervals. Quality control samples were inserted into the sample submission sequence as part of the quality assurance and quality control (QA/QC) programme. Sample identifiers, interval limits, lithological descriptions and analytical results were recorded in the exploration database. Trench starting coordinates are reported in the SIRGAS 2000 / UTM Zone 21S coordinate reference system, and survey records document changes in trench alignment. The samples were analysed by SGS Brazil.

Trenching documented quartz-veined and stockworked saprolite developed over both porphyry and tuffaceous host rocks. In TCMBA-0005, a length-weighted composite calculated from the gold assay data returned 114 m grading 0.73 g/t Au between points 122 m and 236 m along the trench.

The trench results complement the diamond drilling interpretation by providing information on near-surface gold distribution and geological contacts. Reported intervals are measured along the trench sampling lines and do not necessarily represent the true widths of mineralization, Figure 9-3.



Figure 9-2 - General view of the exploration trenches at Maria Bonita.

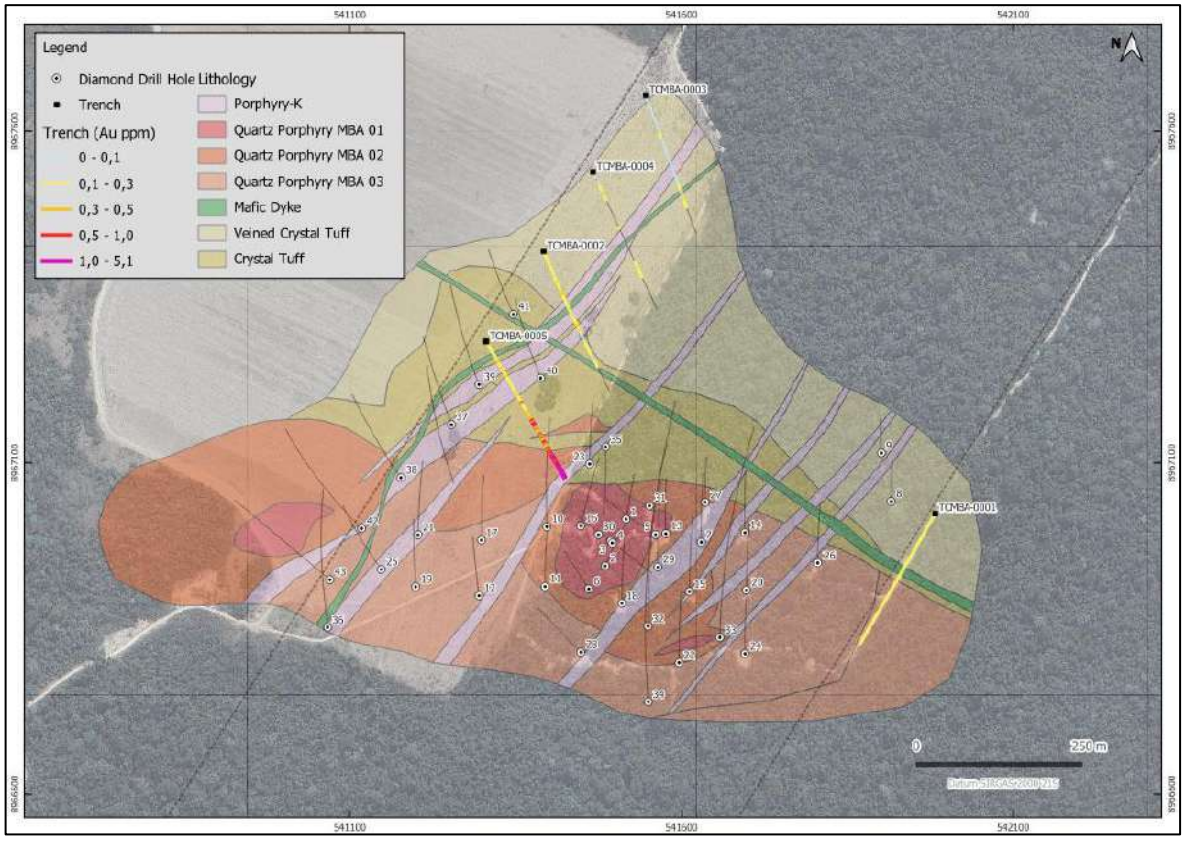


Figure 9-3 - Geological map of Maria Bonita showing trench locations and sampled intervals.

Proprietary regional aeromagnetic and radiometric data were reviewed as part of the exploration programme. No distinctive radiometric response has been identified over the subcropping intrusive body. Ground magnetic surveying along north–south lines spaced 100 m apart further defined the magnetic pattern across Maria Bonita (Figure 9-4).

The mineralized zone is spatially associated with the transition between magnetic highs and lows. Magnetic response increases westwards towards Maria Bonita West, consistent with drill-core observations of magnetite-bearing, quartz-veined porphyry with predominantly potassic alteration and accessory pyrite. This correspondence suggests that magnetic contrasts may assist in tracing the western intrusive body and its contacts when integrated with geological mapping and drilling.

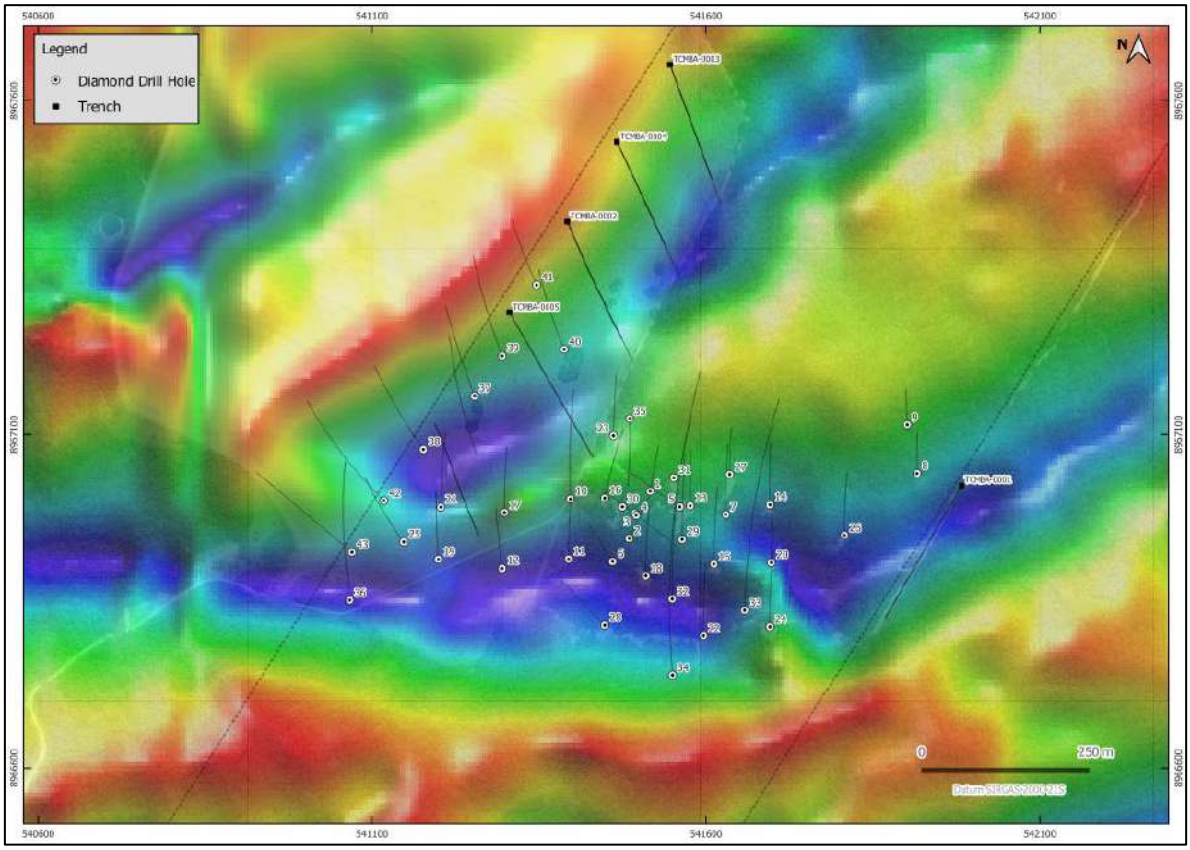


Figure 9-4 - Ground mag map – Something like this – update with DDH collars.

ITEM 10: DRILLING

The subsections below detail the exploration drilling completed at the Project.

Prior to the drilling carried out by Altamira, there is no evidence of any prior hard-rock exploration or drilling having been conducted at the Project.

The authors found no drilling, sampling, or recovery factors that might materially affect the accuracy of the assay results used as the basis for the current estimation. Drill core recovery is reported to average 95%.

10.1 FIRST DIAMOND DRILLING CAMPAIGN (2022)

A nine-hole drill program was focused on the shallow testing (<180m) of the center of the soil anomaly, with the last two holes located to test the eastern sector of the anomaly. Drill holes were mainly inclined at 60°.

The program commenced in June 2022 and terminated in August 2022. Average production from two shifts per day was 15 meters per shift

Drilling was carried out by GEOSOL – Geologia e Sondagens S/A, based in the city of Belo Horizonte, State of Minas Gerais, Brazil. GEOSOL used a MACH-1200 drill rig with an MWM Series 10 turbo diesel engine, model TCA, 6 cylinders, and 210 HP, mounted on metal tracks. The rig has a capacity of 600 meters in HQ and 800 meters in NQ. The holes were drilled to produce HQ core for the first 50 meters from surface and NQ core down to the end of the hole.

The weathering profile in the project area is such that fresh, unweathered bedrock was encountered between 20 and 50 meters depth downhole. The upper saprolite levels required casing of the holes to prevent caving.

All cores were cut in half at the field camp using a water-cooled diamond saw. Core cutting and sampling were supervised by the project geologist and Altamira technicians. Half of the core was sent for assay, while the other half was retained on site for reference and additional geological studies.

A total of nine HQ and NQ diamond drill holes tested the soil anomaly at the Maria Bonita Target, for a total of 1,134.78 meters of drilling, Table 10-1.

Table 10-1 - Drillhole Summary for 2022 Drilling Program.

HOLE ID	EASTING (metros)	NORTHING (metros)	ELEVATION (metros)	AZIMUTE (°)	DIP (°)	TOTAL LENGTH (metros)
DDMBA-0001	541515	8967012	244,80	10,14	-55,02	121,36
DDMBA-0002	541485	8966938	245,80	23,60	-55,72	134,98
DDMBA-0003	541495	8966983	245,70	305,40	-55,71	105,96
DDMBA-0004	541497	8966978	245,70	126,09	-54,54	129,50
DDMBA-0005	541563	8966993	243,00	304,00	-55,66	157,64
DDMBA-0006	541462	8966905	245,50	327,45	-54,93	113,77
DDMBA-0007	541632	8966978	240,70	0,66	-55,70	178,77
DDMBA-0008	541916	8967041	231,60	359,91	-53,46	101,56
DDMBA-0009	541899	8967115	232,50	358,20	-55,33	91,24

10.2 AUGER DRILLING (2023)

After the first diamond drilling campaign, Altamira completed a program of 59 mechanical auger drill holes with the objective of testing gold dispersion in the soil/saprolite. The drilling was conducted using Altamira's own equipment under the supervision of the company's geologists and execution by its mining technicians. All drillholes were vertical.

The drilling program commenced in March 2023 and was completed in May 2023.

The sampling methodology involved collecting samples at one-meter intervals, respecting geological contacts. Drilling continued until no further advance was possible.

All QA/QC controls to prevent sample contamination, as well as the respective sample control procedures, were applied during sampling under the supervision of the company's geologists and technicians.

The program was conducted during the dry season to minimize the effects of groundwater on sampling procedures June 2022.

The 59 auger holes totaled 544.70 meters, with an average depth of approximately 9 meters, Table 10-2.

Table 10-2 - Auger Drilling Hole Summary 2023.

HOLE ID	EASTING (metros)	NORTHING (metros)	ELEVATION (metros)	AZIMUTE (°)	DIP (°)	TOTAL LENGTH (metros)
PAMBA-0001	541526	8966998	244,50	0,00	-90,00	11,40
PAMBA-0002	541526	8967026	244,30	0,00	-90,00	7,90
PAMBA-0002A	541521	8967029	244,40	0,00	-90,00	9,00
PAMBA-0003	541529	8967047	243,90	0,00	-90,00	7,60
PAMBA-0003A	541524	8967052	244,00	0,00	-90,00	9,60
PAMBA-0004	541524	8967070	243,80	0,00	-90,00	13,50
PAMBA-0004A	541538	8967069	243,20	0,00	-90,00	10,00
PAMBA-0005	541524	8967102	243,20	0,00	-90,00	11,50
PAMBA-0005A	541529	8967104	243,00	0,00	-90,00	9,00
PAMBA-0006	541524	8966974	245,20	0,00	-90,00	7,20
PAMBA-0006A	541532	8966972	245,00	0,00	-90,00	8,70
PAMBA-0007	541526	8966954	245,00	0,00	-90,00	9,30
PAMBA-0007A	541527	8966853	243,90	0,00	-90,00	10,00
PAMBA-0008	541602	8966988	241,90	0,00	-90,00	10,00
PAMBA-0008A	541628	8967024	240,60	0,00	-90,00	10,00
PAMBA-0009	541657	8966966	239,50	0,00	-90,00	9,00
PAMBA-0009A	541671	8966963	239,00	0,00	-90,00	8,50
PAMBA-0010	541549	8966987	243,90	0,00	-90,00	10,00
PAMBA-0010A	541549	8966993	243,90	0,00	-90,00	9,50
PAMBA-0011	541548	8967011	243,50	0,00	-90,00	10,00
PAMBA-0011A	541552	8967006	243,40	0,00	-90,00	10,00
PAMBA-0012	541549	8967060	243,30	0,00	-90,00	9,00
PAMBA-0012A	541545	8967069	243,10	0,00	-90,00	9,00
PAMBA-0013	541523	8967124	242,90	0,00	-90,00	10,00
PAMBA-0013A	541551	8967062	243,30	0,00	-90,00	10,00
PAMBA-0014	541528	8967154	242,50	0,00	-90,00	12,00
PAMBA-0015	541524	8967176	242,20	0,00	-90,00	10,00
PAMBA-0016	541550	8967156	241,80	0,00	-90,00	10,00
PAMBA-0017	541548	8967140	242,00	0,00	-90,00	10,00
PAMBA-0018	541548	8967115	242,40	0,00	-90,00	10,00

HOLE ID	EASTING (metros)	NORTHING (metros)	ELEVATION (metros)	AZIMUTE (°)	DIP (°)	TOTAL LENGTH (metros)
PAMBA-0019	541548	8967085	242,80	0,00	-90,00	10,50
PAMBA-0020	541547	8967041	243,50	0,00	-90,00	10,00
PAMBA-0021	541574	8967170	240,80	0,00	-90,00	10,00
PAMBA-0022	541474	8967003	246,20	0,00	-90,00	8,00
PAMBA-0023	541471	8966950	246,20	0,00	-90,00	9,00
PAMBA-0024	541479	8966905	245,50	0,00	-90,00	8,00
PAMBA-0025	541419	8966900	245,80	0,00	-90,00	3,40
PAMBA-0026	541509	8967036	245,80	0,00	-90,00	10,00
PAMBA-0027	541501	8967092	244,50	0,00	-90,00	10,00
PAMBA-0028	541458	8967093	245,00	0,00	-90,00	10,00
PAMBA-0029	541429	8966953	247,10	0,00	-90,00	5,00
PAMBA-0030	541519	8966898	245,30	0,00	-90,00	4,60
PAMBA-0031	541449	8966976	247,00	0,00	-90,00	6,70
PAMBA-0032	541526	8966990	245,00	0,00	-90,00	10,00
PAMBA-0033	541448	8967048	246,40	0,00	-90,00	9,00
PAMBA-0034	541588	8966968	242,70	0,00	-90,00	10,00
PAMBA-0035	541566	8966928	244,10	0,00	-90,00	9,00
PAMBA-0036	541570	8967009	243,00	0,00	-90,00	10,00
PAMBA-0037	541583	8967068	242,50	0,00	-90,00	9,00
PAMBA-0038	541574	8967125	241,80	0,00	-90,00	9,50
PAMBA-0039	541632	8967109	240,00	0,00	-90,00	10,00
PAMBA-0040	541633	8967069	240,30	0,00	-90,00	10,00
PAMBA-0041	541633	8967019	240,60	0,00	-90,00	10,00
PAMBA-0042	541651	8966955	239,80	0,00	-90,00	10,00
PAMBA-0043	541625	8966928	241,00	0,00	-90,00	8,00
PAMBA-0044	541672	8966927	239,00	0,00	-90,00	9,00
PAMBA-0045	541678	8967005	238,80	0,00	-90,00	10,00
PAMBA-0046	541663	8967069	239,30	0,00	-90,00	9,00
PAMBA-0047	541682	8967109	238,50	0,00	-90,00	8,00

10.3 SECOND DIAMOND DRILLING CAMPAIGN (2023/4)

This program was designed to infill and extend the definition of bedrock mineralization outlined in the first drill program (2022).

The program commenced in November 2023 and terminated in March 2024. Average production from 02 shifts per day was 15 metres per shift Drilling was conducted by GEOSOL – Geologia e Sondagens S/A as outlined in Section 10.1 using the same equipment. The (mainly) inclined holes were drilled to produce HQ core for the first 50 meters from the surface and NQ core to the end of the hole.

The weathering profile in the project area is such that fresh, unoxidized bedrock was encountered between 20 and 50 meters depth. The upper levels within saprolite required casing to avoid hole collapse.

All core was cut at the Altamira camp facilities using a water-cooled diamond saw. Core cutting and sampling were supervised by the project geologist and Altamira's technical staff. Half of the core was sent for assay, while the other half was kept on site for reference and further geological studies. Two vertical HQ drillholes were completed as part of this programme for potential metallurgical testwork (MBA030 & 031)

A total of 22 HQ and NQ diamond drill holes were completed totaling 3,575.70 meters, Table 10-3.

Table 10-3 - Drill hole summary for the 2023/2024 drilling program.

HOLE ID	EASTING (metros)	NORTHING (metros)	ELEVATION (metros)	AZIMUTE (°)	DIP (°)	TOTAL LENGTH (metros)
DDMBA-0010	541393	8967003	247,70	358,81	-54,80	267,19
DDMBA-0011	541397	8966912	246,00	0,57	-53,74	148,28
DDMBA-0012	541298	8966898	246,30	352,25	-55,55	151,62
DDMBA-0013	541575	8966993	242,80	358,80	-55,10	139,16
DDMBA-0014	541696	8966994	238,30	358,08	-55,57	153,11
DDMBA-0015	541610	8966904	243,00	359,95	-53,52	189,49
DDMBA-0016	541446	8967004	246,80	13,03	-56,49	182,63
DDMBA-0017	541299	8966983	248,90	359,96	-54,84	163,49
DDMBA-0018	541514	8966882	245,10	0,00	-53,94	172,11
DDMBA-0019	541198	8966911	250,00	355,87	-54,44	171,18
DDMBA-0020	541706	8966906	237,50	0,07	-55,19	173,29
DDMBA-0021	541202	8966989	250,80	359,93	-55,18	183,58
DDMBA-0022	541599	8966786	237,60	359,89	-55,69	184,03
DDMBA-0023	541468	8967093	245,00	359,95	-54,93	153,43
DDMBA-0024	541698	8966810	236,40	359,90	-54,83	186,90
DDMBA-0025	541150	8966940	252,30	324,21	-56,99	203,13
DDMBA-0026	541807	8966947	234,80	0,13	-55,61	157,33
DDMBA-0027	541639	8967036	240,30	359,90	-54,60	112,79
DDMBA-0028	541457	8966819	241,00	359,76	-55,09	152,44
DDMBA-0029	541566	8966943	243,70	359,55	-54,58	212,75
DDMBA-0030	541500	8966987	246,20	356,61	-88,23	59,12
DDMBA-0031	541558	8967034	243,20	0,00	-88,19	58,65

10.4 THIRD DIAMOND DRILLING CAMPAIGN (2025/6)

The third diamond drilling campaign was designed to expand the mineral resources delineated by the previous drilling campaigns at Maria Bonita. Drilling targeted the depth extensions of the known mineralization and its lateral continuation to the north, northwest and west, including the newly identified Maria Bonita West porphyry body.

The program comprised 12 inclined diamond drill holes, DDMBA-0032 to DDMBA-0043, completed during 2025 and 2026 for a total of 3,983.82 m (Table 10-4). Individual hole lengths ranged from 169.45 m to 603.12 m, with recorded hole angles ranging from −54.85° to −65°. The three holes completed in 2025 targeted deeper extensions of the previously delineated

mineralization, while the subsequent 2026 drilling investigated lateral extensions of the mineralized system.

The drilling provided additional geological and analytical information to assess the continuity of gold mineralization beyond the previously defined resource footprint and refine the interpretation of the porphyry intrusions, mineralized tuffaceous wall rocks and late intrusive dykes.

Table 10-4 - Drill hole summary for the 2025/2026 drilling programme.

HOLE ID	EASTING (metros)	NORTHING (metros)	ELEVATION (metros)	AZIMUTE (°)	DIP (°)	TOTAL LENGTH (metros)
DDMBA-0032	541550	8966853	243,33	359,39	-54,85	546,97
DDMBA-0033	541659	8966836	234,94	0,00	-55,00	497,38
DDMBA-0034	541551	8966739	231,52	355,64	-55,38	603,12
DDMBA-0035	541487	8967123	240,17	180,00	-65,00	244,00
DDMBA-0036	541067	8966851	248,36	0,00	-55,00	347,83
DDMBA-0037	541254	8967157	244,93	0,00	-55,00	241,28
DDMBA-0038	541178	8967077	247,51	325,00	-55,00	232,85
DDMBA-0039	541296	8967217	242,24	340,00	-55,00	252,49
DDMBA-0040	541389	8967227	240,31	340,00	-55,00	210,39
DDMBA-0041	541347	8967324	238,97	340,00	-55,00	169,45
DDMBA-0042	541119	8967000	249,94	313,55	-55,00	313,55
DDMBA-0043	541071	8966923	251,77	310,00	-55,00	324,51

Below is a summary of the core logging protocols applied:

- Core was examined and verified at the drill site by the company geologist
- Core extraction from the core boxes was carried out in a dedicated well-lit and secure facility at the camp.
- The drilling contractor provided the site core recovery data, which was reviewed and verified by the company's technician at the camp.
- Core photography was completed.
- The project geologist logged lithology, alteration, mineralogy, and structures, and marked the core samples for sampling.
- Core logging data was added to the drill hole database.
- The core was stored in secure and clearly labeled racks within the company camp site.
- The drill core logs contain the following information:

Drilling header information: drill hole number, collar coordinates and elevation, location, azimuth, dip, length, geologist, drilling dates, and core diameter.

- Core recovery per core run interval.
- Sample data: sample number with from-to intervals.
- Letter codes for the digital database for lithology (rock type, composition, shape, and texture), alteration (type, style, intensity, and mineralogy), mineralization (type, style, mineralogy, and %), and structures (type and angle to the core axis).
- Geotechnical data: RQD, weathering, and rock strength.

10.5 DRILLHOLE MAP

The locations of the forty-three diamond drill hole collars and the horizontal hole projections are presented in Figure 10-1.

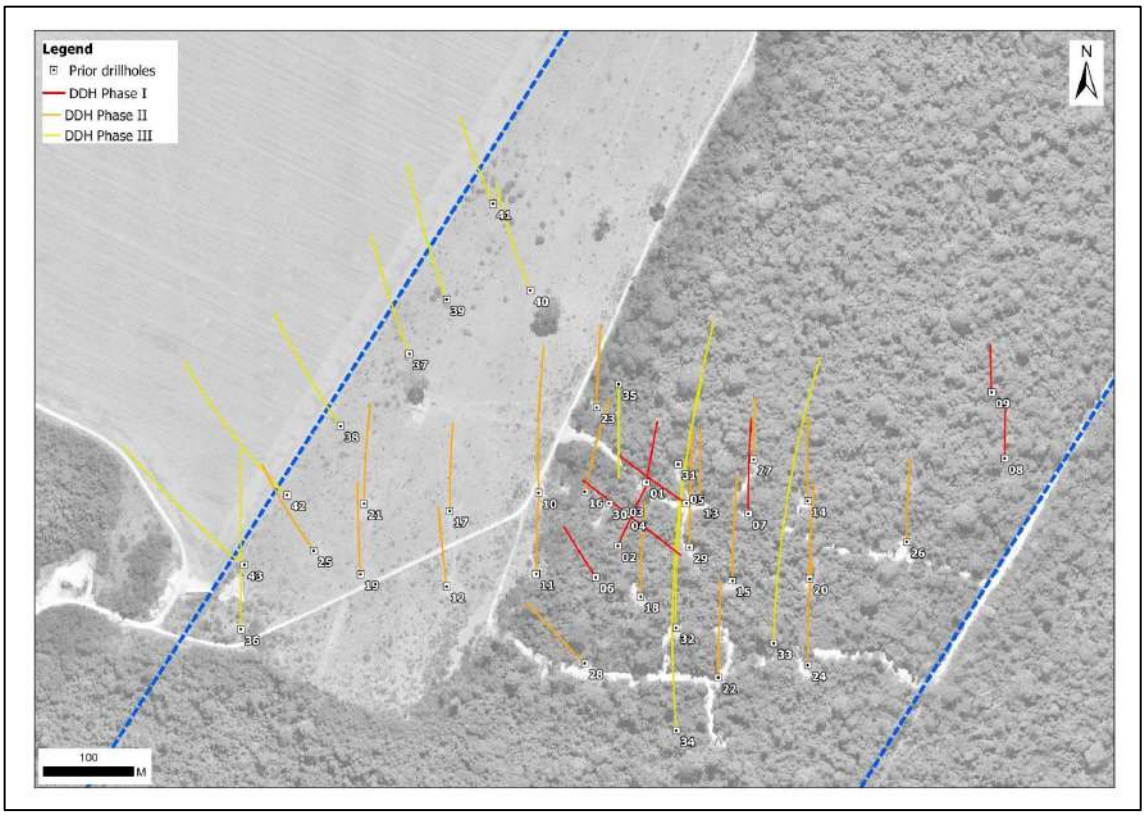


Figure 10-1 - Diamond drill drill hole location map, (AFGM 2026).

The collar positions of the 59 vertical mechanized auger drill holes are presented in Figure 10-2.

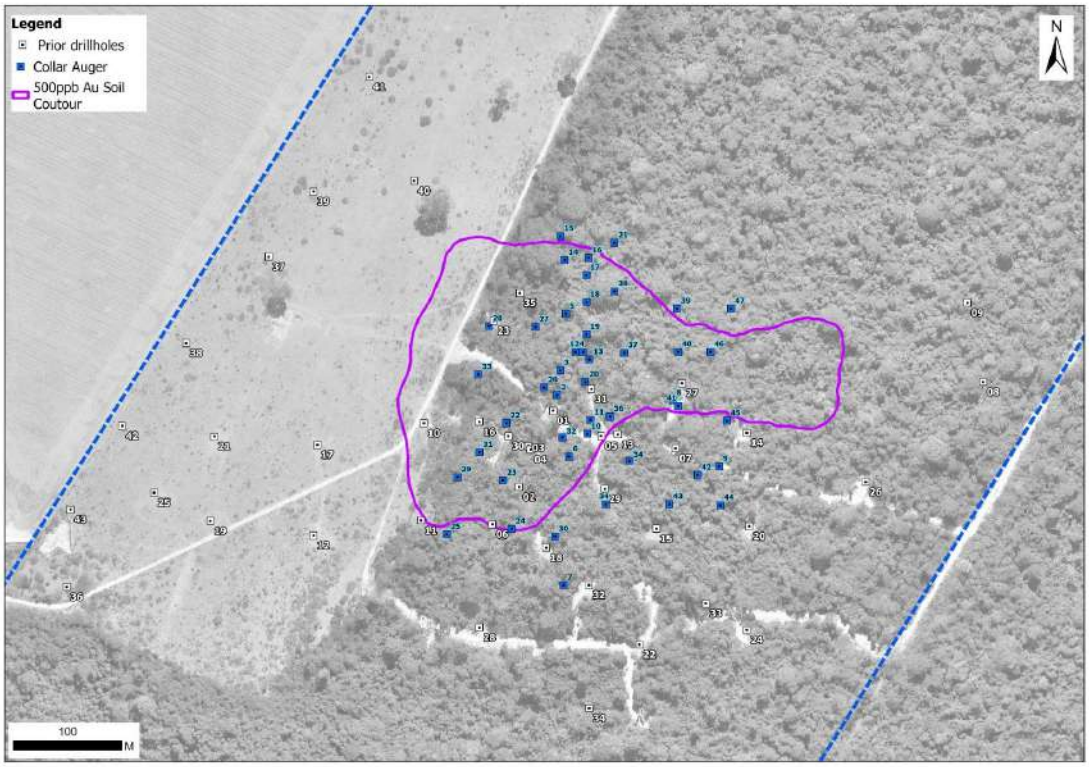


Figure 10-2 - Mechanized auger drill holes location map, (AFGM 2026).

ITEM 11: SAMPLE PREPARATION, ANALYSES AND SECURITY

This section describes the sample preparation, analysis, and sample security utilized during the exploration programme.

11.1 CORE HANDLING AND SPLITTING METHODS

Drill core is stored at the field camp core shack. Core boxes are marked sequentially with the hole number, box number and depth. In the core shack, each box was photographed to provide a visual record of the core.

The core was marked up by a geologist using a permanent marker and cut in half along the indicated line using a water-cooled diamond-bladed rock saw. The cut line was oriented to bisect any obvious mineralized structures. All core was sawn in half. After cutting, both halves of the core were placed back into the core-box and the core-box was transferred to a logging table (Figure 11-1).



Figure 11-1 - Core Logging Table.

The cut core was then logged by the project geologist. A specially prepared log sheet was used and the geologist made notes of the lithology, structural information, alteration, mineralization and other important features of the core. The geologist also marked the core boxes with the intervals to be sampled. The core was sampled at intervals ranging from 0.5 to 1.7 meter. The sampling technicians placed half of the core into new plastic sample bags and clearly marked the sample interval on the rib of the core box using permanent markers. Aluminum tags showing the sample number are attached to the core boxes to identify the sample intervals. The bagged sample was numbered and tagged; the bag being sealed with a special plastic fastener. Groups of bagged samples were placed in larger polyester sacks. These large sacks were marked as individual dispatch lots and sent to the laboratory. Chain of custody documentation is kept for each lot showing the shipper, receiver, lot number, and samples contained within each shipment.

Detailed core logs are stored in a computer database along with sample intervals and numbers.

11.2 SECURITY MEASURES

Prepared analytical samples and returned intermediary laboratory preparation samples are stored in an open-air covered building dedicated for storage. The core is well protected from rain. The building is located on private property with year-round oversight.



Figure 11.3 - Photo of Onsite Core Storage Building. Source – GRE (2019).

11.3 SAMPLE PREPARATION AND ANALYSIS

A summary of Maria Bonita sample preparation and assay procedures is provided in Table 11-1.

Table 11-1 - Summary of Sample Preparation and Assay Procedures.

Exploring Party	Sample Date	Medium	Sample Preparation		Sample Analysis	
			Laboratory	Sample Preparation	Laboratory	Analysis
ALTAMIRA	Jun/22 - Aug/22	Drill core	SGS Geosol Laboratories, Belo Horizonte, Brazil (SGS)	Dried, crushed to 2 mm, quartered, pulverization to 95% -150 mesh	SGS	Gold by fire assay and AA, metals by ICP40B
ALTAMIRA	Mar/23 May/23	Auger	SGS Geosol Laboratories, Belo Horizonte, Brazil (SGS)	Dried, crushed to 2 mm, quartered, pulverization to 95% -150 mesh	SGS	Gold by fire assay and AA, metals by ICP40B
ALTAMIRA	Nov/23 - Mar/24	Drill core	SGS Geosol Laboratories, Belo Horizonte, Brazil (SGS)	Dried, crushed to 2 mm, quartered, pulverization to 95% -150 mesh	SGS	Gold by fire assay and AA, metals by ICP40B
ALTAMIRA	Nov/25 - Jun/26	Drill core	SGS Geosol Laboratories, Belo Horizonte, Brazil (SGS)	Dried, crushed to 2 mm, quartered, pulverization to 95% -150 mesh	SGS	Gold by fire assay and AA, metals by ICP40B

SGS Geosol hold current ISO certification. SGS Geosol is an independent, industry-leading analytical laboratory providing services to the mining and other sectors.

11.4 SAMPLING QA/QC PROGRAM

11.4.1 HISTORICAL QA/QC ANALYSIS

SGS Geosol was hired as the main laboratory by Altamira Gold Corp for physical preparation and chemical analysis of the drill samples from the Project.

The verifications work conducted on the quality of the analytical services carried out by Altamira is summarized below.

For each sample batch submitted to SGS Geosol, control samples in the form of field duplicates, blanks and third party-prepared standards were inserted amongst the drill core samples.

The following files ***MBA_DUP.xlsx***, ***MBA_STANDARD.xlsx*** and ***MBA_BLK.xlsx*** contain the quality control data collected for the submission of 152 batches of samples for chemical analysis. VMG selected a total of 596 quality control samples for review as part of the mineral resource estimation process. Of these 596 samples, 139 are duplicates, 266 are Standards and 191 are Blanks. All samples had been analyzed for gold and a suite of ICP elements. For the

purpose of this quality control check, and in the absence of other potentially valuable metals in the suite of elements analyzed, only gold was considered here.

The following sections summarize the accuracy and precision of the quality control analysis. Sampling accuracy refers to the percentage difference between an analysis and its repeat value. For example, an accuracy of 10% would mean that the initial analysis and the repeat sample differ by 10%. Precision refers to the reported variance from a known control standard.

11.4.1.1 SAMPLING PRECISION

VMG assessed sampling accuracy using the repeat analysis method. Out of a total of 4,922 samples, 139 samples were reanalyzed, which represents 2.82% of the total number of assays.

The internal quality control data were presented as a single data batch, without separations of the samples by dates of sample collection. Two evaluation methods were used, Simple Linear Regression and QQ (Quantis Quantis) Plot.

The tests for Au content (in ppm) resulted in a precision of 45.3%. This value is influenced by some outlying samples that are probably due to nugget effect during the preparation (sub-sampling) or chemical analysis process. If such outlier values are excluded from consideration, then the accuracy of tests would be within the required confidence interval.

The correlation coefficient of the regular control sample values is above 0.93. Thus, one can conclude that the analyses of the gold content (in ppm) of the studied population of samples were conducted with satisfactory and acceptable precision. The results of the data processing are shown in Figure 11-2 and Figure 11-3.

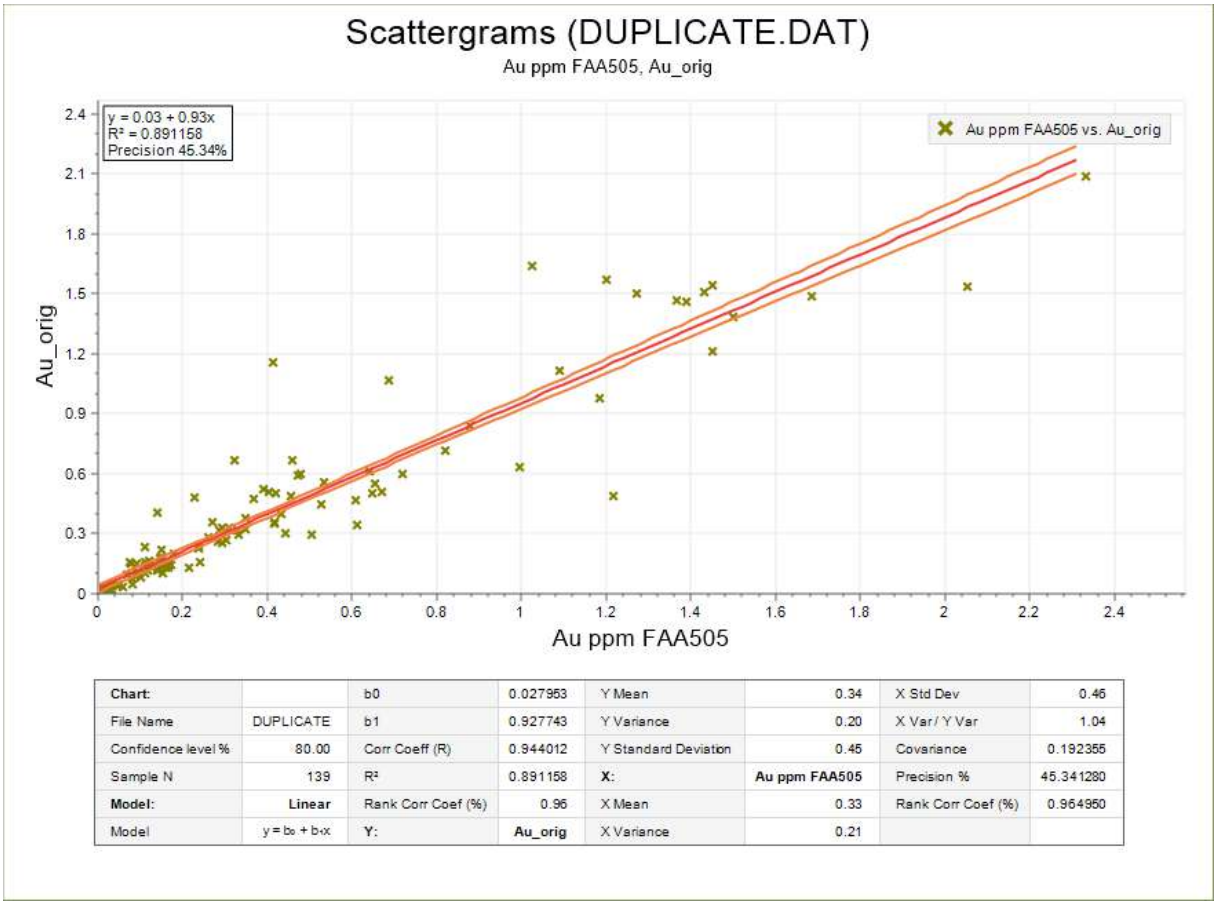


Chart:		b0	0.027953	Y Mean	0.34	X Std Dev	0.46
File Name	DUPLICATE	b1	0.927743	Y Variance	0.20	X Var / Y Var	1.04
Confidence level %	80.00	Corr Coeff (R)	0.944012	Y Standard Deviation	0.45	Covariance	0.192355
Sample N	139	R^2	0.891158	**X:**	**Au ppm FAA505**	Precision %	45.341280
Model:	**Linear**	Rank Corr Coef (%)	0.96	X Mean	0.33	Rank Corr Coef (%)	0.964950
Model	$y = b_0 + b_1 x$	**Y:**	**Au_orig**	X Variance	0.21		

Figure 11-2 - Linear Regression Diagram for Au ppm, field duplicate, class: all data, internal control results.

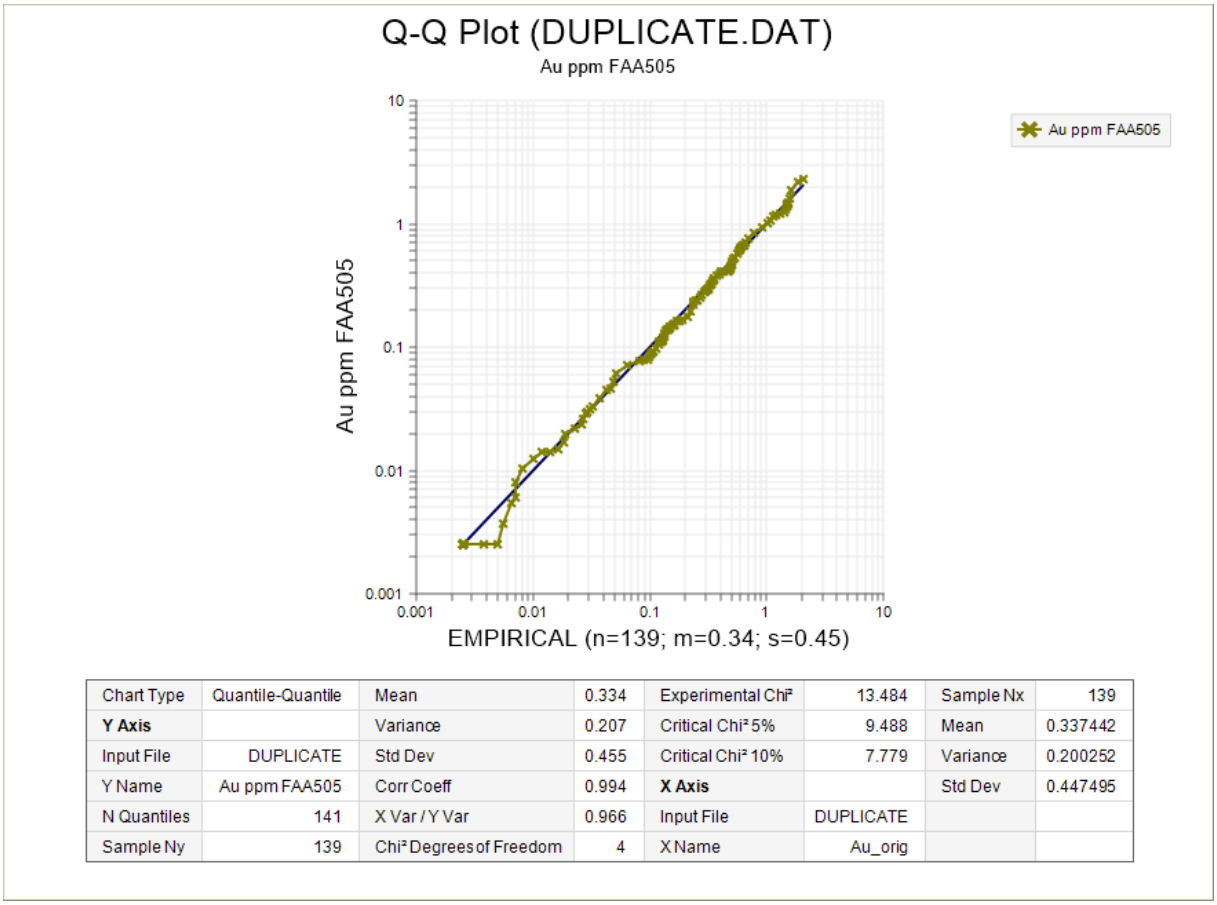


Chart Type	Quantile-Quantile	Mean	0.334	Experimental Chi²	13.484	Sample Nx	139
Y Axis		Variance	0.207	Critical Chi² 5%	9.488	Mean	0.337442
Input File	DUPLICATE	Std Dev	0.455	Critical Chi² 10%	7.779	Variance	0.200252
Y Name	Au ppm FAA505	Corr Coeff	0.994	**X Axis**		Std Dev	0.447495
N Quantiles	141	X Var / Y Var	0.966	Input File	DUPLICATE		
Sample Ny	139	Chi² Degrees of Freedom	4	X Name	Au_orig		

Figure 11-3 - Quantis plotting for Au ppm, field duplicate, class: all data, internal control results.

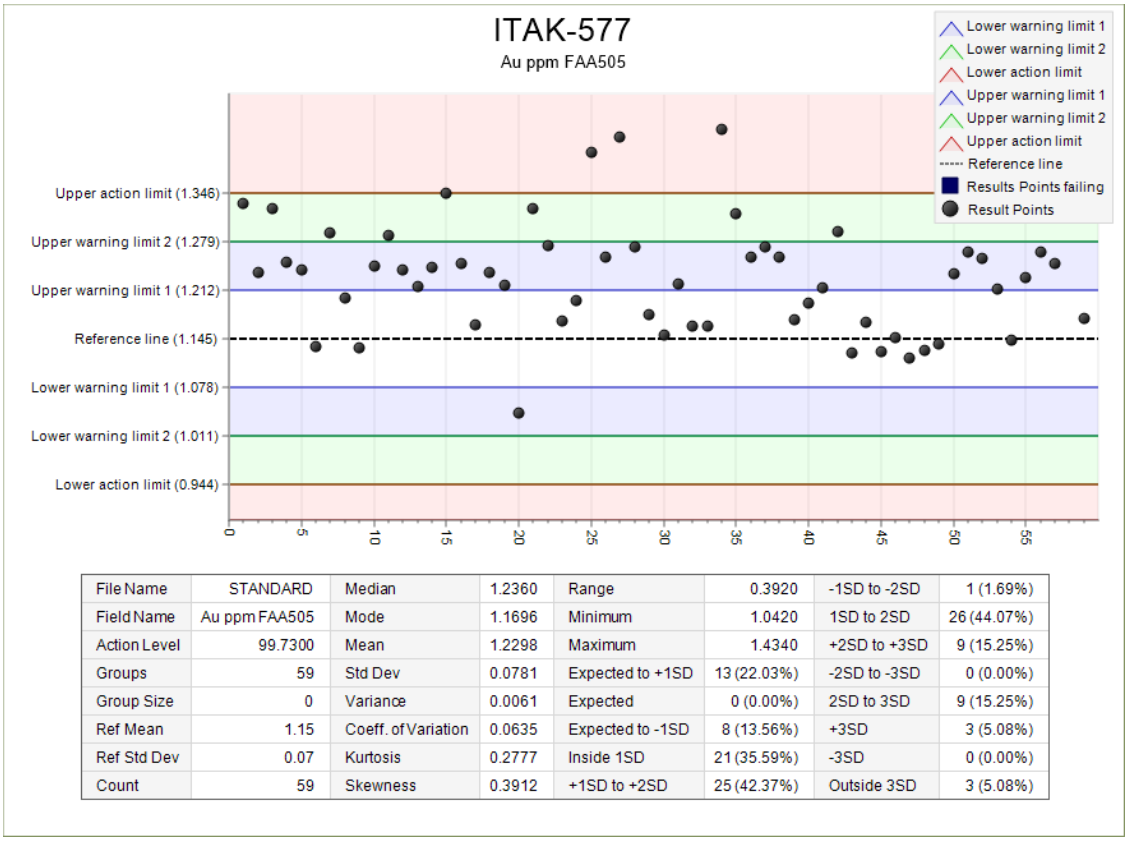
11.4.1.2 STANDARDS

For the quality control, 266 Standards were used, representing 5.40% of the total number of analyzed samples. The certificates of the Standards are located in Appendix I.

Description of the standard reference samples:

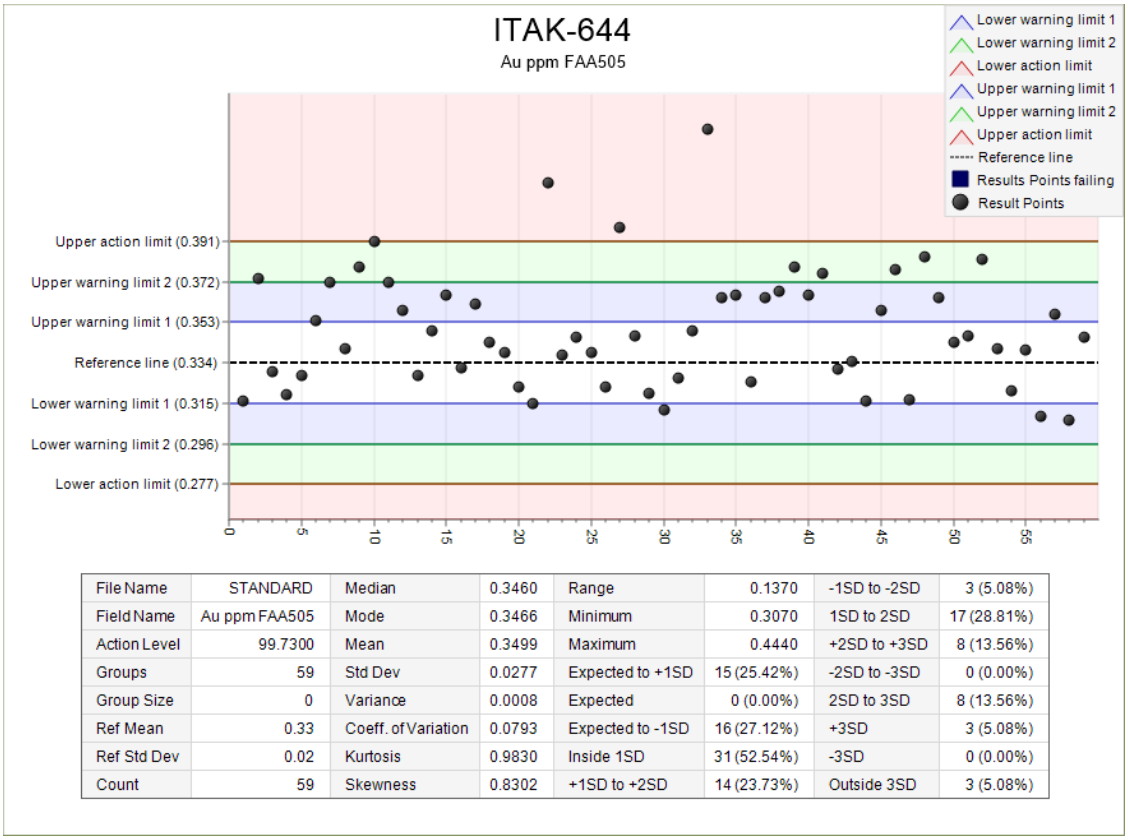
- ITAK-577 – (1.145 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (59 analyses results).
- ITAK-644 – (0.334 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (59 analyses results).
- ITAK-659 – (0.314 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (89 analyses results).
- ITAK-663 – (1.614 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (59 analyses results).

A total of 10 samples in the population of 266 (3.8%) exceeded the upper alert limit. No samples exceeded the lower alert limit. In general, VMG considers that the analyzed results, do not present significant problems when compared with the known results. The analyzed data are shown as time series charts in **Figure 11-4** to **Figure 11-7**.



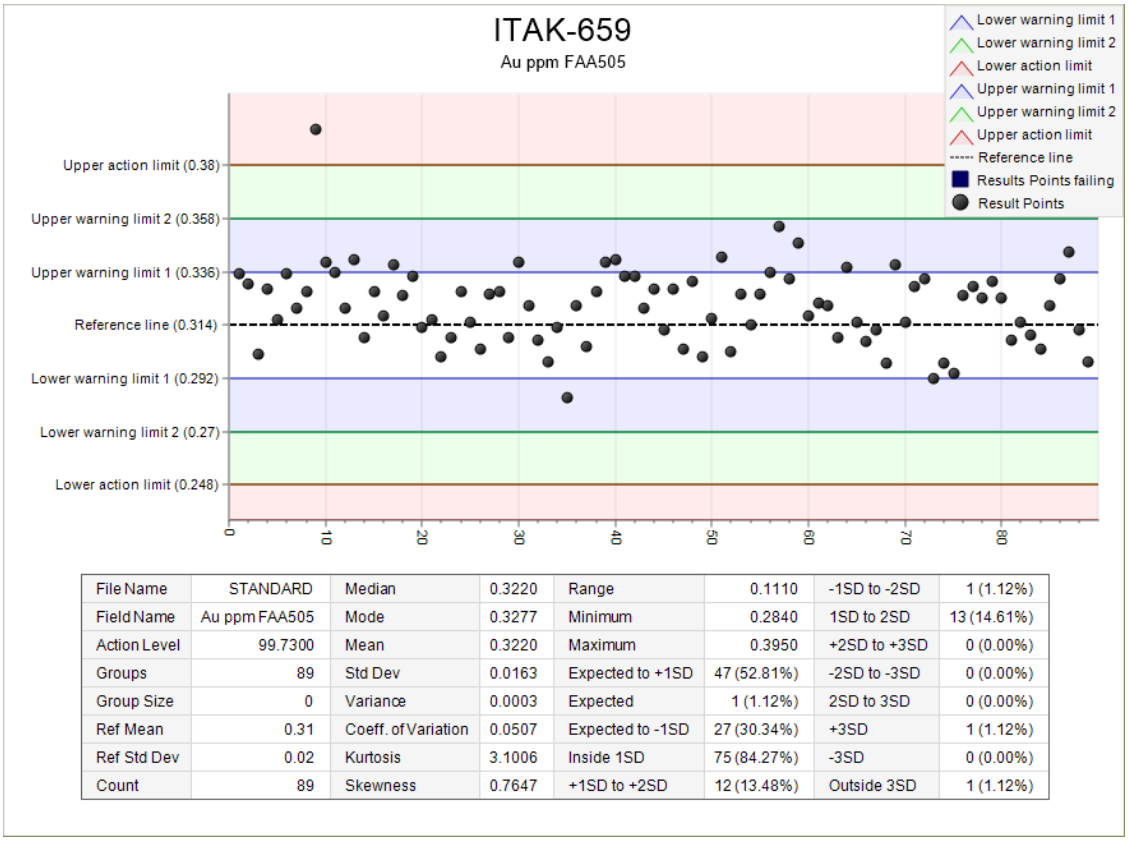
File Name	STANDARD	Median	1.2360	Range	0.3920	-1SD to -2SD	1 (1.69%)
Field Name	Au ppm FAA505	Mode	1.1696	Minimum	1.0420	1SD to 2SD	26 (44.07%)
Action Level	99.7300	Mean	1.2298	Maximum	1.4340	+2SD to +3SD	9 (15.25%)
Groups	59	Std Dev	0.0781	Expected to +1SD	13 (22.03%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0061	Expected	0 (0.00%)	2SD to 3SD	9 (15.25%)
Ref Mean	1.15	Coeff. of Variation	0.0635	Expected to -1SD	8 (13.56%)	+3SD	3 (5.08%)
Ref Std Dev	0.07	Kurtosis	0.2777	Inside 1SD	21 (35.59%)	-3SD	0 (0.00%)
Count	59	Skewness	0.3912	+1SD to +2SD	25 (42.37%)	Outside 3SD	3 (5.08%)

Figure 11-4 - Standard ITAK-577, element Au ppm.



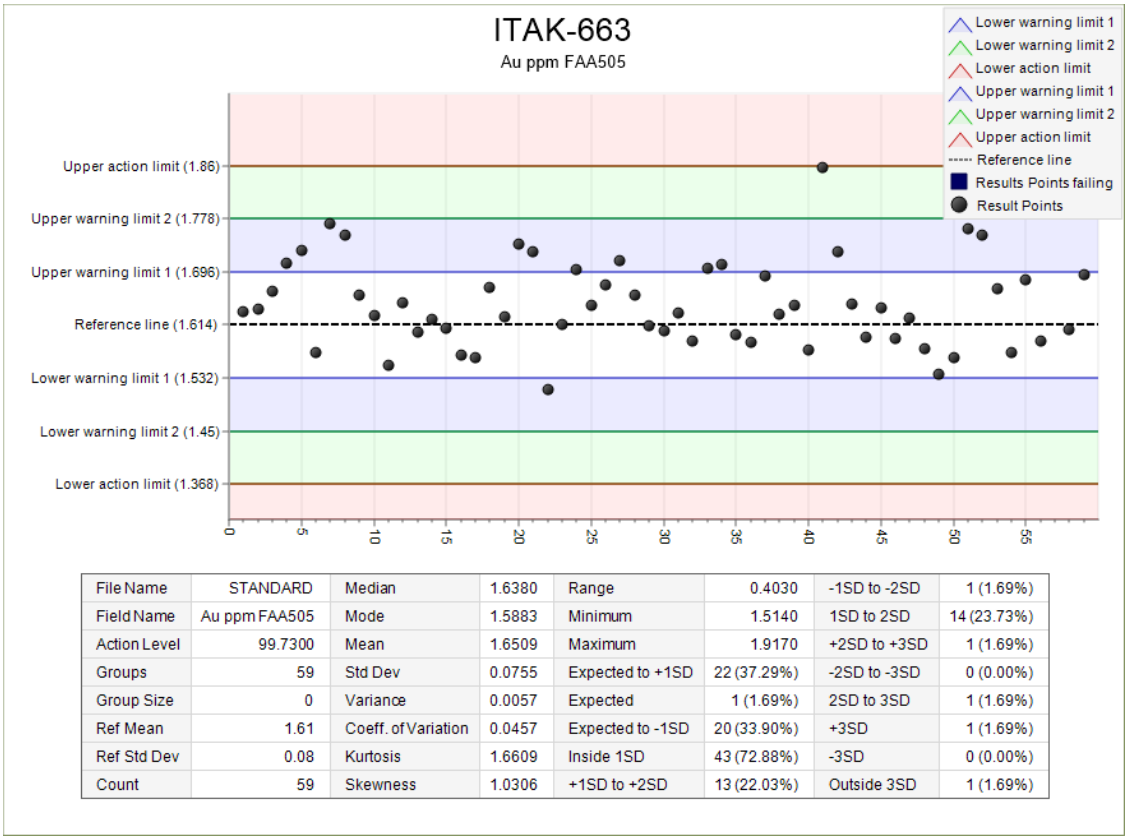
File Name	STANDARD	Median	0.3460	Range	0.1370	-1SD to -2SD	3 (5.08%)
Field Name	Au ppm FAA505	Mode	0.3466	Minimum	0.3070	1SD to 2SD	17 (28.81%)
Action Level	99.7300	Mean	0.3499	Maximum	0.4440	+2SD to +3SD	8 (13.56%)
Groups	59	Std Dev	0.0277	Expected to +1SD	15 (25.42%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0008	Expected	0 (0.00%)	2SD to 3SD	8 (13.56%)
Ref Mean	0.33	Coeff. of Variation	0.0793	Expected to -1SD	16 (27.12%)	+3SD	3 (5.08%)
Ref Std Dev	0.02	Kurtosis	0.9830	Inside 1SD	31 (52.54%)	-3SD	0 (0.00%)
Count	59	Skewness	0.8302	+1SD to +2SD	14 (23.73%)	Outside 3SD	3 (5.08%)

Figure 11-5 - Standard ITAK-644, element Au ppm.



File Name	STANDARD	Median	0.3220	Range	0.1110	-1SD to -2SD	1 (1.12%)
Field Name	Au ppm FAA505	Mode	0.3277	Minimum	0.2840	1SD to 2SD	13 (14.61%)
Action Level	99.7300	Mean	0.3220	Maximum	0.3950	+2SD to +3SD	0 (0.00%)
Groups	89	Std Dev	0.0163	Expected to +1SD	47 (52.81%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0003	Expected	1 (1.12%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.31	Coeff. of Variation	0.0507	Expected to -1SD	27 (30.34%)	+3SD	1 (1.12%)
Ref Std Dev	0.02	Kurtosis	3.1006	Inside 1SD	75 (84.27%)	-3SD	0 (0.00%)
Count	89	Skewness	0.7647	+1SD to +2SD	12 (13.48%)	Outside 3SD	1 (1.12%)

Figure 11-6 - Standard ITAK-659, element Au ppm.



File Name	STANDARD	Median	1.6380	Range	0.4030	-1SD to -2SD	1 (1.69%)
Field Name	Au ppm FAA505	Mode	1.5883	Minimum	1.5140	1SD to 2SD	14 (23.73%)
Action Level	99.7300	Mean	1.6509	Maximum	1.9170	+2SD to +3SD	1 (1.69%)
Groups	59	Std Dev	0.0755	Expected to +1SD	22 (37.29%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0057	Expected	1 (1.69%)	2SD to 3SD	1 (1.69%)
Ref Mean	1.61	Coeff. of Variation	0.0457	Expected to -1SD	20 (33.90%)	+3SD	1 (1.69%)
Ref Std Dev	0.08	Kurtosis	1.6609	Inside 1SD	43 (72.88%)	-3SD	0 (0.00%)
Count	59	Skewness	1.0306	+1SD to +2SD	13 (22.03%)	Outside 3SD	1 (1.69%)

Figure 11-7 - Standard ITAK-663, element Au ppm.

11.4.1.3 BLANK SAMPLES

For the control of potential contamination in the sample preparation process, 191 Blank Samples were used, which represents 3.88% of the total number of analyzed samples. The certificates of the Blank Samples are located in Appendix II.

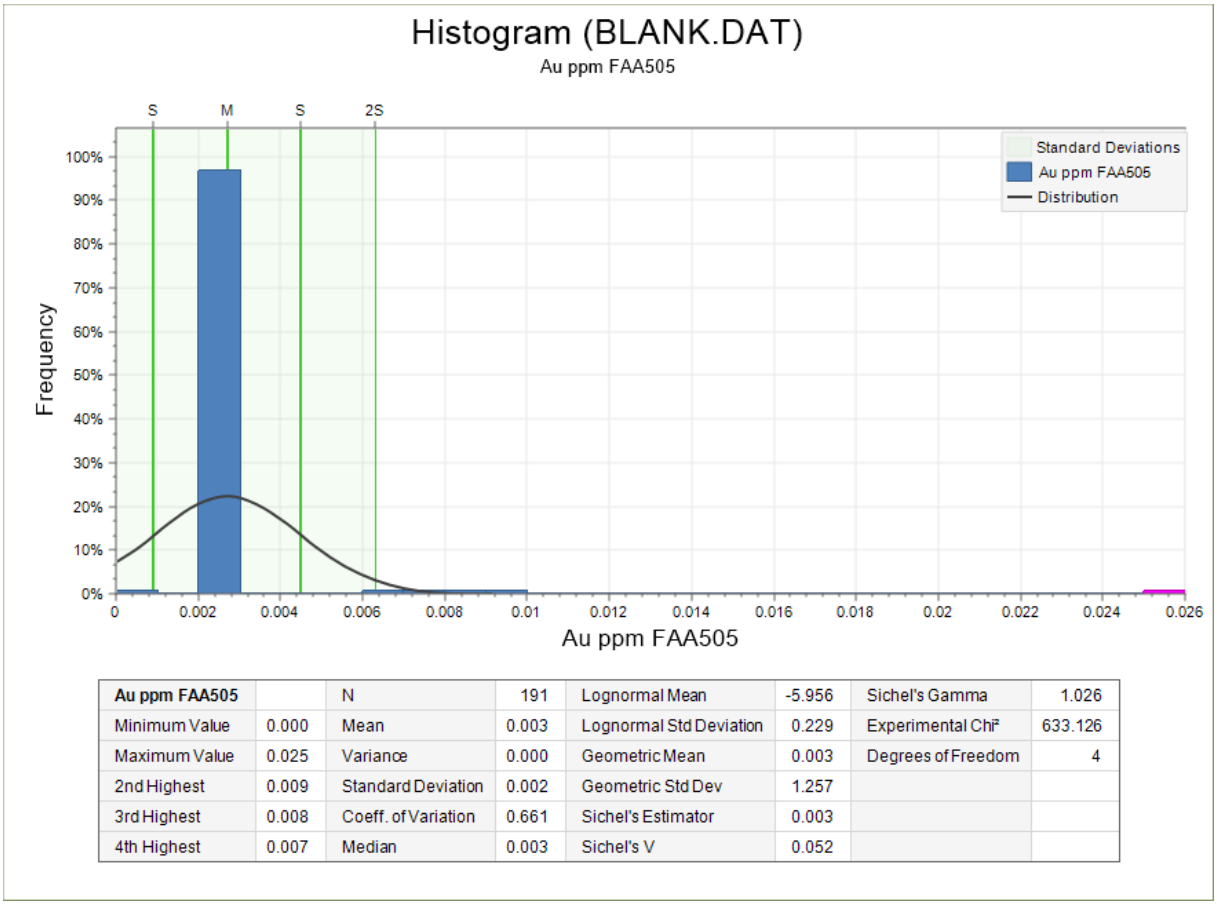
The reference of the blank samples is the low gold material Certificates BLK-QF-15 and CTRS-0448. The blank samples contain less than 0.005 ppm gold.

The results of analysis performed for gold is shown in Table 11-3. The analysis of the Blanks. This is due to potential contamination from sample preparation procedures and/or due to wear and cleanliness of the sample preparation equipment. The analysis of data has demonstrated that all the results are within the range of the confidence level.

Table 11-2 - Descriptive statistics of the chemical analysis results of the blank samples.

Field Name	Number of points	Minimum	Maximum	Average	Median	Variance	Std. Dev
Au ppm	191	0.003	0.025	0.003	0.00000	0.00179	0.000

In Figure 11-8, we can see that only one sample out of 191 slightly exceeded the certified content values.



Au ppm FAA505		N	191	Lognormal Mean	-5.956	Sichel's Gamma	1.026
Minimum Value	0.000	Mean	0.003	Lognormal Std Deviation	0.229	Experimental Chi²	633.126
Maximum Value	0.025	Variance	0.000	Geometric Mean	0.003	Degrees of Freedom	4
2nd Highest	0.009	Standard Deviation	0.002	Geometric Std Dev	1.257		
3rd Highest	0.008	Coeff. of Variation	0.661	Sichel's Estimator	0.003		
4th Highest	0.007	Median	0.003	Sichel's V	0.052		

Figure 11-8 - Histogram of the distribution of blank sample analysis results.

11.4.2 QA/QC ANALYSIS – 2025–2026 EXPLORATION CAMPAIGN

SGS Geosol was hired as the main laboratory by Altamira Gold Corp for physical preparation and chemical analysis of the drill samples from the Project.

The verifications work conducted on the quality of the analytical services carried out by Altamira is summarized below.

For each sample batch submitted to SGS Geosol, control samples in the form of field duplicates, blanks and third party-prepared standards were inserted amongst the drill core samples.

The file ***Tabelas_Controle_DDMBA0032_DDMBA0043.xlsx*** contains the quality control data associated with a total of 4,248 routine samples submitted for chemical analysis. VMG selected a total of 491 quality control samples for review as part of the mineral resource estimation process. Of these 491 samples, 104 are duplicates, 275 are Standards and 112 are Blanks. All samples had been analyzed for gold and a suite of ICP elements. For the purpose of this quality control check, and in the absence of other potentially valuable metals in the suite of elements analyzed, only gold was considered here.

The following sections summarize the accuracy and precision of the quality control analysis. Sampling accuracy refers to the percentage difference between an analysis and its repeat value. For example, an accuracy of 10% would mean that the initial analysis and the repeat sample differ by 10%. Precision refers to the reported variance from a known control standard.

11.4.2.1 SAMPLING PRECISION

VMG assessed sampling accuracy using the repeat analysis method. Out of a total of 4,248 samples, 104 samples were reanalyzed, which represents 2.44% of the total number of assays.

The internal quality control data were presented as a single data batch, without separations of the samples by dates of sample collection. Two evaluation methods were used, Simple Linear Regression and QQ (Quantis Quantis) Plot.

The precision analysis of field duplicate samples for gold (ppm) yielded a value of 62.8%. This result is primarily influenced by a limited number of samples with higher gold grades, which exhibit significantly greater variability due to the heterogeneous distribution of gold and the nugget effect.

However, high-grade samples are relatively rare within the deposit, and their influence on the overall sampling dataset is limited. The correlation coefficient between the original and field duplicate sample results exceeds 0.92.

Therefore, despite the increased variability observed in some higher-grade samples, the overall sampling precision is considered acceptable for the purposes of Mineral Resource estimation. The results of the data processing are shown in Figure 11-9 and Figure 11-10.

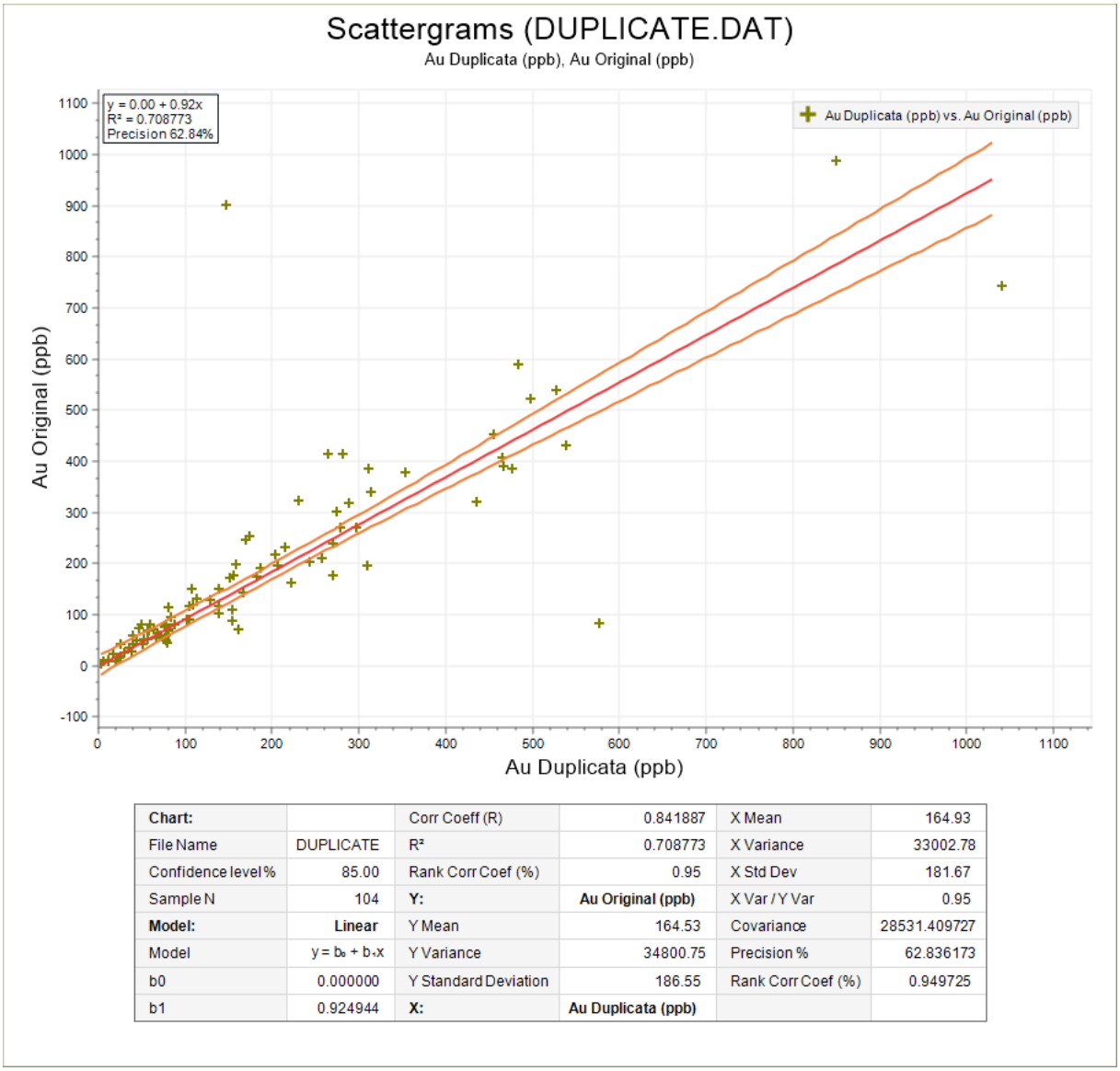


Chart:		Corr Coeff (R)	0.841887	X Mean	164.93
File Name	DUPLICATE	R²	0.708773	X Variance	33002.78
Confidence level %	85.00	Rank Corr Coef (%)	0.95	X Std Dev	181.67
Sample N	104	**Y:**	**Au Original (ppb)**	X Var / Y Var	0.95
Model:	**Linear**	Y Mean	164.53	Covariance	28531.409727
Model	$y = b_0 + b_1x$	Y Variance	34800.75	Precision %	62.836173
b0	0.000000	Y Standard Deviation	186.55	Rank Corr Coef (%)	0.949725
b1	0.924944	**X:**	**Au Duplicata (ppb)**		

Figure 11-9 - Linear Regression Diagram for Au ppm, field duplicate, class: all data, internal control results.

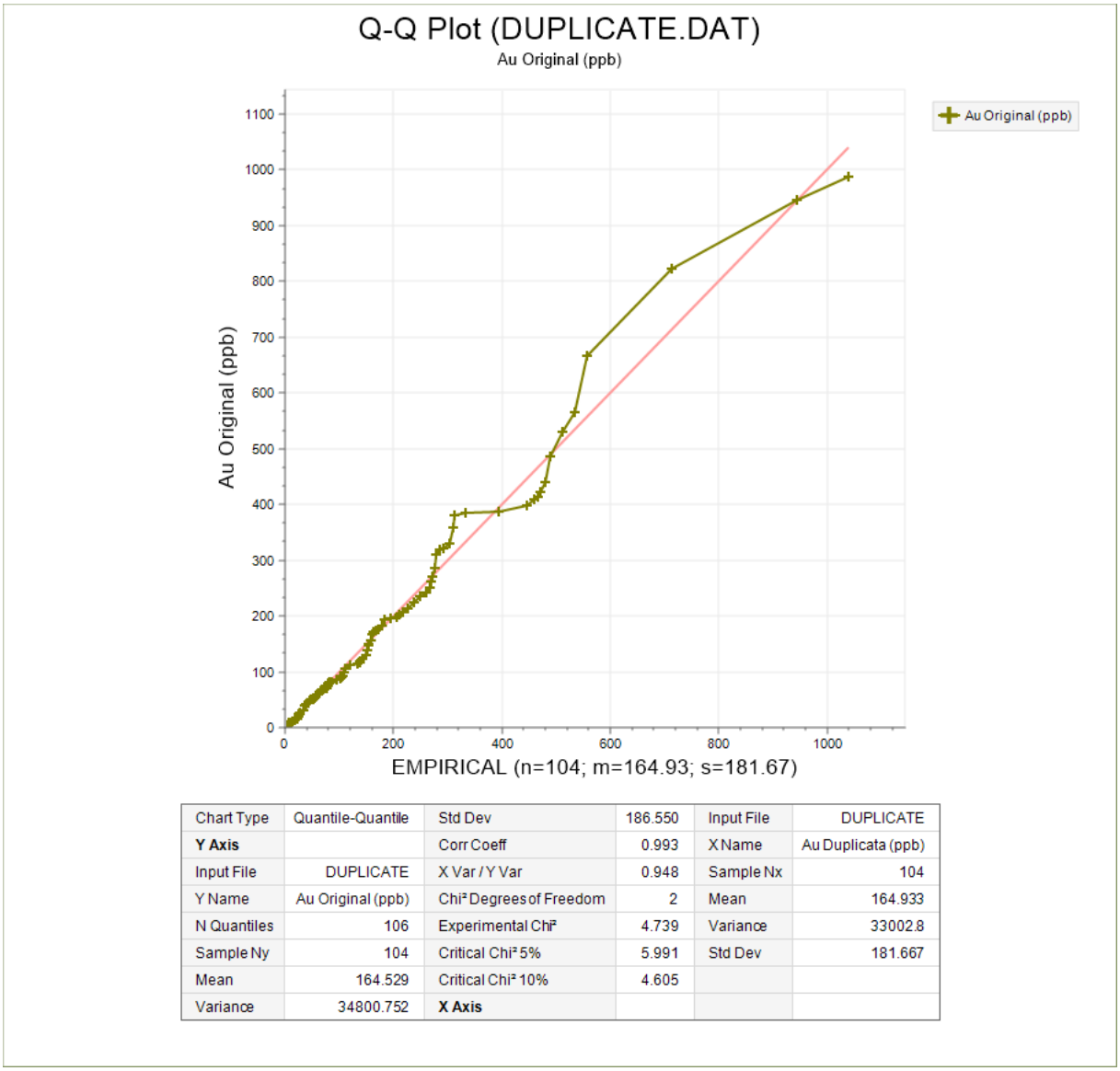


Chart Type	Quantile-Quantile	Std Dev	186.550	Input File	DUPLICATE
Y Axis		Corr Coeff	0.993	X Name	Au Duplicata (ppb)
Input File	DUPLICATE	X Var / Y Var	0.948	Sample Nx	104
Y Name	Au Original (ppb)	Chi² Degrees of Freedom	2	Mean	164.933
N Quantiles	106	Experimental Chi²	4.739	Variance	33002.8
Sample Ny	104	Critical Chi² 5%	5.991	Std Dev	181.667
Mean	164.529	Critical Chi² 10%	4.605		
Variance	34800.752	**X Axis**			

Figure 11-10 - Quantis plotting for Au ppm, field duplicate, class: all data, internal control results.

11.4.2.2 STANDARDS

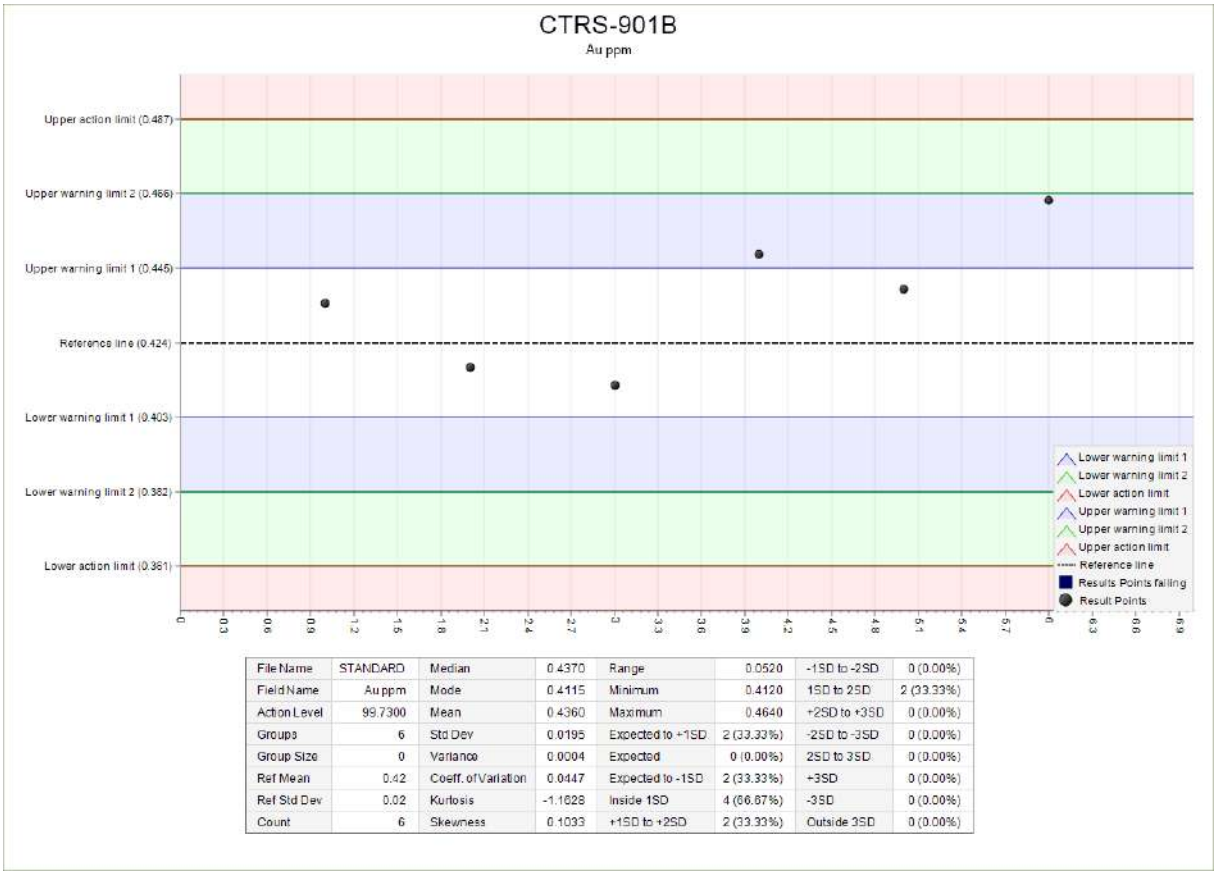
For the quality control, 275 Standards were used, representing 6.47% of the total number of analyzed samples. The certificates of the Standards are located in Appendix I.

Description of the standard reference samples:

- CTRS-901B - (0.424 ppm Au) certificate from CTRS (6 analyses results).
- ITAK-577 – (1.145 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (9 analyses results).

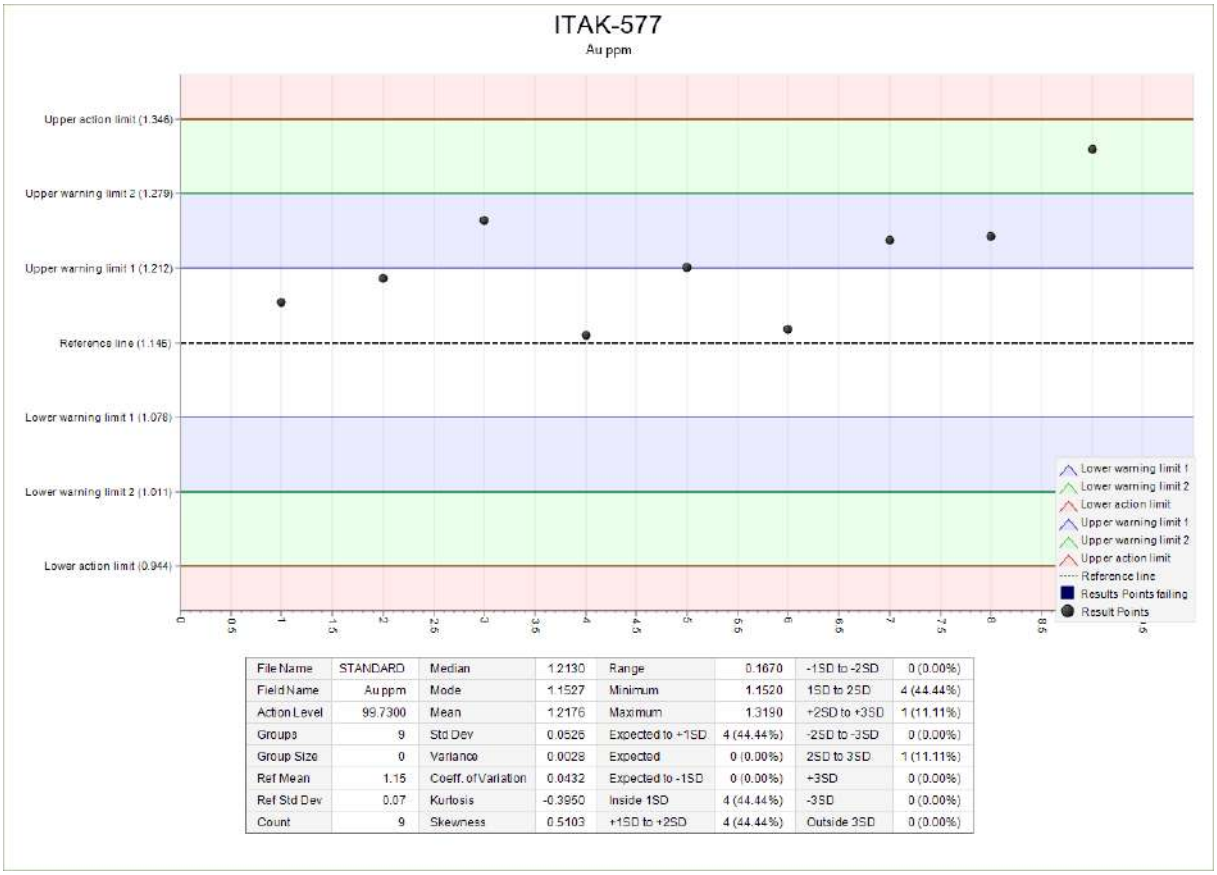
- ITAK-644 – (0.334 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (15 analyses results).
- ITAK-645 – (0.898 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (39 analyses results).
- ITAK-648 – (1.120 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (32 analyses results).
- ITAK-655 – (0.259 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (13 analyses results).
- ITAK-659 – (0.314 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (32 analyses results).
- ITAK-663 – (1.614 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (9 analyses results).
- ITAK-669 – (0.881 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (33 analyses results).
- ITAK-670 – (0.983 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (40 analyses results).
- ITAK-683 – (0.758 ppm Au) certificate from ITAK – Instituto de Tecnologia August Kekulé Ltda. (41 analyses results).
- OREAS 504c – (1.48 ppm Au) certificate from OREAS – ORE RESEARCH & EXPLORATION P/L (6 analyses results).

A total of 1 sample in the population of 275 (0.4%) exceeded the upper alert limit. No samples exceeded the lower alert limit. In general, VMG considers that the analyzed results, do not present significant problems when compared with the known results. The analyzed data are shown as time series charts in Figure 11-11 to Figure 11-22.



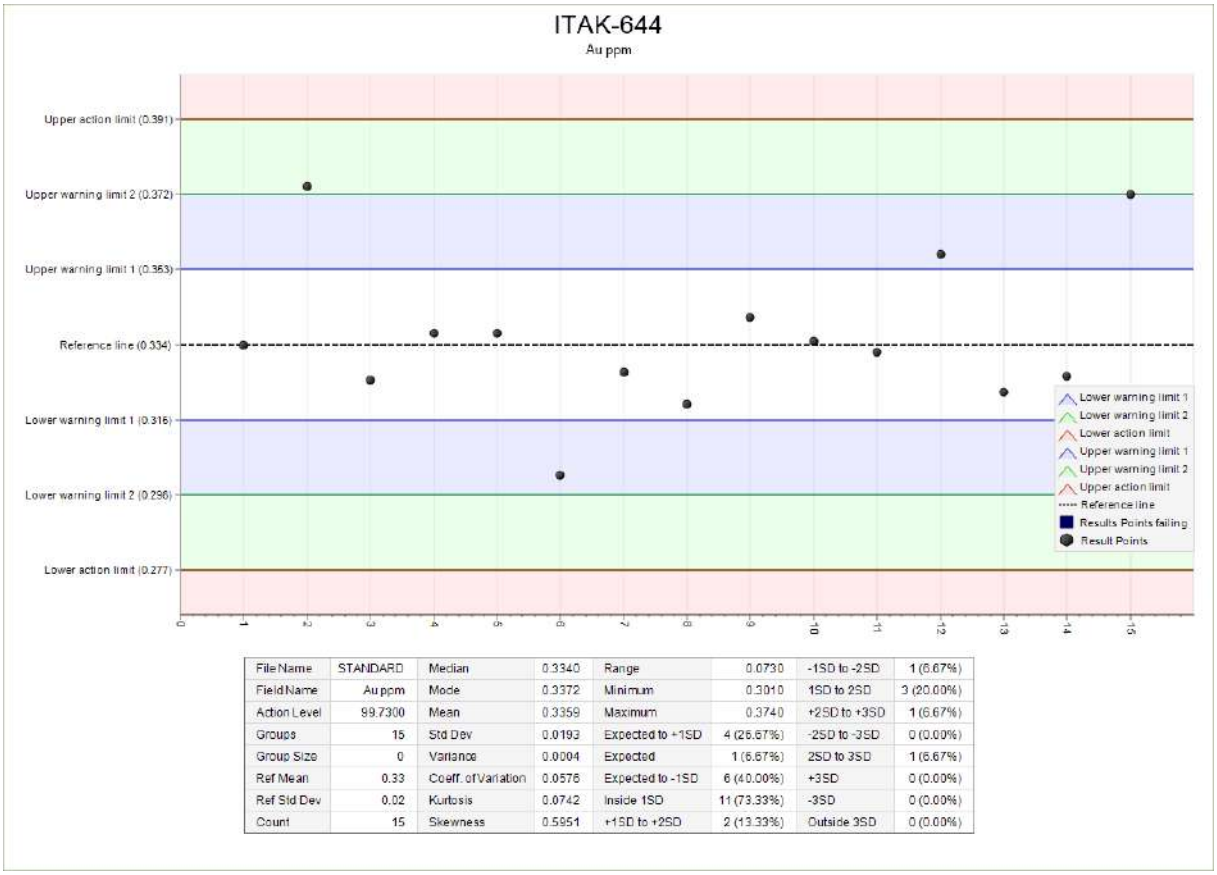
File Name	STANDARD	Median	0.4370	Range	0.0520	-1SD to -2SD	0 (0.00%)
Field Name	Au ppm	Mode	0.4115	Minimum	0.4120	1SD to 2SD	2 (33.33%)
Action Level	99.7300	Mean	0.4360	Maximum	0.4640	+2SD to +3SD	0 (0.00%)
Groups	6	Std Dev	0.0195	Expected to +1SD	2 (33.33%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0004	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.42	Coeff. of Variation	0.0447	Expected to -1SD	2 (33.33%)	+3SD	0 (0.00%)
Ref Std Dev	0.02	Kurtosis	-1.1628	Inside 1SD	4 (66.67%)	-3SD	0 (0.00%)
Count	6	Skewness	0.1033	+1SD to +2SD	2 (33.33%)	Outside 3SD	0 (0.00%)

Figure 11-11 - Standard CTRS-901B, element Au ppm.



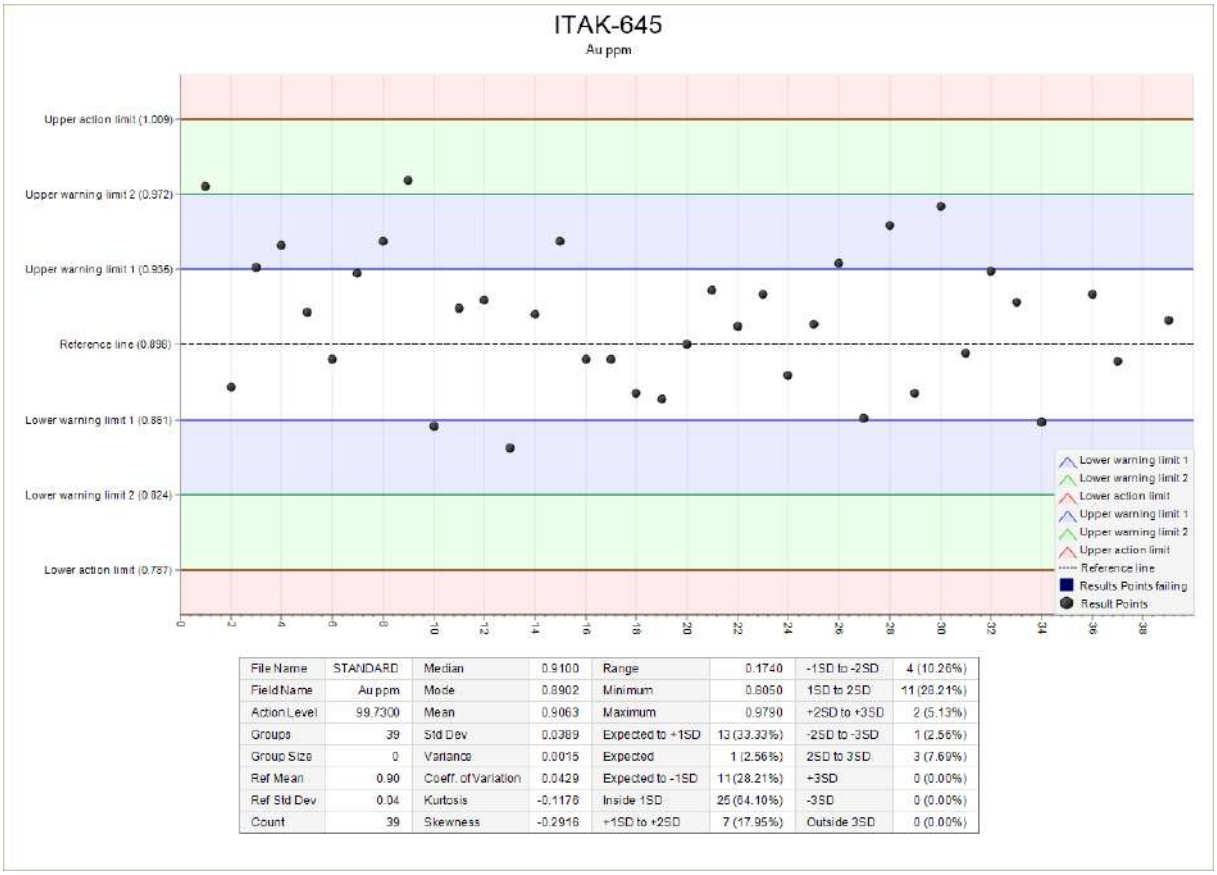
File Name	STANDARD	Median	1.2130	Range	0.1670	-1SD to -2SD	0 (0.00%)
Field Name	Au ppm	Mode	1.1527	Minimum	1.1520	1SD to 2SD	4 (44.44%)
Action Level	99.7300	Mean	1.2176	Maximum	1.3190	+2SD to +3SD	1 (11.11%)
Groups	9	Std Dev	0.0526	Expected to +1SD	4 (44.44%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0028	Expected	0 (0.00%)	2SD to 3SD	1 (11.11%)
Ref Mean	1.15	Coeff. of Variation	0.0432	Expected to -1SD	0 (0.00%)	+3SD	0 (0.00%)
Ref Std Dev	0.07	Kurtosis	-0.3950	Inside 1SD	4 (44.44%)	-3SD	0 (0.00%)
Count	9	Skewness	0.5103	+1SD to +2SD	4 (44.44%)	Outside 3SD	0 (0.00%)

Figure 11-12 - Standard ITAK-577, element Au ppm.



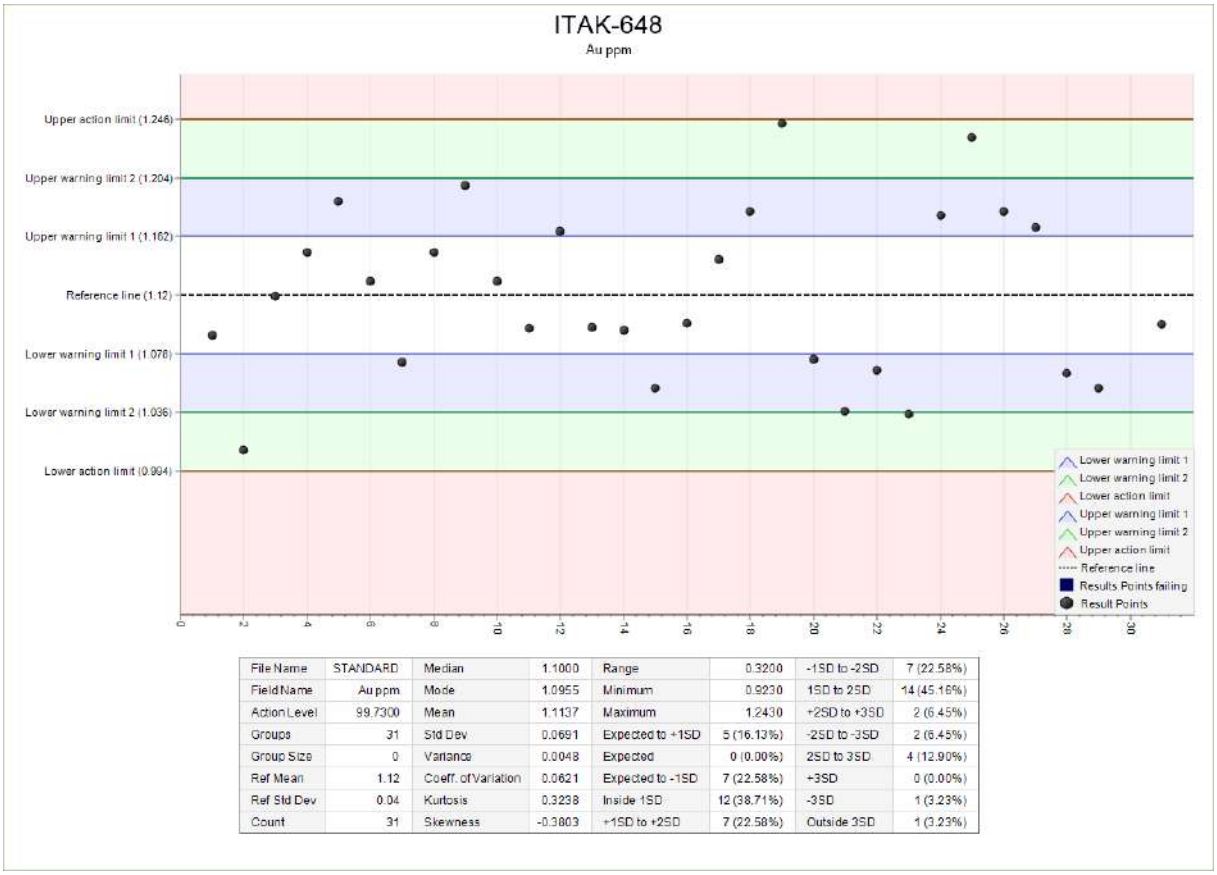
File Name	STANDARD	Median	0.3340	Range	0.0730	-1SD to -2SD	1 (6.67%)
Field Name	Au ppm	Mode	0.3372	Minimum	0.3010	1SD to 2SD	3 (20.00%)
Action Level	99.7300	Mean	0.3359	Maximum	0.3740	+2SD to +3SD	1 (6.67%)
Groups	15	Std Dev	0.0193	Expected to +1SD	4 (26.67%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0004	Expected	1 (6.67%)	2SD to 3SD	1 (6.67%)
Ref Mean	0.33	Coeff. of Variation	0.0576	Expected to -1SD	6 (40.00%)	+3SD	0 (0.00%)
Ref Std Dev	0.02	Kurtosis	0.0742	Inside 1SD	11 (73.33%)	-3SD	0 (0.00%)
Count	15	Skewness	0.5951	+1SD to +2SD	2 (13.33%)	Outside 3SD	0 (0.00%)

Figure 11-13 - Standard ITAK-644, element Au ppm.



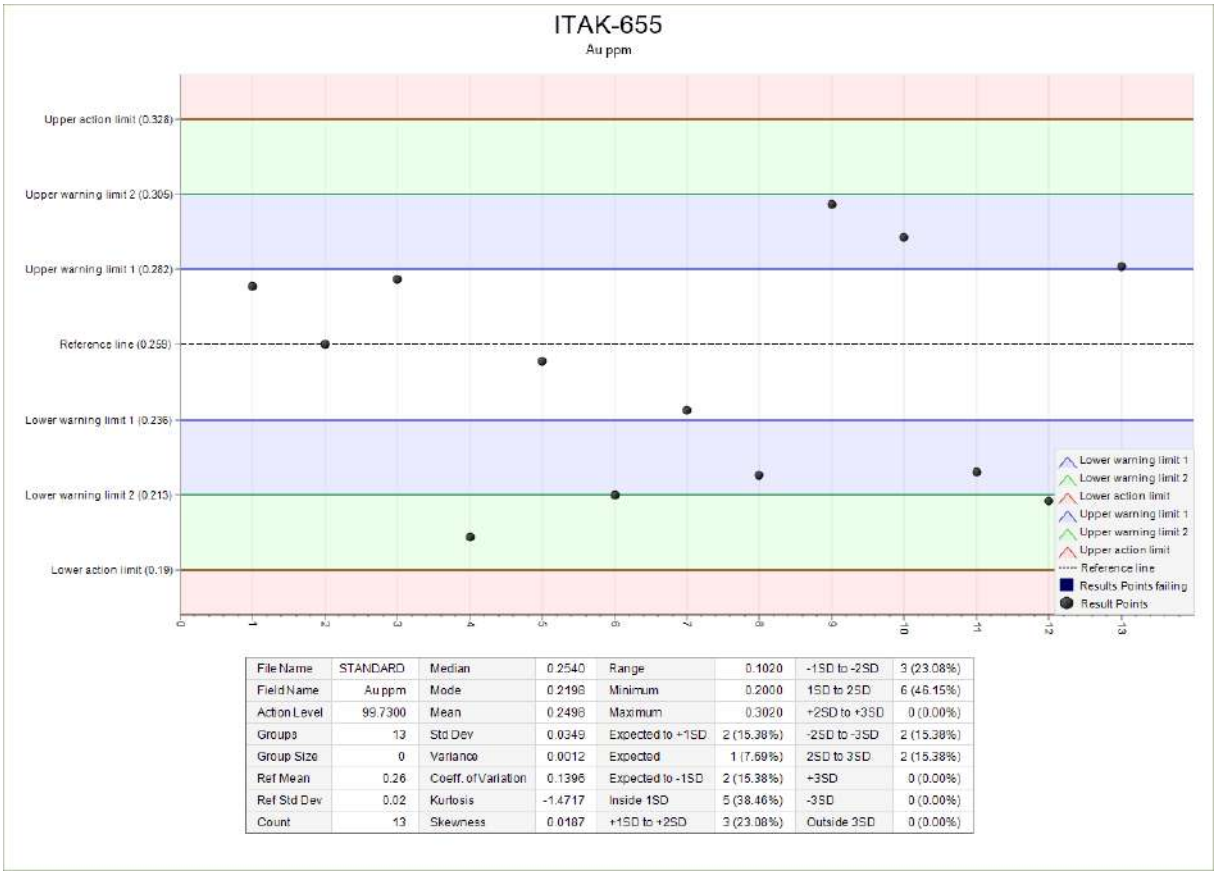
File Name	STANDARD	Median	0.9100	Range	0.1740	-1SD to -2SD	4 (10.26%)
Field Name	Au ppm	Mode	0.8902	Minimum	0.8050	1SD to 2SD	11 (28.21%)
Action Level	99.7300	Mean	0.9063	Maximum	0.9790	+2SD to +3SD	2 (5.13%)
Groups	39	Std Dev	0.0389	Expected to +1SD	13 (33.33%)	-2SD to -3SD	1 (2.56%)
Group Size	0	Variance	0.0015	Expected	1 (2.56%)	2SD to 3SD	3 (7.69%)
Ref Mean	0.90	Coeff. of Variation	0.0429	Expected to -1SD	11 (28.21%)	+3SD	0 (0.00%)
Ref Std Dev	0.04	Kurtosis	-0.1178	Inside 1SD	25 (64.10%)	-3SD	0 (0.00%)
Count	39	Skewness	-0.2916	+1SD to +2SD	7 (17.95%)	Outside 3SD	0 (0.00%)

Figure 11-14 - Standard ITAK-645, element Au ppm.



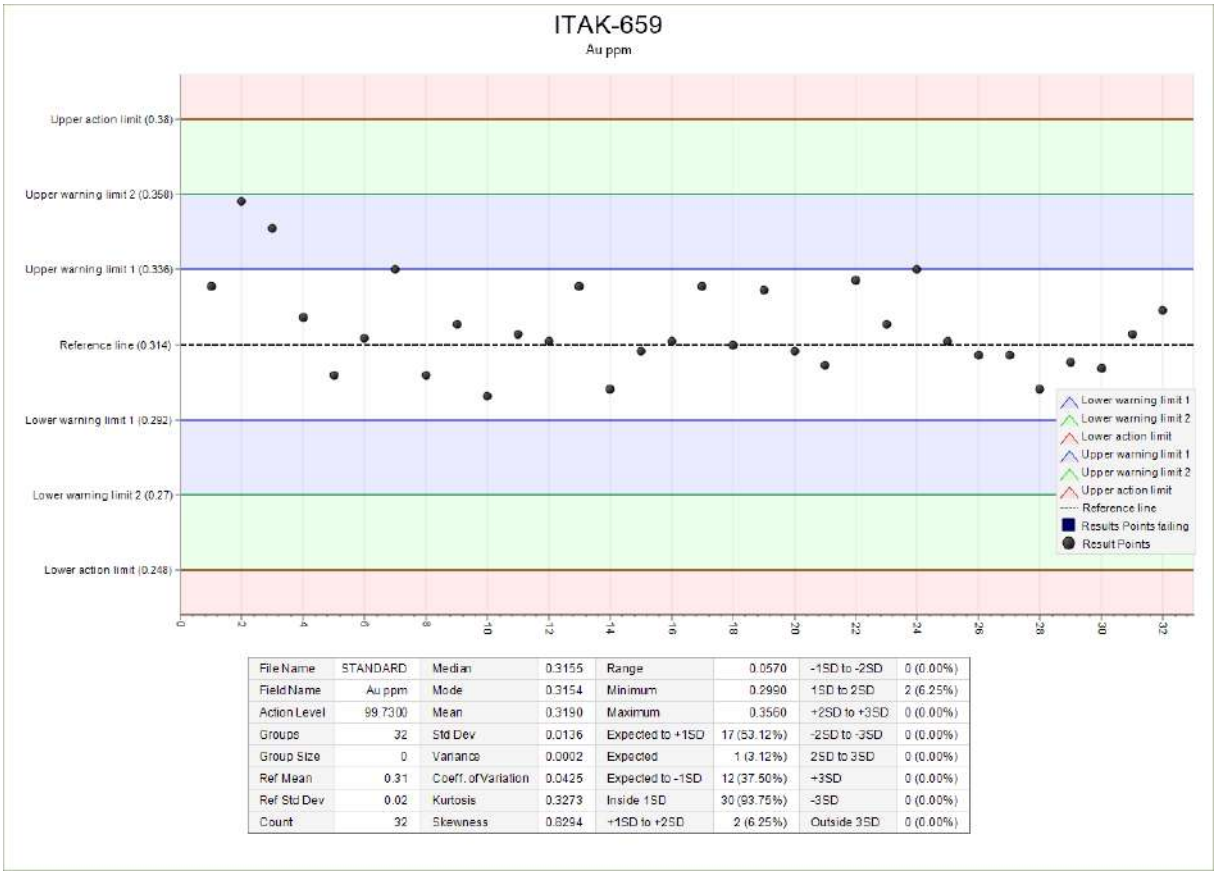
File Name	STANDARD	Median	1.1000	Range	0.3200	-1SD to -2SD	7 (22.58%)
Field Name	Au ppm	Mode	1.0955	Minimum	0.9230	1SD to 2SD	14 (45.16%)
Action Level	99.7300	Mean	1.1137	Maximum	1.2430	+2SD to +3SD	2 (6.45%)
Groups	31	Std Dev	0.0691	Expected to +1SD	5 (16.13%)	-2SD to -3SD	2 (6.45%)
Group Size	0	Variance	0.0048	Expected	0 (0.00%)	2SD to 3SD	4 (12.90%)
Ref Mean	1.12	Coeff. of Variation	0.0621	Expected to -1SD	7 (22.58%)	+3SD	0 (0.00%)
Ref Std Dev	0.04	Kurtosis	0.3238	Inside 1SD	12 (38.71%)	-3SD	1 (3.23%)
Count	31	Skewness	-0.3803	+1SD to +2SD	7 (22.58%)	Outside 3SD	1 (3.23%)

Figure 11-15 - Standard ITAK-648, element Au ppm.



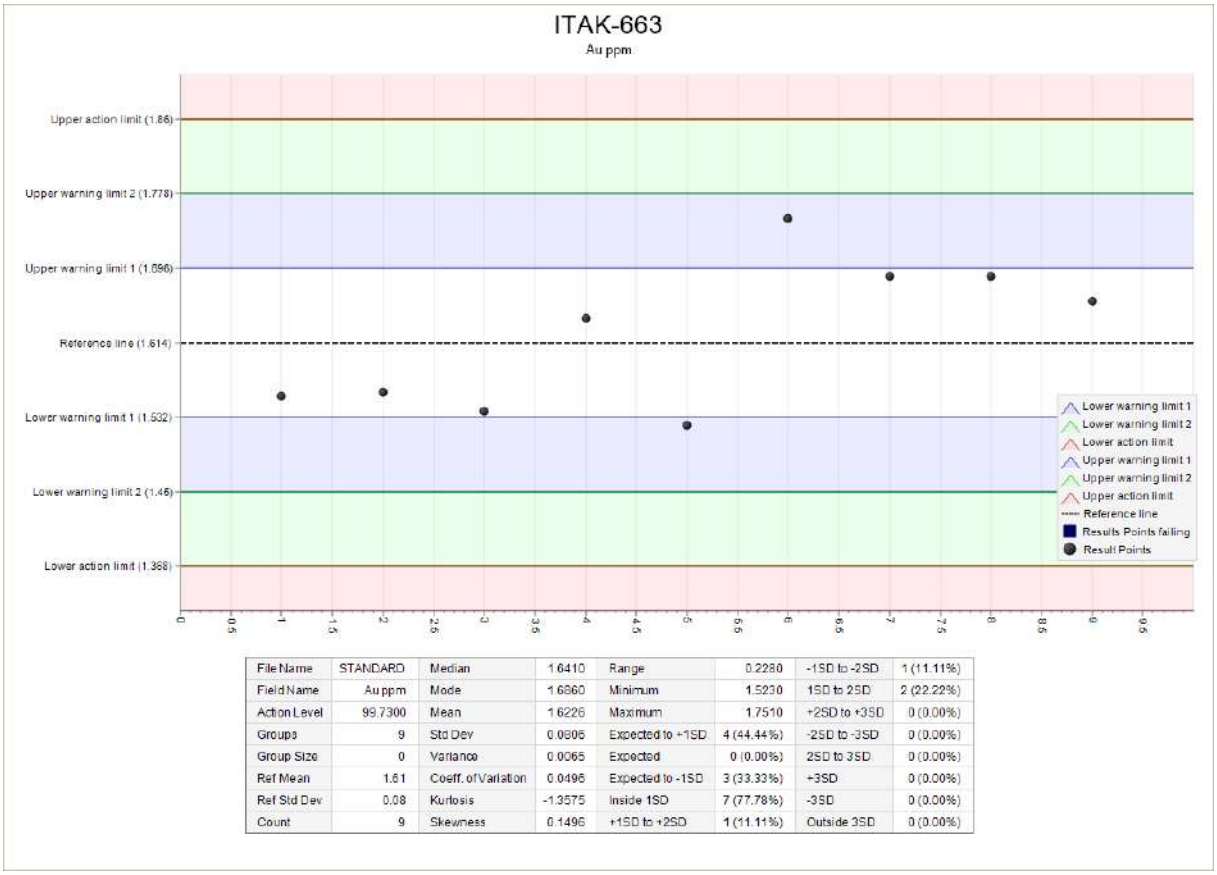
File Name	STANDARD	Median	0.2540	Range	0.1020	-1SD to -2SD	3 (23.08%)
Field Name	Au ppm	Mode	0.2198	Minimum	0.2000	1SD to 2SD	6 (46.15%)
Action Level	99.7300	Mean	0.2498	Maximum	0.3020	+2SD to +3SD	0 (0.00%)
Groups	13	Std Dev	0.0349	Expected to +1SD	2 (15.38%)	-2SD to -3SD	2 (15.38%)
Group Size	0	Variance	0.0012	Expected	1 (7.69%)	2SD to 3SD	2 (15.38%)
Ref Mean	0.26	Coeff. of Variation	0.1396	Expected to -1SD	2 (15.38%)	+3SD	0 (0.00%)
Ref Std Dev	0.02	Kurtosis	-1.4717	Inside 1SD	5 (38.46%)	-3SD	0 (0.00%)
Count	13	Skewness	0.0187	+1SD to +2SD	3 (23.08%)	Outside 3SD	0 (0.00%)

Figure 11-16 - Standard ITAK-655, element Au ppm.



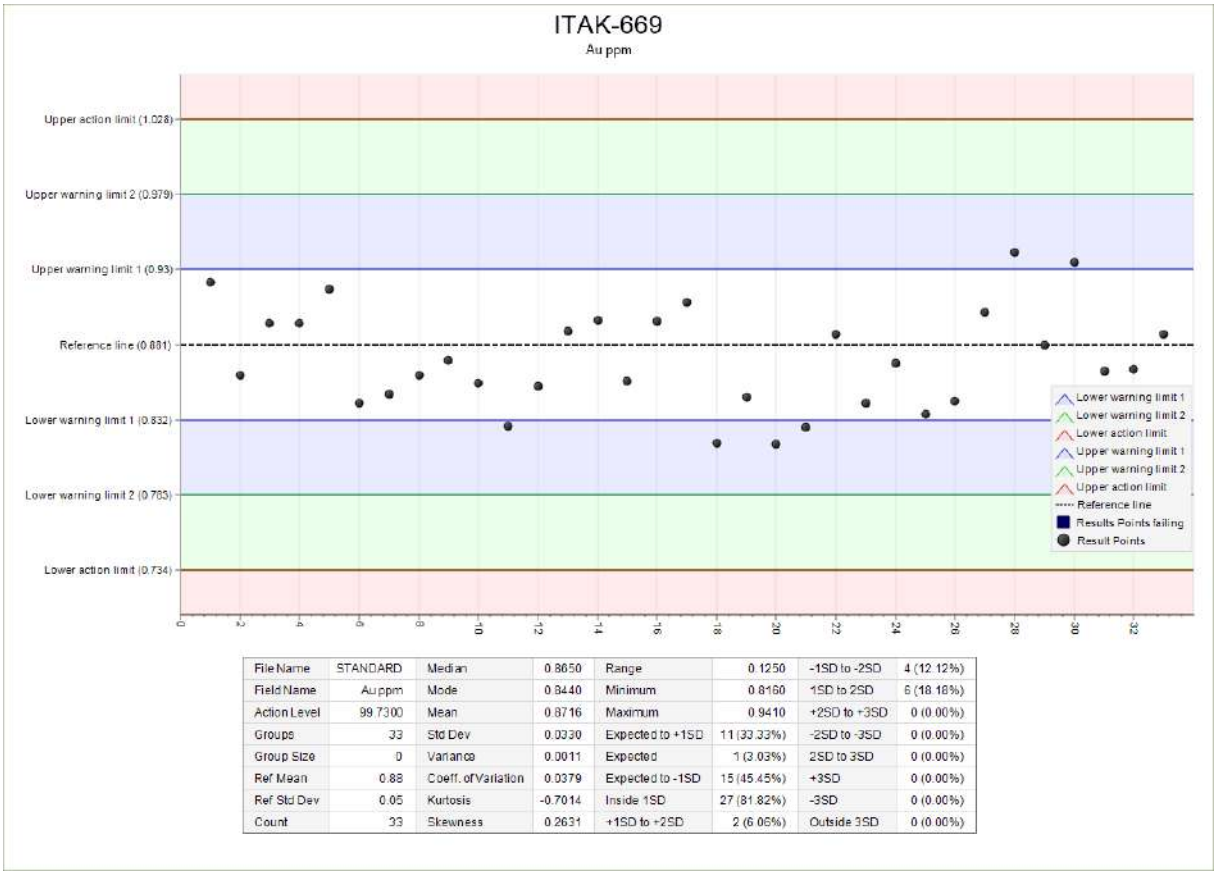
File Name	STANDARD	Median	0.3155	Range	0.0570	-1SD to -2SD	0 (0.00%)
Field Name	Au ppm	Mode	0.3154	Minimum	0.2990	1SD to 2SD	2 (6.25%)
Action Level	99.7300	Mean	0.3190	Maximum	0.3560	+2SD to +3SD	0 (0.00%)
Groups	32	Std Dev	0.0136	Expected to +1SD	17 (53.12%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0002	Expected	1 (3.12%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.31	Coeff. of Variation	0.0425	Expected to -1SD	12 (37.50%)	+3SD	0 (0.00%)
Ref Std Dev	0.02	Kurtosis	0.3273	Inside 1SD	30 (93.75%)	-3SD	0 (0.00%)
Count	32	Skewness	0.8294	+1SD to +2SD	2 (6.25%)	Outside 3SD	0 (0.00%)

Figure 11-17 - Standard ITAK-659, element Au ppm.



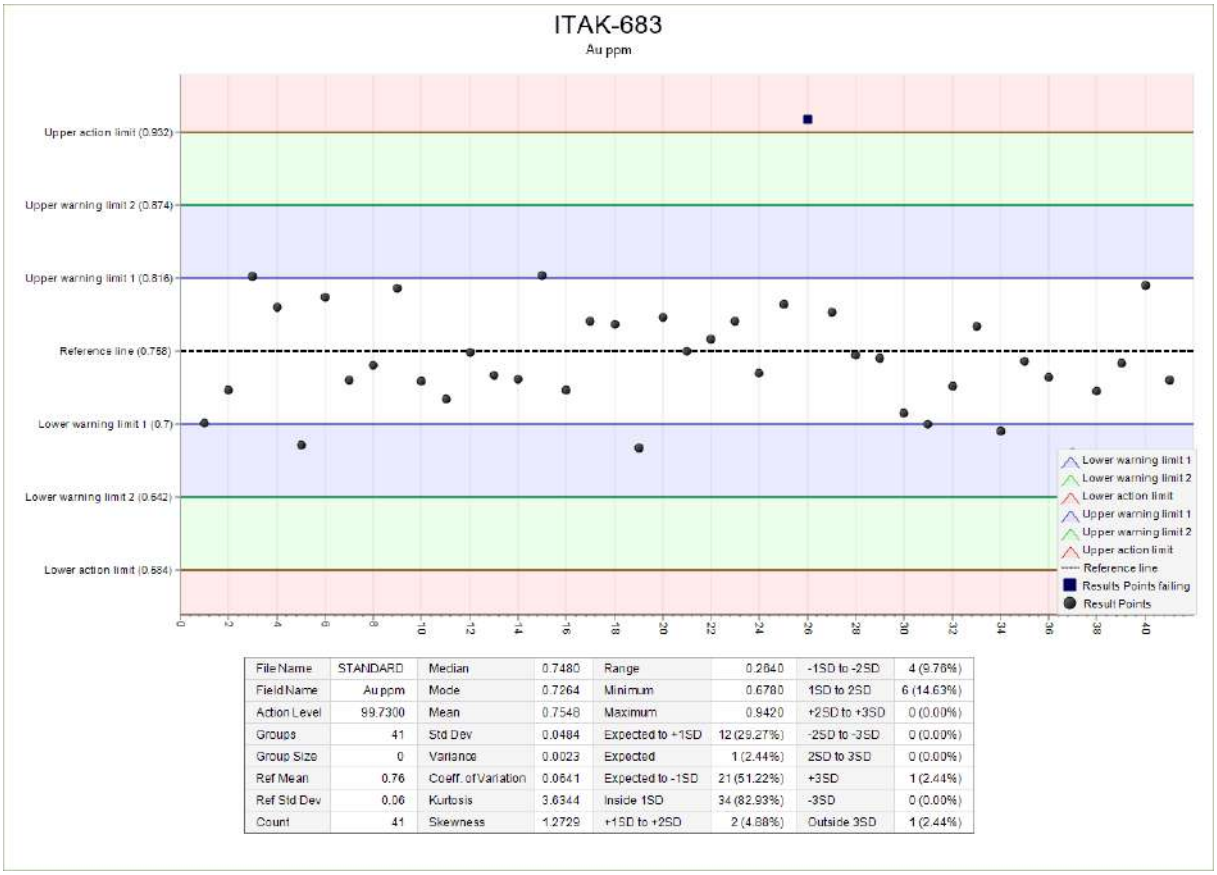
File Name	STANDARD	Median	1.6410	Range	0.2280	-1SD to -2SD	1 (11.11%)
Field Name	Au ppm	Mode	1.6860	Minimum	1.5230	1SD to 2SD	2 (22.22%)
Action Level	99.7300	Mean	1.6226	Maximum	1.7510	+2SD to +3SD	0 (0.00%)
Groups	9	Std Dev	0.0806	Expected to +1SD	4 (44.44%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0065	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	1.61	Coeff. of Variation	0.0496	Expected to -1SD	3 (33.33%)	+3SD	0 (0.00%)
Ref Std Dev	0.08	Kurtosis	-1.3575	Inside 1SD	7 (77.78%)	-3SD	0 (0.00%)
Count	9	Skewness	0.1496	+1SD to +2SD	1 (11.11%)	Outside 3SD	0 (0.00%)

Figure 11-18 - Standard ITAK-663, element Au ppm.



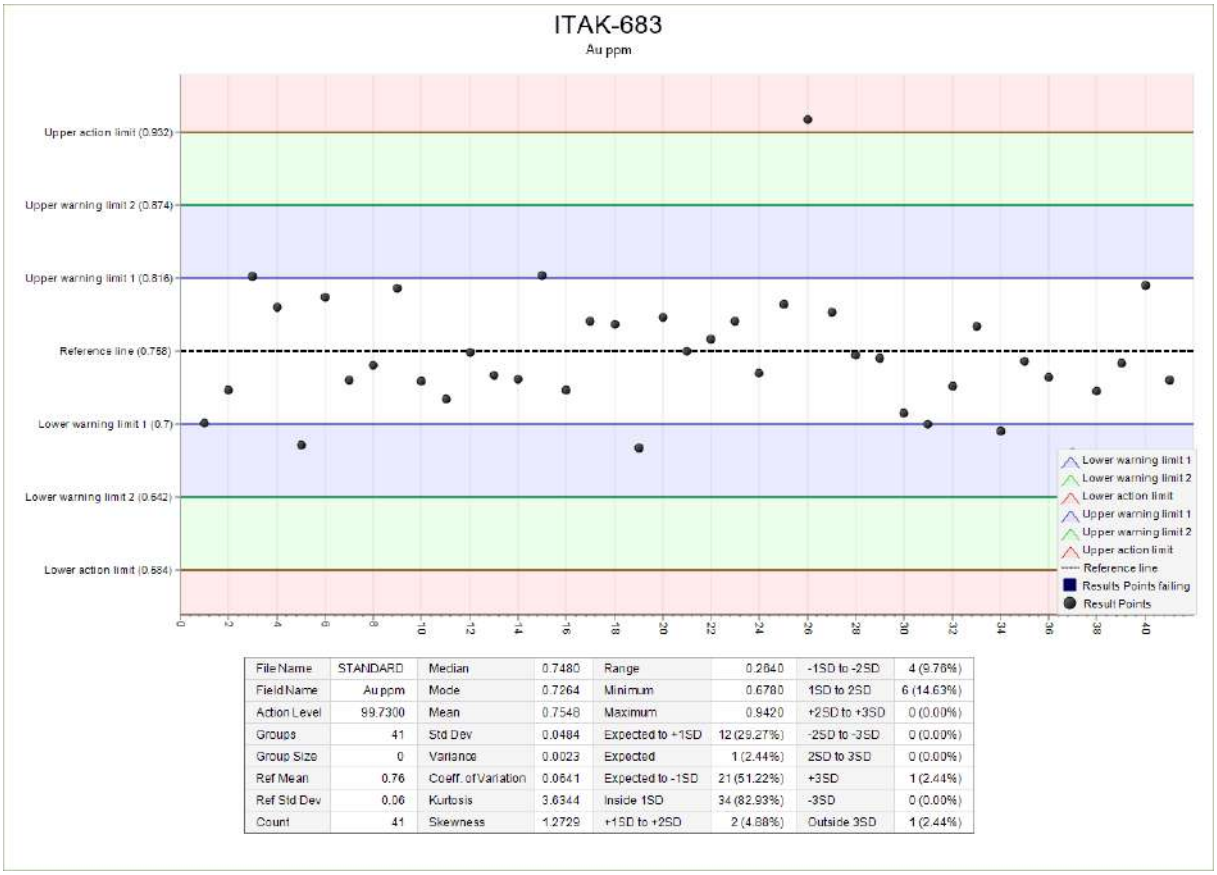
File Name	STANDARD	Median	0.8650	Range	0.1250	-1SD to -2SD	4 (12.12%)
Field Name	Au ppm	Mode	0.8440	Minimum	0.8160	1SD to 2SD	6 (18.18%)
Action Level	99.7300	Mean	0.8716	Maximum	0.9410	+2SD to +3SD	0 (0.00%)
Groups	33	Std Dev	0.0330	Expected to +1SD	11 (33.33%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0011	Expected	1 (3.03%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.88	Coeff. of Variation	0.0379	Expected to -1SD	15 (45.45%)	+3SD	0 (0.00%)
Ref Std Dev	0.05	Kurtosis	-0.7014	Inside 1SD	27 (81.82%)	-3SD	0 (0.00%)
Count	33	Skewness	0.2631	+1SD to +2SD	2 (6.06%)	Outside 3SD	0 (0.00%)

Figure 11-19 - Standard ITAK-669, element Au ppm.



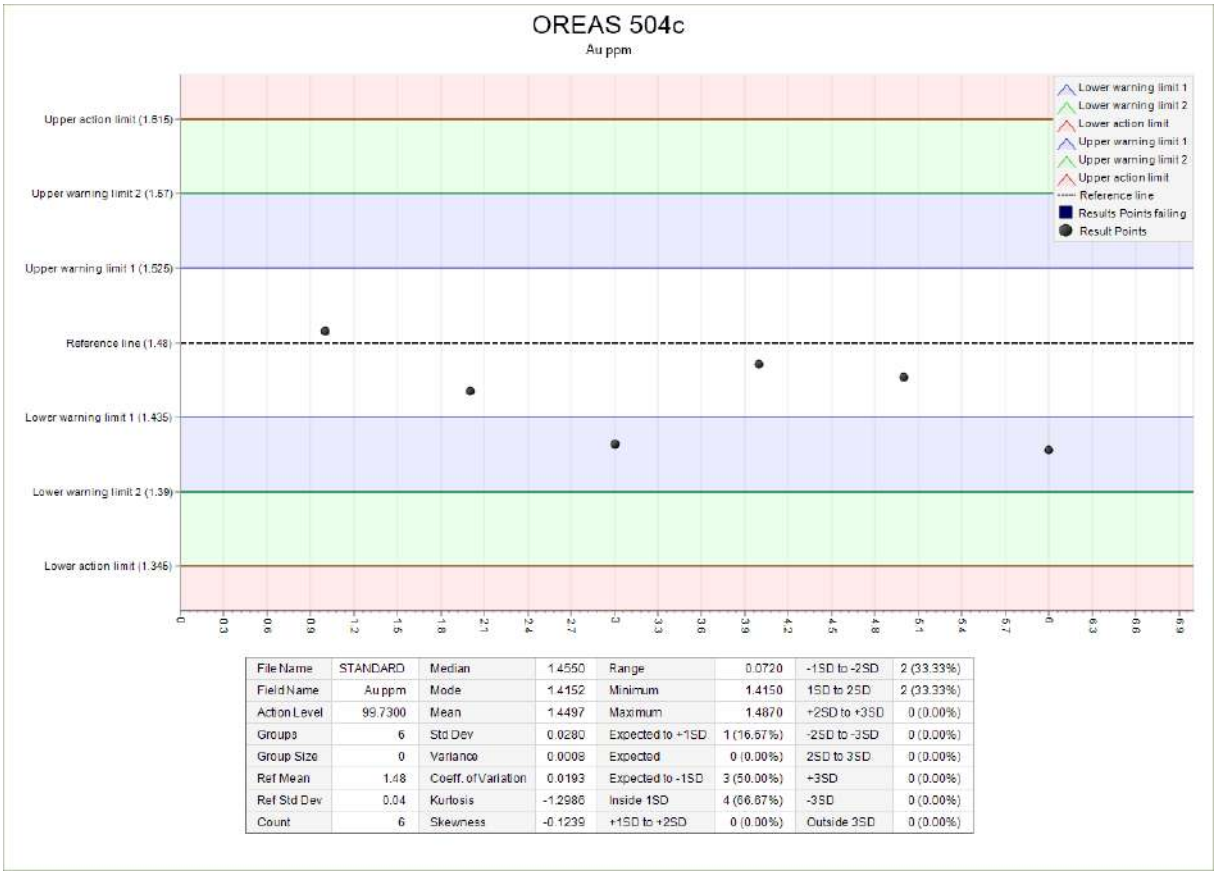
File Name	STANDARD	Median	0.7480	Range	0.2640	-1SD to -2SD	4 (9.76%)
Field Name	Au ppm	Mode	0.7264	Minimum	0.6780	1SD to 2SD	6 (14.63%)
Action Level	99.7300	Mean	0.7548	Maximum	0.9420	+2SD to +3SD	0 (0.00%)
Groups	41	Std Dev	0.0484	Expected to +1SD	12 (29.27%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0023	Expected	1 (2.44%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.76	Coeff. of Variation	0.0641	Expected to -1SD	21 (51.22%)	+3SD	1 (2.44%)
Ref Std Dev	0.06	Kurtosis	3.6344	Inside 1SD	34 (82.93%)	-3SD	0 (0.00%)
Count	41	Skewness	1.2729	+1SD to +2SD	2 (4.88%)	Outside 3SD	1 (2.44%)

Figure 11-20 - Standard ITAK-670, element Au ppm.



File Name	STANDARD	Median	0.7480	Range	0.2640	-1SD to -2SD	4 (9.76%)
Field Name	Au ppm	Mode	0.7264	Minimum	0.6780	1SD to 2SD	6 (14.63%)
Action Level	99.7300	Mean	0.7548	Maximum	0.9420	+2SD to +3SD	0 (0.00%)
Groups	41	Std Dev	0.0484	Expected to +1SD	12 (29.27%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0023	Expected	1 (2.44%)	2SD to 3SD	0 (0.00%)
Ref Mean	0.76	Coeff. of Variation	0.0641	Expected to -1SD	21 (51.22%)	+3SD	1 (2.44%)
Ref Std Dev	0.06	Kurtosis	3.6344	Inside 1SD	34 (82.93%)	-3SD	0 (0.00%)
Count	41	Skewness	1.2729	+1SD to +2SD	2 (4.88%)	Outside 3SD	1 (2.44%)

Figure 11-21 - Standard ITAK-683, element Au ppm.



File Name	STANDARD	Median	1.4550	Range	0.0720	-1SD to -2SD	2 (33.33%)
Field Name	Au ppm	Mode	1.4152	Minimum	1.4150	1SD to 2SD	2 (33.33%)
Action Level	99.7300	Mean	1.4497	Maximum	1.4870	+2SD to +3SD	0 (0.00%)
Groups	6	Std Dev	0.0280	Expected to +1SD	1 (16.67%)	-2SD to -3SD	0 (0.00%)
Group Size	0	Variance	0.0008	Expected	0 (0.00%)	2SD to 3SD	0 (0.00%)
Ref Mean	1.48	Coeff. of Variation	0.0193	Expected to -1SD	3 (50.00%)	+3SD	0 (0.00%)
Ref Std Dev	0.04	Kurtosis	-1.2986	Inside 1SD	4 (66.67%)	-3SD	0 (0.00%)
Count	6	Skewness	-0.1239	+1SD to +2SD	0 (0.00%)	Outside 3SD	0 (0.00%)

Figure 11-22 - Standard OREAS 504c, element Au ppm.

11.4.2.3 BLANK SAMPLES

For the control of potential contamination in the sample preparation process, 112 Blank Samples were used, which represents 2.64% of the total number of analyzed samples. The certificates of the Blank Samples are located in Appendix II.

The reference of the blank samples is the low gold material Certificates BLK-QF-21, BLK-QF-22 and CTRS-0448. The blank samples contain less than 0.005 and 0.01 ppm gold.

Sample 96360, associated with drill hole DDMBA-0041 and identified as blank BLK-QF-22, returned a gold grade of 0.903 ppm Au and was excluded from the blank sample dataset.

A review of the corresponding analytical batch showed that the ten samples immediately preceding and the ten samples following sample 96360 all returned gold grades of 0.01 ppm Au or less. These results indicate that sample contamination is highly unlikely.

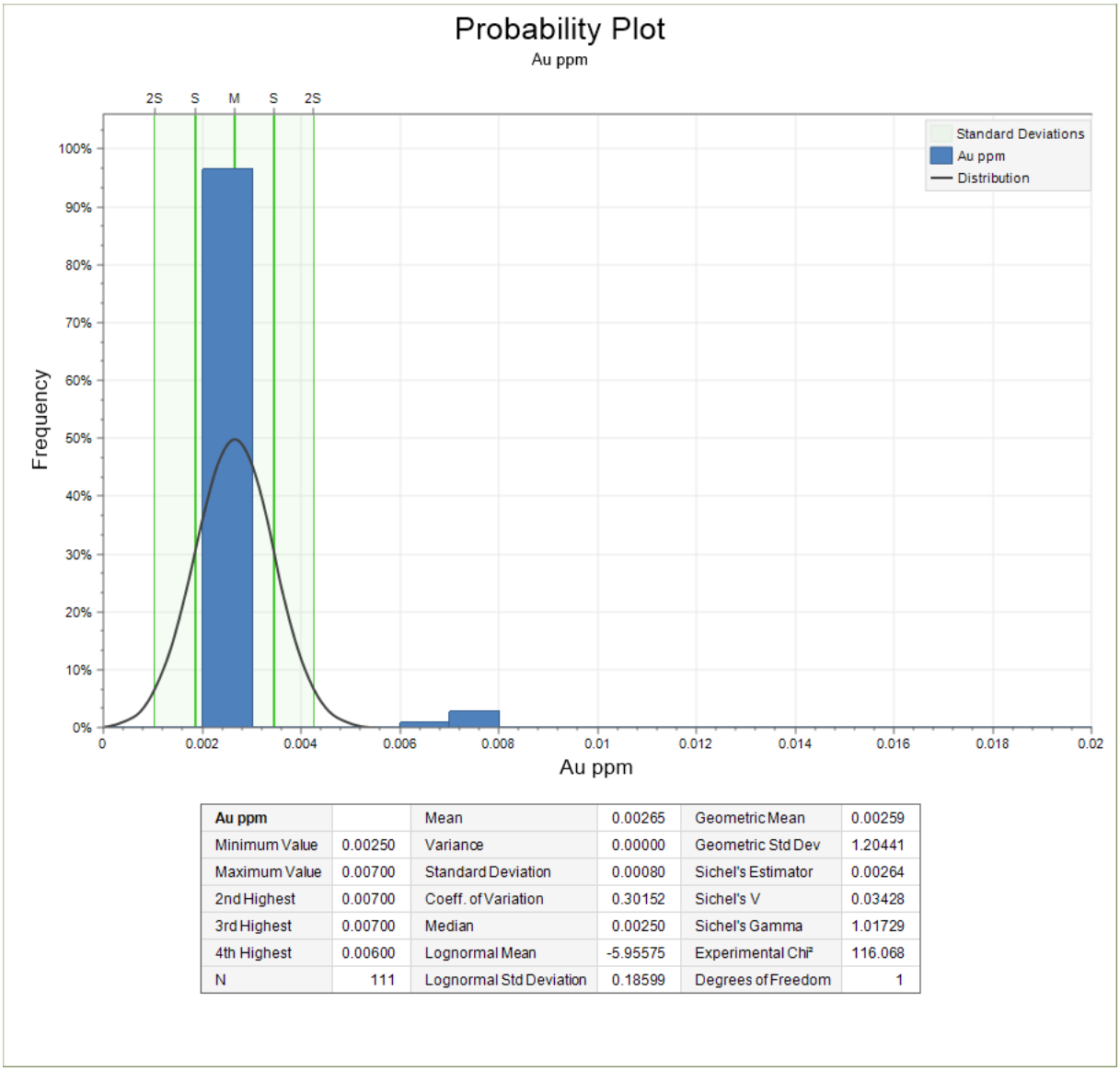
Consequently, the anomalous result was interpreted as a probable sample substitution or an error in the assignment of the blank sample code, rather than a contamination issue.

The results of analysis performed for gold is shown in Table 11-3. The analysis of the Blanks. This is due to potential contamination from sample preparation procedures and/or due to wear and cleanliness of the sample preparation equipment. The analysis of data has demonstrated that all the results are within the range of the confidence level.

Table 11-3 - Descriptive statistics of the chemical analysis results of the blank samples.

Field Name	Number of points	Minimum	Maximum	Average	Median	Variance	Std. Dev
Au ppm	111	0.00250	0.00700	0.00265	0.00250	0.0000006	0.0008

In Figure 11-23, we can see that only one sample out of 111 slightly exceeded the certified content values.



Au ppm		Mean	0.00265	Geometric Mean	0.00259
Minimum Value	0.00250	Variance	0.00000	Geometric Std Dev	1.20441
Maximum Value	0.00700	Standard Deviation	0.00080	Sichel's Estimator	0.00264
2nd Highest	0.00700	Coeff. of Variation	0.30152	Sichel's V	0.03428
3rd Highest	0.00700	Median	0.00250	Sichel's Gamma	1.01729
4th Highest	0.00600	Lognormal Mean	-5.95575	Experimental Chi²	116.068
N	111	Lognormal Std Deviation	0.18599	Degrees of Freedom	1

Figure 11-23 - Histogram of the distribution of blank sample analysis results.

11.5 DENSITY DETERMINATION

The purpose of this procedure is to present the methodologies used to obtain the density parameter for both rock and saprolite (oxidized material). The main items to be considered in the density analysis are:

- Characterization of dry and wet density for different geological materials.
- Calculation of moisture content.
- Sample collection by lithology.
- Statistical analysis of the data.

- Estimation of the global average density.

11.5.1 DENSITY CALCULATION FOR FRESH ROCK

The most common method for analyzing rock density is known as the Hydrostatic Balance or Archimedes' Principle. This method is simple and consists of the following steps:

1. A regular drill core sample with 5 cm thickness (average mass of 300 g) is collected and weighed on a precision digital analytical balance. This measurement is referred to as (W_Air), Figure 11-24;
2. The second step is weighing the sample while it is submerged in water. To do this, a wire is attached to the base of the precision balance (as a pendulum), with the sample tied to one end, and a support (net/perforated screen) tied to the other end and fully submerged in a container of water. The sample is then placed into the submerged support and its weight is recorded as (W_Water), Figure 11-25;
3. Using the wet mass of the sample and its submerged mass, the density of the material is calculated using the following equation:

Density = Mass of the sample in air (W_Air) / [Mass of the sample in air (W_Air) – Mass of the sample in water (W_Water)]

After all the information is obtained, it will be sent to the database, **Table 11-4**.



Figure 11-24 - Core lithology selection and sample size marking.



Figure 11-25 - Weighing the sample in air and water (Archimedes' Principle).

11.5.2 CALCULATION OF DENSITY TESTS FOR OXIDIZED MATERIALS (SAPROLITE) FROM THE MARIA BONITA PROJECT

The following procedure was used to measure the density of weathered and saprolitic rocks:

1. A compact piece of sample with 5–10 cm thickness (300–800 grams) is collected directly from the core box upon arrival at the camp and preserved in a plastic envelope (PVC film), Figure 11-26;
2. The sample selected for density testing is weighed to determine the wet mass, using a precision analytical scale, Figure 11-27;
3. A plastic container filled with water is used to submerge the sample and measure the weight of the displaced fluid. Once the water stops overflowing, the sample is carefully removed from the container. The water displaced by the sample mass is collected and weighed.
4. The sample is dried in a gas oven in two sessions of 2 hours each (average temperature of 250°C). Drying tests for stabilization should be performed for the identifiable different lithotypes, Figure 11-28;
5. The wet mass, the volume (given by the mass of displaced water), and the dry mass of the sample are recorded for the following calculations:

Wet Density = Mass of the wet sample (g) / Mass of water displaced by the sample (g)

% Moisture = (Mass of the wet sample (g) - Mass of the dry sample (g)) × 100 / Mass of the wet sample (g)

Dry Density = (Mass of the wet sample (g) × (100 - % moisture)) / (100 × Weight of water displaced by the sample)

After completing the analyses, the obtained data are recorded and compiled in the database, where the information is processed using statistical analysis



Figure 11-26 - Sample collection from the core box.



Figure 11-27 - Weighing of the wet sample and use of the container to determine the displaced volume.



Figure 11-28 - Mass of water obtained by displaced volume and drying of the sample for dry weighing.

Table 11-4 - Example of table used for samples in density test for fresh rock.

Hole number	From	To	Target	Rock_Cod	Sample_	Date	W_Air	W_Wate	Sg
DDMBA-0025	116.65	118.00	Maria Bonita	QZPV	127372	12/04/2024	236.77	151.2	2.77
DDMBA-0025	120.00	121.00	Maria Bonita	QZPV	127375	12/04/2024	283.76	177.25	2.66
DDMBA-0025	123.00	124.00	Maria Bonita	QZPV	127378	12/04/2024	280.28	177.35	2.72
DDMBA-0025	126.00	127.00	Maria Bonita	QZPV	127382	12/04/2024	268.76	168.02	2.67
DDMBA-0025	128.00	129.00	Maria Bonita	QZPV	127384	12/04/2024	233.74	147.25	2.70
DDMBA-0025	132.00	133.00	Maria Bonita	QZPV	127388	12/04/2024	275.84	173.42	2.69
DDMBA-0025	137.00	138.00	Maria Bonita	QZPV	127394	12/04/2024	259.96	163.11	2.68
DDMBA-0025	143.00	144.00	Maria Bonita	QZPV	127401	13/04/2024	204.58	129.49	2.72
DDMBA-0025	146.00	147.00	Maria Bonita	QZPV	127404	13/04/2024	265.86	166.64	2.68
DDMBA-0025	148.00	149.00	Maria Bonita	QZPV	127406	13/04/2024	302.56	190.05	2.69
DDMBA-0025	150.00	151.00	Maria Bonita	QZPV	127408	13/04/2024	293.91	184.57	2.69
DDMBA-0025	151.00	152.00	Maria Bonita	QZPV	127409	13/04/2024	257.63	163.42	2.73
DDMBA-0025	152.90	154.20	Maria Bonita	QZPS	127412	13/04/2024	211.31	136.54	2.83
DDMBA-0025	152.90	154.20	Maria Bonita	QZPS	127412	13/04/2024	322.17	205.49	2.76
DDMBA-0025	152.90	154.20	Maria Bonita	QZPS	127412	13/04/2024	143.31	93.94	2.90
DDMBA-0025	152.90	154.20	Maria Bonita	QZPS	127412	13/04/2024	279.48	177.75	2.75
DDMBA-0025	154.20	155.00	Maria Bonita	QZPV	127413	13/04/2024	324.79	203.96	2.69
DDMBA-0025	155.00	156.00	Maria Bonita	QZPV	127414	13/04/2024	381.39	239.46	2.69
DDMBA-0025	156.00	156.50	Maria Bonita	QZPS	127415	13/04/2024	302.78	193.18	2.76
DDMBA-0025	156.00	156.50	Maria Bonita	QZPS	127415	13/04/2024	217.18	138.47	2.76
DDMBA-0025	156.50	157.00	Maria Bonita	QZPC	127416	13/04/2024	333.58	209.6	2.69
DDMBA-0025	157.00	157.70	Maria Bonita	QZPC	127417	13/04/2024	232.7	146.49	2.70

ITEM 12: DATA VERIFICATION

12.1 SITE VISIT

VMG, represented by geologist Volodymyr Myadzel, visited the Maria Bonita Project area for a second time between August 03 and 04, 2026. The visit was attended by Altamira officials including Fernando Benegas and Elvis Alves (Project Manager).

The purpose of the visit was to familiarize the author with the Project and to verify the work completed in the field, in terms of geological exploration and data collection, in accordance with the basic principles governing the application and operation of the NI-43.101 i.e. transparency, materiality and competence, and also in accordance with the best practices of the mineral industry.

The technical visit covered the core storage shack, the Project area, and the mineralized zone in the field.

The images below show photos taken during the site visit (Figure 12-1 and Figure 12-2).



Figure 12-1 - Core Box–Technical site visit (2026).



Figure 12-2 - Visit to the Field Camp, Drill Core Processing and Temporary Storage Facilities.

All drillholes were clearly marked with concrete plugs (Figure 12-3). A metal tag was hammered into the concrete plugs showing the hole number, depth and azimuth. All drill hole

collar locations were surveyed following the drilling campaign by a qualified independent surveyor using a total station instrument.



Figure 12-3 - Drill Hole Collar - Technical site visit (2026).

During the 2025–2026 exploration campaign, several trenches were excavated. The trenches were developed in two to three benches, reaching depths of 5 to 10 m, allowing for the sampling of the saprolitic zone of the in-situ mineralization, Figure 12-4.



Figure 12-4 - Trench and Sampling Line - Technical site visit (2026).

During the visit, it was observed that the Altamira technical team has conducted its work following the best practices of the minerals exploration industry.

12.2 DATA IMPORT AND VALIDATION

12.2.1 DATABASE

The database used for Geological Modeling includes topographical data, information from the drillhole database and data for each sampling interval (test values for each controlled variable, lithological descriptions and deviation measures, when appropriate). This data was obtained by application of best industry practices and verified by a consistent QA / QC routine, which was applied not only to data but also to the methodology of the work as a whole.

The main drillhole database used in this work is Excel file ***20260814 23-36-44 Drill hole export.xlsx***, which consists of tables:

- Headers – Core Logging_Headers.
- Survey - Core Logging_Survey.
- Lithology – Core Logging_Lithology.
- Alteration – Core Logging_Alteration.
- Samples – Core Logging_Samples.
- Density – Logging_Density Fresh_Rock.
- Vein – Core Logging_Vein.
- Magnetic susceptibility – Logging_Mag_Susc (From-To).
- Geotech - Core Logging_Geotech.

The Trench database used in this work is Excel file ***2026089 23-16-48 Drill hole export.xlsx***, which consists of tables:

- Headers – Channel_Trench_Headers.
- Survey - Channel_Trench_Survey.
- Lithology – Trench_Channel_Trench Litho.
- Alteration – Core Logging_Alteration.
- Samples – Channel_Trench_Samples.

The excel files ***Tabelas_Controle_DDMBA0032_DDMBA0043.xlsx*** QA/QC control data.

The Excel file ***20260810_DENSITY_Re_log.xlsx,*** with density tests results for the zone of oxidation.

The file ***Proc_ANM_850224_2009_UTM.shp*** ANM mining rights polygon.

In relation to the topographic surface, the data was provided by Altamira in a file in *.shp format, named ***Curva de Nivel.shp***.

Altamira provided separate files for all assay certificates in Excel and Adobe pdf format.

Summary information on the contents of the database is presented in Table 12-1.

Table 12-1 - Presentation of initial data

Description	Quantity
Auger Drilling	59
Auger Drilling metreage	544.70
Diamond Drilling	43
Diamond Drilling metreage	8694.30
Trench	5
Trench metreage	1028.00
Drill hole sampling intervals	9170
Lithological descriptions	1848
Density Analyses	856

The drill holes are distributed irregularly on a grid, with distances between holes that vary between 50 and 100 meters. Twelve vertical sections were created with a N-S orientation and a distance of 50 and 100 meters between sections. The drill holes and the vertical sections used in the interpretation are shown in Figure 12-5.

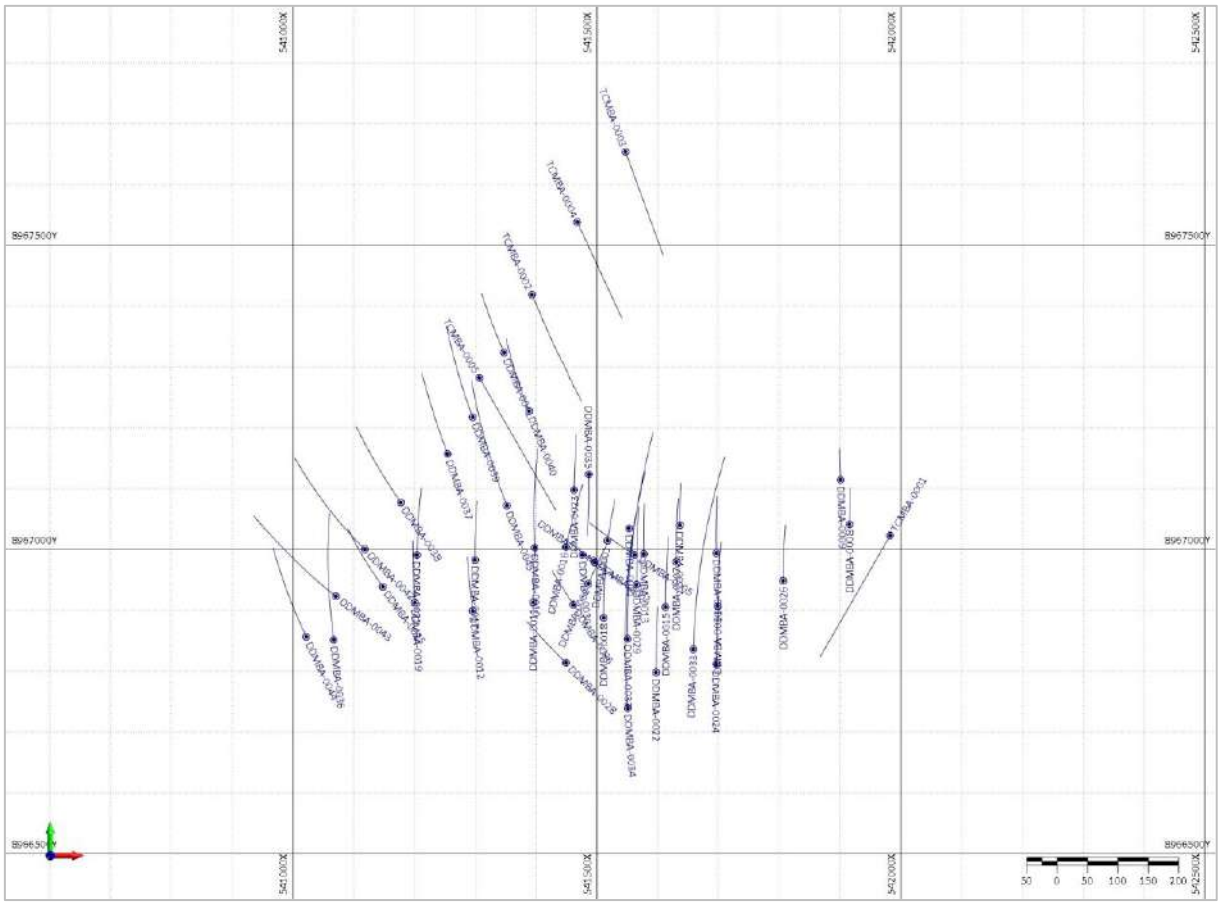


Figure 12-5 - Diamond drill holes and trench used for the interpretation of the Maria Bonita Project.

The batch list of analyzed gold and descriptive statistics is presented in Table 12-3 and the other analyzed elements are presented in the Table 12-2.

Table 12-2 – The other analyzed elements.

Element	Quantity
Ag ppm GE_ICP40Q	3639
Ag ppm ICP40B	1103
Ag ppm ICP40B_S	1
Al % GE_ICP40Q	3639
Al % ICP40B	1103
As ppm GE_ICP40Q	3639
As ppm ICP40B	1103
Au ppb FAA505	8157
Au ppb FAA505 certificate completed	8157
Au1 ppb FAA505	14
Au2 ppb FAA505	14
Ba ppm GE_ICP40Q	3639
Ba ppm ICP40B	1103
Be ppm GE_ICP40Q	3639
Be ppm ICP40B	1103
Bi ppm GE_ICP40Q	3639
Bi ppm ICP40B	1103
Ca % GE_ICP40Q	3639
Ca % ICP40B	1103
Cd ppm GE_ICP40Q	3639
Cd ppm ICP40B	1103
Co ppm GE_ICP40Q	3639
Co ppm ICP40B	1103
Cr ppm GE_ICP40Q	3639
Cr ppm ICP40B	1103
Cu ppm GE_ICP40Q	3639
Cu ppm ICP40B	1103
F ppm ISE03A	214
Fe % GE_ICP40Q	3639
Fe % ICP40B	1103
K % GE_ICP40Q	3639
K % ICP40B	1103
La ppm GE_ICP40Q	3639
La ppm ICP40B	1103
Li ppm GE_ICP40Q	3639
Li ppm ICP40B	1103
Mg % GE_ICP40Q	3639
Mg % ICP40B	1103
Mn % ICP40B	1103
Mn ppm GE_ICP40Q	3639
Mo ppm GE_ICP40Q	3639
Mo ppm ICP40B	1103
Na % GE_ICP40Q	3639
Na % ICP40B	1103
Ni ppm GE_ICP40Q	3639
Ni ppm ICP40B	1103
P % GE_ICP40Q	3639

P % ICP40B	1103
Pb ppm GE_ICP40Q	3639
Pb ppm ICP40B	1103
S % GE_ICP40Q	3639
S % ICP40B	1103
Sb ppm GE_ICP40Q	3639
Sb ppm ICP40B	1103
Sc ppm GE_ICP40Q	3639
Sc ppm ICP40B	1103
Se ppm ICP40B	1103
Sn ppm GE_ICP40Q	3639
Sn ppm ICP40B	1103
Sr ppm GE_ICP40Q	3639
Sr ppm ICP40B	1103
Th ppm ICP40B	1103
Ti % GE_ICP40Q	3639
Ti % ICP40B	1103
Tl ppm ICP40B	1103
U ppm ICP40B	1103
V ppm GE_ICP40Q	3639
V ppm ICP40B	1103
W ppm GE_ICP40Q	3638
W ppm ICP40B	1103
Y ppm GE_ICP40Q	3639
Y ppm ICP40B	1103
Zn % ICP40B_S	14
Zn ppm GE_ICP40Q	3639
Zn ppm ICP40B	1103
Zr ppm GE_ICP40Q	3639
Zr ppm ICP40B	1103

Table 12-3 - Gold Analysis for all samples in the database.

Chemical analyses	Quantity	Minimum	Maximum	Average
Au ppm	9170	0.003	7.727	0.301

It is important to note that, for sampling intervals without samples, no numerical values were assigned.

12.2.2 DATABASE VERIFICATION USING THE MICROMINE SYSTEM

The database was tested using specific processes to verify the existence of potential error types listed below:

- The name of the drill hole is present in the collar file but is missing from the analytical database.

- The name of the drill hole is present in the analytical database but is absent in the collar file.
- The name of the drill hole appears repeated in the analytical database and in the collar file.
- The name of the drill hole does not appear in the collar file and in the analytical database.
- One or more coordinate notes are absent from the collar file.
- FROM or TO are not present in the analytical database.
- FROM>TO in the analytical database.
- Sampling intervals are not continuous in the analytical database (there are gaps between the sample intervals logged).
- Sampling intervals overlap in the analytical database.
- The first sample does not correspond to 0 m in the analytical database.
- The azimuth is not in the range of 0-360 degrees.
- The dip is not in the range of 0-90 degrees.
- Azimuth or dip of the hole is missing.
- The total depth of the hole is shallower than the depth of the last sample.

Some minor errors were identified, mainly due to incorrectly entered intervals. The errors were checked with the Altamira geologist and the database was updated.

12.3 AUTHOR'S CONSIDERATIONS

During the second site visit, the author inspected all newly drilled holes, all exploration trenches, and the main field camp, where drilling samples and other materials collected during exploration activities are processed and temporarily stored.

The author was able to verify the locations of the drill holes in the field using his own handheld GPS unit. During the site visit, the author also reviewed the sampling procedures and confirmed that sampling activities were being conducted in accordance with the protocols described in Section 11 of this report.

Assay data used in the Mineral Resource model were spot-checked and cross-checked against the original assay certificates following their import into the modelling database.

No restrictions or limitations were imposed on the author during the verification of the data presented in this report. In the author's opinion, the data reviewed are sufficiently reliable and appropriate for the purposes of this report and are presented in a manner that is not misleading.

ITEM 13: MINERAL PROCESSING AND METALLURGICAL TESTING

13.1 STAGE 1 METALLURGICAL TESTS:

Following the conclusion of the initial diamond drill program, Altamira decided to undertake a program of metallurgical characterization. This was based on the positive results showing long (+/-50m) intervals of coherent and regular gold mineralization from surface. The initial testwork program included characterization testwork for leaching, gravity, magnetic and froth flotation process routes.

Following completion of holes MBA001–MBA004, representative composite samples of saprolite and fresh rock were prepared from assay sample coarse rejects, returned from the SGS Geosol analytical laboratory. Each original half core assay sample generated a coarse crushed product which was split during the assay procedure. These samples were returned to the Altamira camp and re-composited by Altamira staff so as to represent selected mineralized intervals in saprolite and fresh rock. Each sample weighed 20kg and was comprised of +/- 15 subsamples of individual core intervals, each of which measured 0.77-1.5m.

The following summarizes the work completed.

- The tests were conducted at a specialist laboratory in Brazil (“Testwork”) which is highly regarded for its evaluation of gold ores.
- Drill assay composite head grades for the saprolite (1.2g/t Au) and fresh rock (1.1g/t Au) correspond well with the laboratory head grades of 1.3g/t and 1.07g/t respectively
- The mineralization at Maria Bonita is remarkably “clean” with very little sulphide and therefore very low impurities of sulphophile elements such as arsenic and base metals
- Both the saprolite (oxide) and fresh rock (sulphide) composite samples returned cyanide leach recoveries of 90% in a 24-hour agitated leach test at a grind size of 80% passing a 75µm screen
- Average cyanide (0.11kg/t) consumptions were very low by industry standards (0.45-0.75kg/t) as a result of very low sulphide contents in the mineralized material.
- The tests were supervised by Altamira consulting metallurgist, Ian Gordon Hall Dun BSc (Eng), MSc

The samples were submitted to Testwork Desenvolvimento de Processo Ltda in Nova Lima, Minas Gerais, Brazil. The testwork was conducted under the observation of the Company's consulting metallurgist Ian Gordon Hall Dun BSc (Eng), MSc. who specializes in gold and tin processing and has wide experience in Latin American projects, having resided in the region for 45 years.

Table 13-1 - Estimated head grades (from drill assay composites) versus calculated head grades (from laboratory sizing analysis).

Au g/t	>35#	<35#	Calc head	Est head
Saprolite	1.39	1.24	**1.30**	**1.2**
Fresh Rock	0.91	1.15	**1.07**	**1.1**

The composite head grades for the metallurgical sample intervals as estimated from prior assay results were 1.2g/t Au for the saprolite and 1.1g/t Au for the fresh rock samples.

The laboratory calculated head grades for the samples were 1.30g/t Au and 1.07g/t Au respectively which correlate well with the estimated head grades from the individual drill core residue composites. Crushing and grinding did not indicate the presence of coarse particulate gold as there was no evidence for partition of gold into the coarse (>35# size fraction, Table 13-1). This result is in line with the observation from panning of higher-grade soil samples (>1g/t Au) over the sub-cropping mineralization, where only very fine gold was recovered in panning.

The mineralized material contains very low levels of base metals and other potential contaminants that might influence metallurgical processing options e.g. sulphur content is less than 0.01% S

An independently analyzed head sample returned the levels of impurities presented in Table 13-2.

Table 13-2 - ICP scan of minor elements in head sample (conducted via Testwork Ltda.).

Amostra Cabeça - AFR - MAG - AL					
Ag	ppm	<3	**Ni**	ppm	<3
Al	%	4,82	**P**	%	<0,01
As	ppm	<10	**Pb**	ppm	36
Ba	ppm	122	**S**	%	0,01
Be	ppm	<3	**Sb**	ppm	<10
Bi	ppm	<20	**Sc**	ppm	<5
Ca	%	0,34	**Se**	ppm	<20
Cd	ppm	<3	**Sn**	ppm	<20
Co	ppm	<8	**Sr**	ppm	33
Cr	ppm	3	**Th**	ppm	35
Cu	ppm	28	**Ti**	%	0,05
Fe	%	2,48	**Tl**	ppm	<20
K	%	3,47	**U**	ppm	<20
La	ppm	52	**V**	ppm	<8
Li	ppm	6	**W**	ppm	<20
Mg	%	0,06	**Y**	ppm	67
Mn	%	0,02	**Zn**	ppm	171
Mo	ppm	<3	**Zr**	ppm	189
Na	%	2,12			

The work program included leaching, gravity, magnetic and froth flotation characterization tests. The samples were submitted in a crushed state, nominally passing 3mm. A screening of a 3kg sub-sample of the head material at 35# (500µm), showed that 43% (saprolite) and 72% (fresh rock) of the contained gold is in the <35# fraction.

The sample material was reduced to 80% passing 75µm for successive tests.

Neither magnetic separation nor froth flotation were singularly successful in significant recovery of gold. A combination of gravity and flotation remains an avenue for further improvement on the 68-69% gold recovery range achieved in initial tests. There was no appreciable concentration of gold using magnetic separation.

Gravity separation tests using a Knelson concentrator recovered 12-15% of the gold to a rougher pre-concentrate. This result indicates that there is potential for further testing to optimize recovery using gravity techniques.

Direct agitated leaching tests were conducted on two sub-samples of each main sample (saprolite and fresh rock). The results showed very positive leach responses at low reagent consumption rates as outlined below.

Table 13-3 - Gold recovery from direct leach tests.

Au recovery %	Test 1	Test 2
Saprolite	91.3	92.8
Fresh Rock	89.9	90.5

Table 13-4 - Main reagent consumption for direct leach tests.

	Lime kg/t		Na CN g/t	
	Test 1	Test 2	Test 1	Test 2
Saprolite	4.5	4.2	284	220
Fresh Rock	0.8	0.75	88	92

Industry average cyanide (CN) consumption rates generally lie in the range 450-750g/t (grams per tonne of ore treated). Therefore, the initial tests are highly encouraging that a low cyanide consumption may be anticipated. Consumption of lime for pH modification in fresh rock is also well below an industry benchmark of ~2kg/t for the fresh rock.

A combination of gravity and flotation tests produced average gold recoveries of 68% (fresh) and 69% (saprolite), which suggest that further work is warranted via those routes to optimize a metallurgical plan, underpinned by the 90% recoveries obtained from direct leaching.

These initial metallurgical test results suggest that relatively high recoveries can be expected using leach techniques. Active reagent consumptions are notably low at this stage of testwork, which is also a positive indicator.

As a next-step, further work on crushing and grinding characteristics plus amenability of the leach dynamics to heap leaching via column leach testwork was planned.

13.2 STAGE 2 METALLURGICAL TESTS

Leach tests using cyanide-free, thiosulphate leachate

This testing complemented the initial agitated leach test results released on March 1, 2023, using the conventional cyanide leach technology. The current test was conducted at CSIRO laboratories in Western Australia using a proprietary thiosulphate leach technique developed by Clean Mining, a subsidiary of Clean Earth Technologies (CET), based in Singapore. CET is commercializing a non-cyanide approach to leaching of gold ores that was originally developed in Australia by CSIRO. CET has two patented technologies, a nontoxic leach reagent and a resin-based collector. Cyanide leaching is the traditional method to extract low grade gold at commercial scale. Thiosulphate leaching offers a more environmentally benign route to gold extraction which is particularly relevant to projects in eco-sensitive areas.

Highlights of the testwork:

- A 24-hour agitated leach test using the thiosulphate leach agent, at a grind size of 80% passing 75µm, recovered 92% of total gold content.

- The head grade of the sample treated compares well with the original assays of the diamond drill composites making up the sample (50g fire assays). The original assays from the drill samples gave 1.07g/t gold. The Clean Mining laboratory head grade (500g sample) gave 1.04g/t gold. The Clean Mining leach test resulted in a back-calculated head grade of the sample (after leaching) of 1.10g/t gold (1000g of leach test sample). These results underline the consistency of the mineralization.

- A conventional agitated cyanide leach test was also conducted in parallel using the same grind and leach time and yielded a gold recovery of 91%. These results correlate very well with the initial agitated cyanide leach tests carried out in the Testwork laboratory in Brazil, which also returned an average cyanide leach gold recovery of 91% for primary mineralized material from Maria Bonita.

The testwork program involved crushing and grinding the sample to 80% passing 75 microns. Standard bottle roll leach tests were conducted using 1000 g of sample repulped to 40% solids, with pH adjusted to 5-7 for Clean Mining's reagent and 10.8 for a comparable cyanide leach test.

For the Clean Mining leach test, 31.2 grams of clean leach reagent (CLR), equivalent to 20 grams of reagent per litre of liquor, and 5.6 grams of clean leach enhancer (CLE) equivalent to 3.7 grams of reagent per litre of liquor were added. The concentration of reagents and the pH were monitored for the duration of the test. After 48 hours of leaching, the pulp was filtered and washed with three displacements of water.

The results indicate a consumption of 3.59 kg/t of CLR and 0.36 kg/t of CLE and an average gold recovery of 92.1% within 24 hours. As concluded by Clean Mining, "The ore has shown low reagent consumption, high gold recovery and fast leaching kinetics".

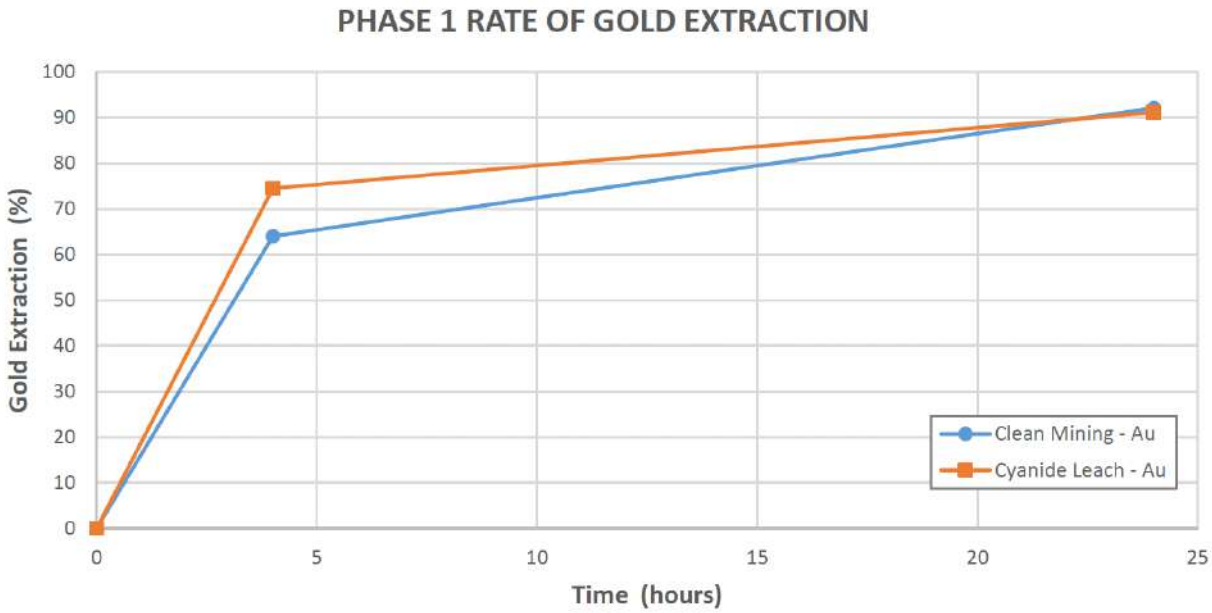


Figure 13-1 - Progressive leach recovery of gold using CET and conventional cyanide leach reagents.

For the comparable cyanide leach, gold recovery after 24 hours of leaching was 91% with a sodium cyanide (NaCN) consumption of 0.3 kg/t.

When compared with the prior results for metallurgical characterization for Maria Bonita mineralization, the thiosulphate leach gave marginally higher recoveries than those for conventional cyanide leaching.

Table 13-5 - Summary for leach test results for Maria Bonita project.

Au recovery %	Reported 01/03/23		This report	
	CN	CN	CET	CN
Saprolite	91.3	92.8		
Fresh Rock	89.9	90.5	92.3	91.1

CN = conventional cyanide leach

CET = Clean Earth Technologies thiosulphate leach

13.3 STAGE 3 METALLURGICAL TESTS

Following the successful initial tests using an agitated leach method and using both cyanide and thiosulphate leaching agents, resulting in >90% gold recoveries, a further set of tests was conducted to trial column leaching which simulates heap leaching at scale.

Highlights:

- Column leach metallurgical tests (simulating a heap leach) of a composite drill core sample of mineralized saprolite material from the Maria Bonita gold discovery at Maria Bonita, returned an excellent gold recovery of 88% for a feed size of 100% passing 9.5mm.

- There is potential to optimize the crush top size and conditioning of the feed to further improve the kinetics and potential economics.

For the initial column leach tests, samples of approximately 30kg were prepared from composited quarter core subsamples of the initial diamond drilling program (holes MBA001–MBA005). The samples were composited from up to forty-two individual core samples, each generally representing a one metre interval of diamond drill core.

The samples were submitted to Testwork Desenvolvimento de Processo Ltda in Nova Lima, Minas Gerais, Brazil. The test work was conducted under the observation of the Company's consulting metallurgist, Ian Gordon Hall Dun BSc (Eng), MSc.

Table 13-6 - Estimated head grades (from weighted drill assay composites) versus average assayed head grades at the metallurgical laboratory.

	No of subsamples	Weighted avg grade g/t Au	Lab head grade g/t Au	Difference %
Saprolite	34	1.02	1.18	14%
Fresh rock	42	1.07	1.07	0%

Samples were first crushed to 80% passing 9.5mm. Head grades analyzed in the laboratory were broadly in line with the estimated grades from the calculated drill core composite assay grades (Table 13.6). The saprolite sample received by the laboratory contained 14% more gold than the estimated grade of the core composites making up the sample. This positive difference in the saprolite analysis might reflect the presence of physical gold within the saprolite. To date, visible gold has not been observed in the drill core however rare, fine physical gold has been observed from the panning of soils. This might represent upside for future bulk sampling of saprolite.

Each leach sample was agglomerated and conditioned using 2kg/t of cement and lime to facilitate both a pH of 10.5-11 and percolation through the column over the life of the leach test. Laboratory columns of 1m height and 6 inches diameter were used. The percolation rate was 10 litres per hour per square metre of surface area. Cyanide concentrations of 300-500ppm were used. The columns were irrigated for 30-45 days.

The results show a net gold recovery of 88.2% with a cyanide consumption of 750g/t for saprolite (Table 6). This is a very positive result for a coarse 9.5mm crush top-size, implying that the weathered saprolite is amenable to heap leaching and offering potential to further investigate crushing, agglomeration and reagent dosing to further optimize the results.

In parallel, rolling bottle (agitated leach) control tests were conducted on samples ground to 80 per cent passing 200 mesh (75 microns) for 24 hours (Table 6). The agitated leach test for the saprolite reported a gold recovery of 91.6% at a cyanide consumption of 330g/t, confirming the previous tests conducted using a similar agitated leach methodology. This bottle roll test indicated that leach kinetics after 16 hours are similar to those for 24 hours, suggesting that agitated leach times can be optimised.

Table 13-7 - Summary of results. CN is cyanide reagent.

	Column leach		Agitated leach	
	Au recovery %	CN consumption g/t	Au recovery %	CN consumption g/t
Saprolite	88.2	750	91.6	330
Fresh rock	51.8	1170	90.4	417

Column leach testing of the fresh rock material, gave an initial gold recovery of 51.8% (Table 13.7). Further work is warranted on finer crush and grind sizes to evaluate whether a suitable liberation and recovery combination for heap leaching versus the demonstrated agitated leach route (greater than 90% gold recovery) is likely to be economically attractive for the fresh rock material.

Further metallurgical testing to investigate crushing and grinding metrics, sample conditioning and reagent consumption is planned as follow-up.

Conclusions to date:

- Leaching is the preferred process route, given the high recoveries achieved for both oxide and primary zones. Agitated leach is highly applicable to both sulphide and oxide zones. Reagent consumptions are relatively low. Column leach tests indicate that recoveries in the sulphide zone may be only moderate due to encapsulation of fine gold. To improve these heap leach dynamics, finer comminution and agglomeration would be required and will be the subject of further tests.

- Approximately 15% of total gold may be recoverable by a gravity process ahead of leaching. This is likely to be more effective in the oxide zone than in the primary. At these relatively low recovery rates, a gravity circuit may not be cost-effective.

- A combination of gravity and flotation tests produced average gold recoveries of 68% (fresh) and 69% (saprolite). When compared to the leaching option, this overall recovery potential in relatively low-grade feed, suggests that this combination may not be the most cost effective.

13.4 NEXT STAGE TESTWORK

- For agitated leaching, the next steps are to seek optimizations of grind size, leaching residence time and reagent consumptions by conducting testing at different grind sizes.

- Most of this work will be directed at the primary zone where the liberation of gold via crushing and grinding is critical. For tests to date, the half core sample material was reduced to 80% passing 75µm and a residence time of 24 hours was used. The opportunity is to carry out further studies to both reduce residence time and/or improve recovery via incrementally finer grinding

- These tests should allow a better understanding of the trade-off in the capital and operating cost of fine grinding versus residence time (and therefore scaling) of the grinding circuit and leach tanks.

- Given the presence of +/-50koz of gold in the saprolite zone, further tests on gravity recovery may be considered as part of an evaluation of starter operation options.

- In the most recent diamond drill campaign, two vertical HQ diameter metallurgical drillholes (MBA030 & MBA031) were completed to provide sample material for further metallurgical tests.

Table 13-8 - Metallurgical drill sample available.

Drillhole	Depth metres	From metres	To Metres	Length metres	Grade Au g/t	Peak assay Au g/t
DDMBA-0030	59	0	9.3	9.3	**1.36**	2.01
		9.3	42	32.7	0.53	1.25
DDMBA-0031	59	0	12.5	12.5	0.50	0.90
		12.5	59	46.5*	0.50	1.42

**open at depth*

ITEM 14: MINERAL RESOURCE ESTIMATE

14.1 INTRODUCTION

This section describes the methodology used in the gold resource evaluation of the ANM Permit N° 850.224/2009 containing the Maria Bonita Project, located in the vicinity of Paranaita, Mato Grosso, Brazil.

While the economic factors listed in this report will be important considerations in relation to the possible viability of the deposit, the deposit has yet to undergo more comprehensive and rigorous testing before a mining decision can be made. Mineral Resources are not Mineral Reserves, and as such, have not demonstrated economic viability.

The Maria Bonita Project is located within exploration permits granted under administrative procedures and administered by the National Mining Agency (ANM). The permitting process for any mining operation in Brazil is well established and has been tested through the approval of many past projects. There are no known unusual legal, environmental, socio-economic, taxation or permitting problems associated with the subject claims that would adversely affect the development of the property.

Dr. Myadzel is responsible for the resource estimation methodology. Dr. Myadzel is independent of the issuer of this report and applied all the tests described in Section 1.5 of the NI 43-101 regulatory instrument.

The data for the Mineral Resource estimate were generated using the Micromine software program, produced by Micromine Pty Ltd.

The resource estimate was made in accordance with the standards accepted by the Canadian Institute of Mining, Metallurgy and Petroleum (CIM) for Measured, Indicated, and Inferred resources in accordance with the NI 43-101 Standards for Disclosure of Mineral Projects.

The effective date of this estimate is the receipt date of the latest data on the resource estimate, which is September 16, 2026.

14.2 GENERAL ECONOMIC FACTORS

In preparing the Mineral Resource estimate, consideration was given to the principal technical and economic factors relevant to assessing the reasonable prospects for eventual economic extraction (RPEEE). These include the anticipated mining and processing methods, potential

operating costs, infrastructure availability, and the geological and physical characteristics of the deposit.

The principal factors supporting the potential economic extraction of the mineralization are summarized below:

- **Near-surface mineralization:** A significant portion of the deposit occurs at or near the surface, potentially reducing initial stripping requirements and associated mining costs.
- **Continuity of mineralization:** Recent trenching results indicate good lateral continuity of the mineralized zone near the surface, providing additional confidence in the geological interpretation and supporting the potential development of a relatively continuous mining area.
- **Oxidation profile:** Recent trenching has confirmed the presence of a substantial weathered and oxidized zone. During the site visit, the author directly observed the excavation of a new exploration trench using conventional earthmoving equipment, without drilling and blasting. The excavation characteristics of previously completed trenches were also consistent with mechanical excavation of the weathered material. These observations suggest that at least part of the near-surface mineralization may be amenable to direct excavation without blasting, potentially reducing initial mining costs and simplifying early mining operations. The extent of material suitable for free digging will require confirmation through subsequent geotechnical assessment and mine planning.
- **Mining method:** Open-pit mining is considered the most likely extraction method. The selection and sizing of mining equipment, as well as the final pit configuration, will be determined through subsequent mine planning and engineering studies. The locations of the processing plant, waste rock storage facilities, and tailings or other processing residue storage facilities have not yet been finalized.
- **Mineral processing:** Preliminary metallurgical testwork (see Item 13) suggests that gold recovery may be achievable using conventional processing methods. Further metallurgical studies will be required to confirm the appropriate process flowsheet, recovery assumptions, and operating costs.
- **Infrastructure:** The project benefits from favourable regional infrastructure, including access to electrical power, water resources, established transportation routes, and a potential local workforce with mining experience.
- **Economic assumptions:** The selection of preliminary economic parameters was informed by the authors' professional experience and published technical and economic information from comparable gold projects at more advanced stages of development.

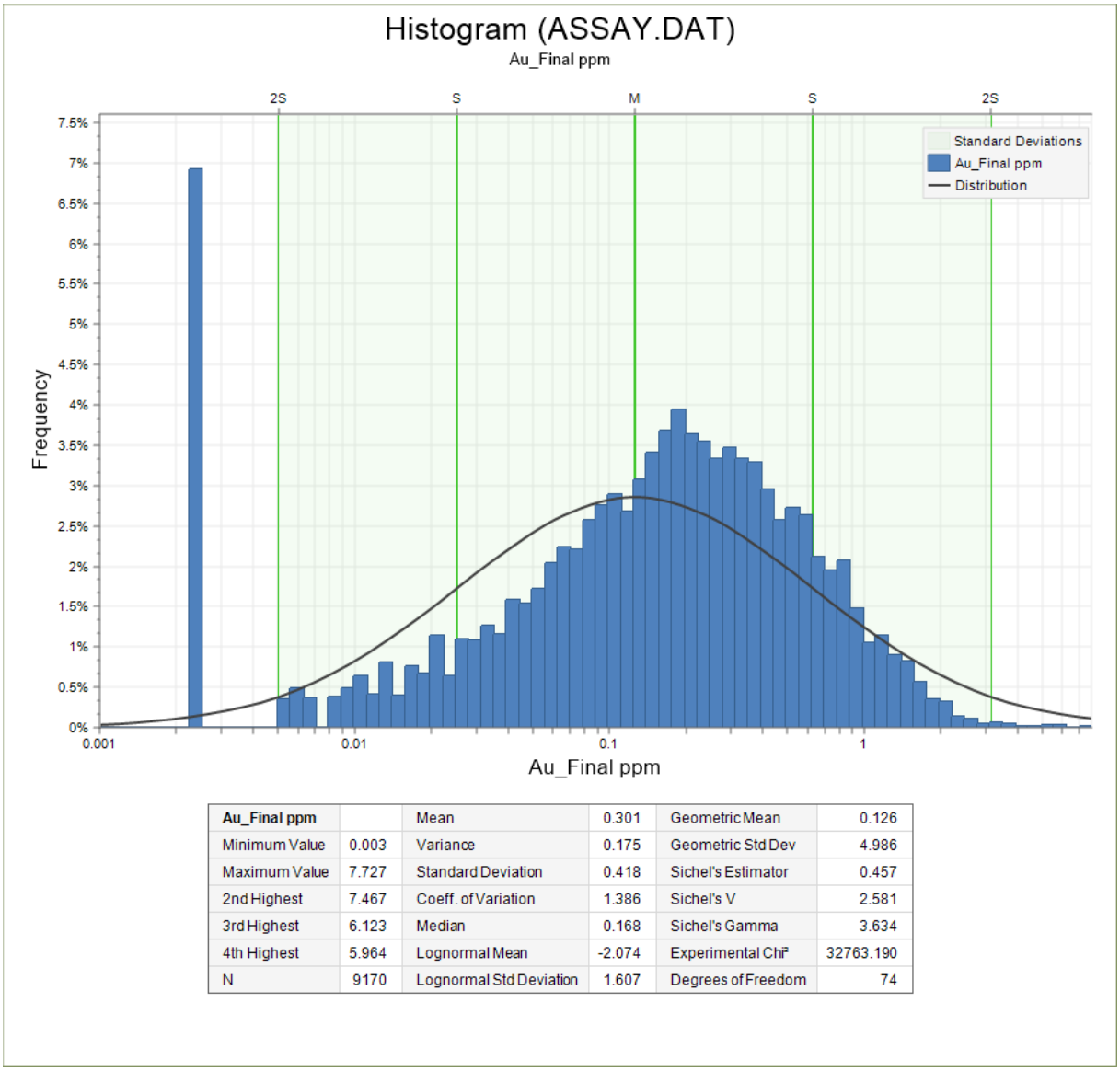
Collectively, these factors provide a preliminary basis for considering the potential economic extraction of the Mineral Resources. However, the assumptions remain subject to confirmation through further technical, metallurgical, geotechnical, and economic studies.

14.3 STATISTICAL ANALYSIS

This report used a classical statistical analysis to perform the following tasks:

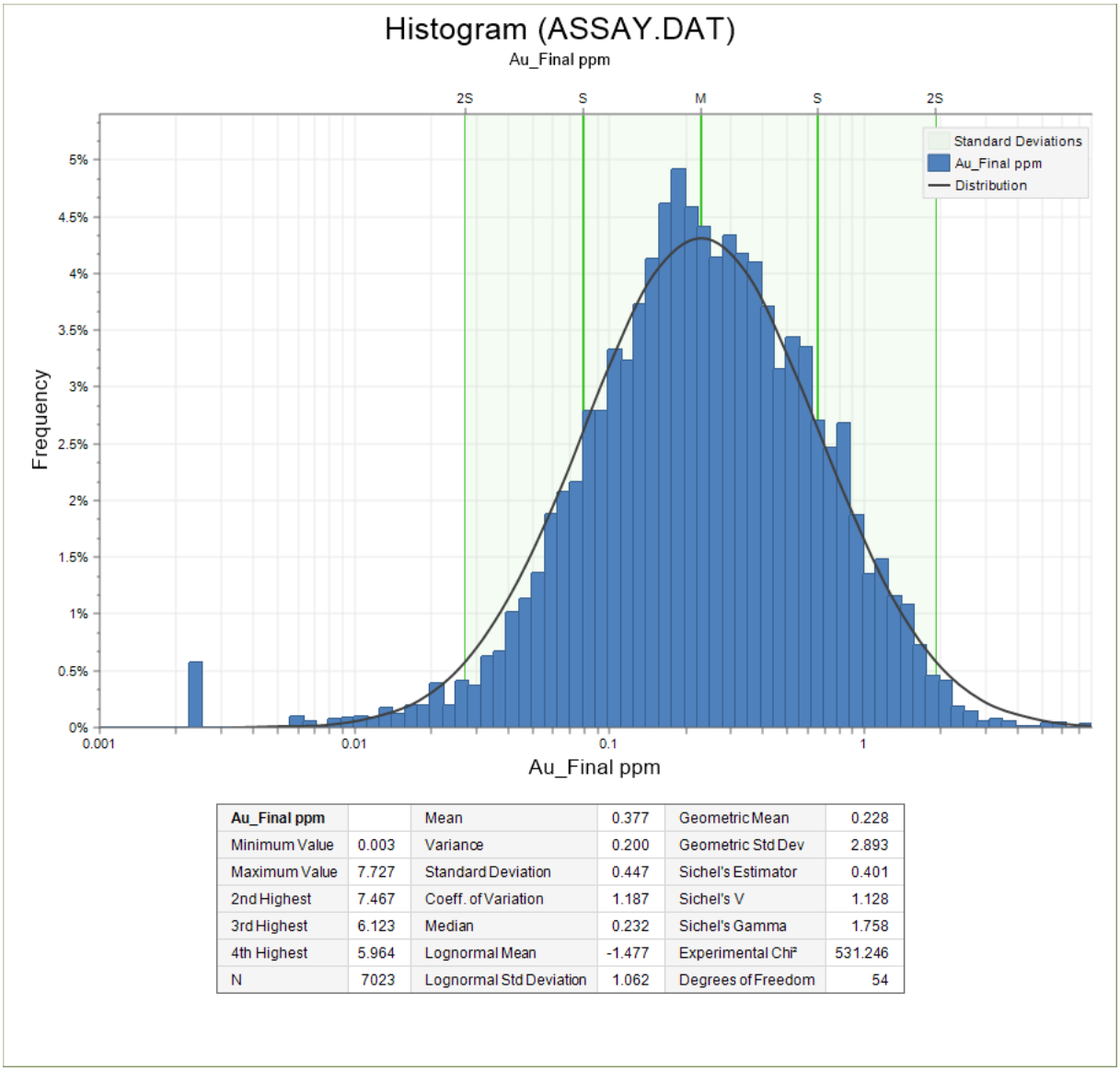
- Assess the need to separate sample populations, if there is more than one population.
- Evaluate the effect of population mixing.
- Determine the grade distribution.

Statistical analysis was performed for gold (ppm) samples grouped throughout the data matrix (Figure 14-1). Subsequently the same analysis was performed on the samples internal to the mineralized zone. See Figure 14-2.



Au_Final ppm		Mean	0.301	Geometric Mean	0.126
Minimum Value	0.003	Variance	0.175	Geometric Std Dev	4.986
Maximum Value	7.727	Standard Deviation	0.418	Sichel's Estimator	0.457
2nd Highest	7.467	Coeff. of Variation	1.386	Sichel's V	2.581
3rd Highest	6.123	Median	0.168	Sichel's Gamma	3.634
4th Highest	5.964	Lognormal Mean	-2.074	Experimental Chi²	32763.190
N	9170	Lognormal Std Deviation	1.607	Degrees of Freedom	74

Figure 14-1 - Histogram of Au (ppm) grade distribution for all samples.



Au_Final ppm		Mean	0.377	Geometric Mean	0.228
Minimum Value	0.003	Variance	0.200	Geometric Std Dev	2.893
Maximum Value	7.727	Standard Deviation	0.447	Sichel's Estimator	0.401
2nd Highest	7.467	Coeff. of Variation	1.187	Sichel's V	1.128
3rd Highest	6.123	Median	0.232	Sichel's Gamma	1.758
4th Highest	5.964	Lognormal Mean	-1.477	Experimental Chi²	531.246
N	7023	Lognormal Std Deviation	1.062	Degrees of Freedom	54

Figure 14-2 - Histogram of Au (ppm) grade distribution for samples inside the mineralization zone.

Table 14-1 summarizes the statistical analysis of gold from the database.

Table 14-1 - Summary of the statistical analysis of gold grades.

Substance	Sample Quantity	Minimum	Maximum	Mean	Median	Variance	Std. Deviation
All samples							
Au (ppm)	9,170	0.003	7.727	0.301	0.168	0.175	0.418
Samples inside the mineralization zone							
Au (ppm)	3,533	0.003	7.727	0.377	0.232	0.200	0.447

14.4 INTERPRETATION

14.4.1 GEOLOGICAL INTERPRETATION METHODOLOGY

The geological interpretation strategy was revised compared with the approach adopted in 2025. Additional geological data revealed that the mineralized zone is crosscut by a series of feldspar porphyry dykes and mafic dykes. These intrusions exhibit a well-defined structural control, which can be traced through surface geological mapping, geophysical data, and the interpretation of vertical geological sections.

The dykes are interpreted as post-mineralization intrusions and are therefore considered internal waste within the mineralized zone. To account for their geological relationships and spatial distribution, the interpretation was carried out in several stages.

Stage 1 – Dyke Interpretation

The first stage involved the geological interpretation and construction of three-dimensional wireframes representing the rhyolitic feldspar porphyry and mafic dykes (Figure 1). The dyke wireframes were intentionally extended above the topographic surface to ensure complete spatial coverage and prevent the formation of unintended gaps between the topographic surface and the mineralized zone during subsequent modelling operations.

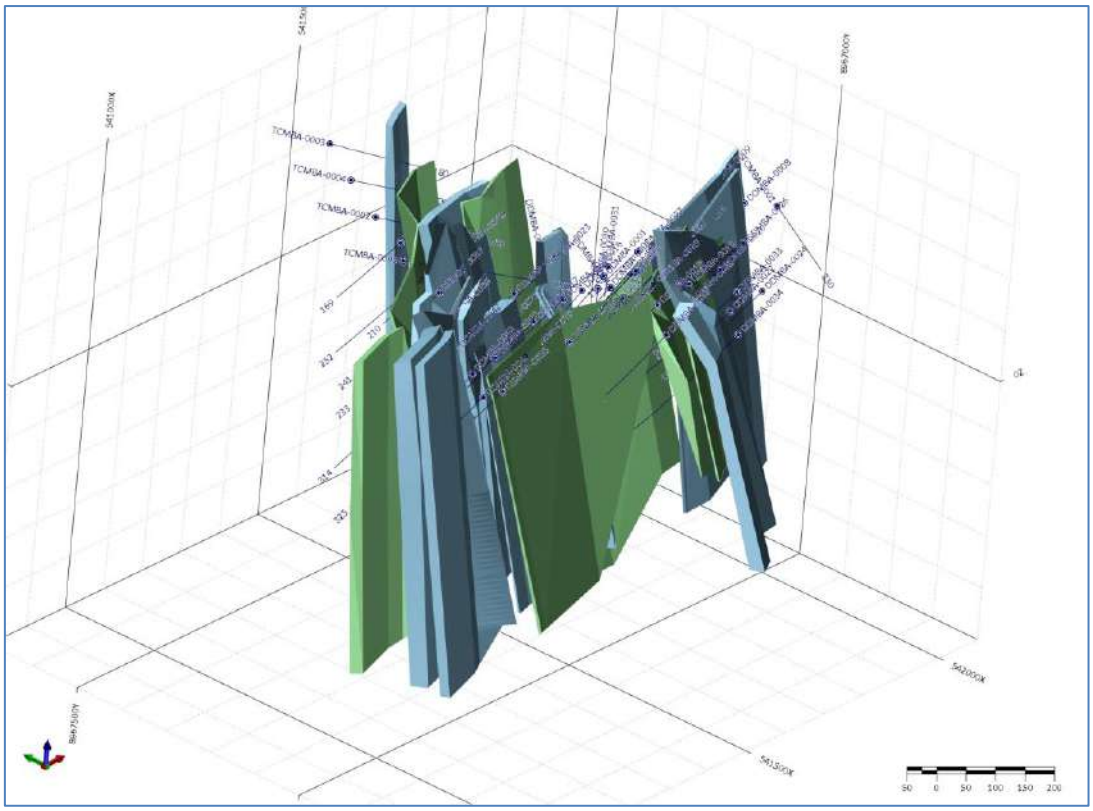


Figure 14-3 - Geological interpretation and three-dimensional wireframe models of the post-mineralization rhyolitic feldspar porphyry and mafic dykes.

Stage 2 – Mineralized Zone Interpretation

In the second stage, the mineralized zone was interpreted as a continuous geological domain, without subdividing or terminating the mineralized envelope at the boundaries of the internal waste dykes (Figure 2). This approach preserves the interpreted geological continuity of the mineralization while allowing the post-mineralization intrusions to be treated separately.

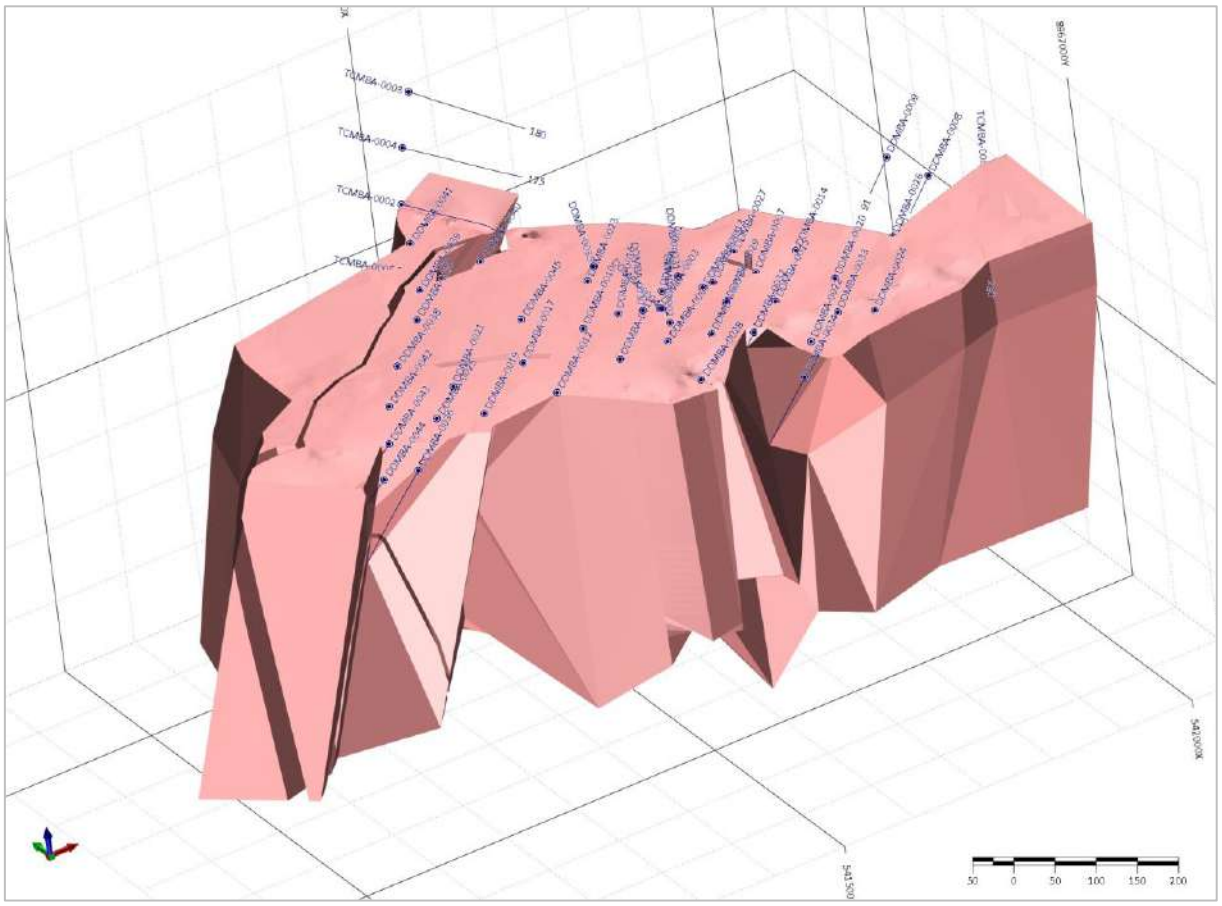


Figure 14-4 - Three-dimensional interpretation of the mineralized zone as a continuous geological envelope, without subdivision by post-mineralization dykes.

Stage 3 – Exclusion of Internal Waste from the Block Model

In the subsequent modelling stages, the dyke wireframes were used to identify and exclude blocks corresponding to post-mineralization intrusions directly within the block model, without modifying the original mineralized zone wireframe. Sampling intervals corresponding to the dykes were also excluded from the dataset used for grade interpolation. Figure 3 illustrates the spatial relationships between the mineralized zone and the crosscutting dyke wireframes.

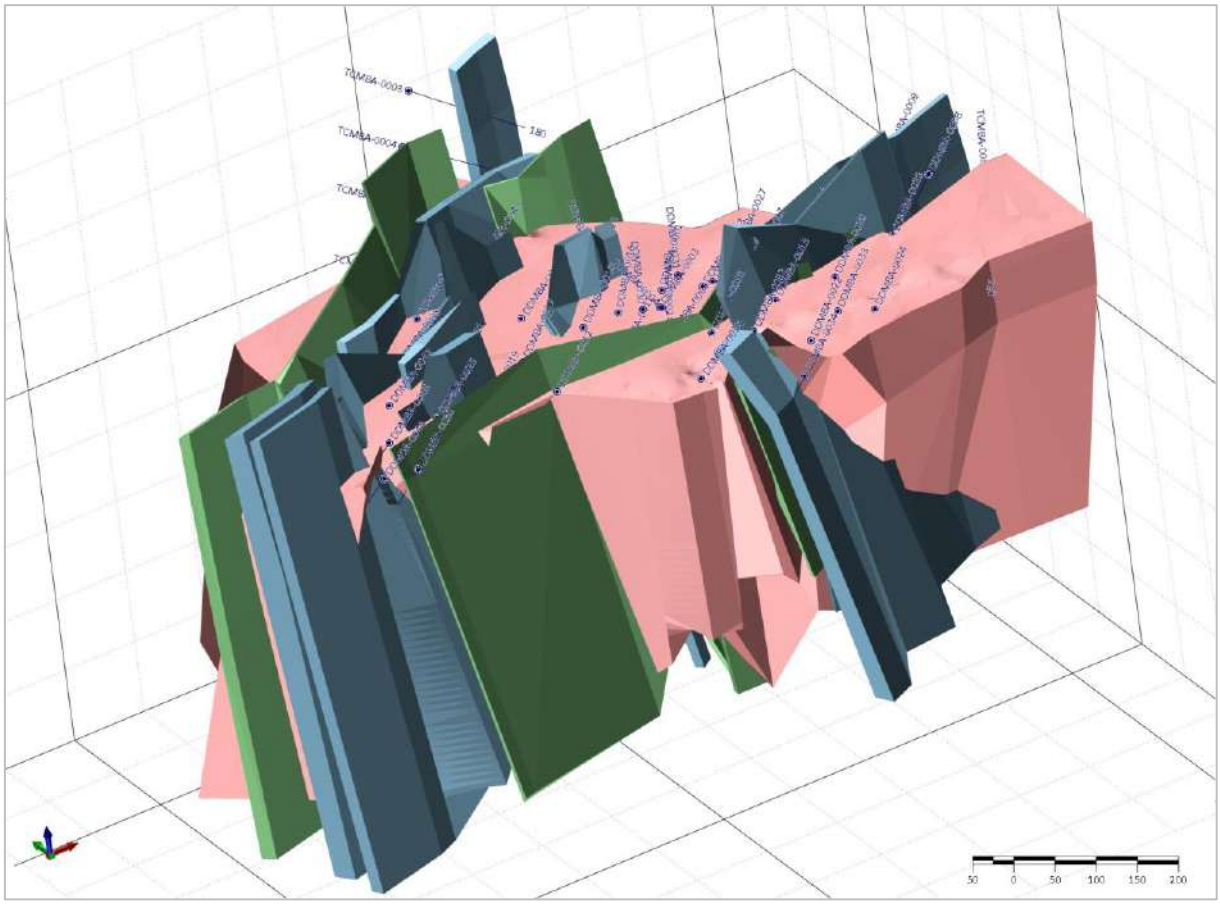


Figure 14-5 - Three-dimensional view of the mineralized zone and crosscutting post-mineralization dykes, with dyke wireframes extending above and below the mineralized zone.

This approach allows the mineralized zone to be interpreted as a continuous geological envelope while explicitly accounting for the internal waste represented by the post-mineralization dykes, thereby preventing the inclusion of barren intrusive material in the Mineral Resource estimation.

14.4.2 GEOLOGICAL INTERPRETATION

The geological interpretation was generated by VMG using the Micromine 3D software package. Wireframe surfaces were generated by connecting cross-sectional interpretations to model the topographical, supergene alteration zones and lithological and mineralization zone limits.

Rotary diamond (DD) drilling and auger drilling data were used to generate models interpreting the mineralized bodies. The drill hole grid is currently irregular, therefore the interpretation lines were created in the string format (*.str) of the Micromine software.

Mineralized zones were defined by applying grade composite criteria. Intervals grading above 0.1 g/t were interpreted as mineralization. All strings of interpretation have a close connection with the sampling intervals, as shown in Figure 14-6.

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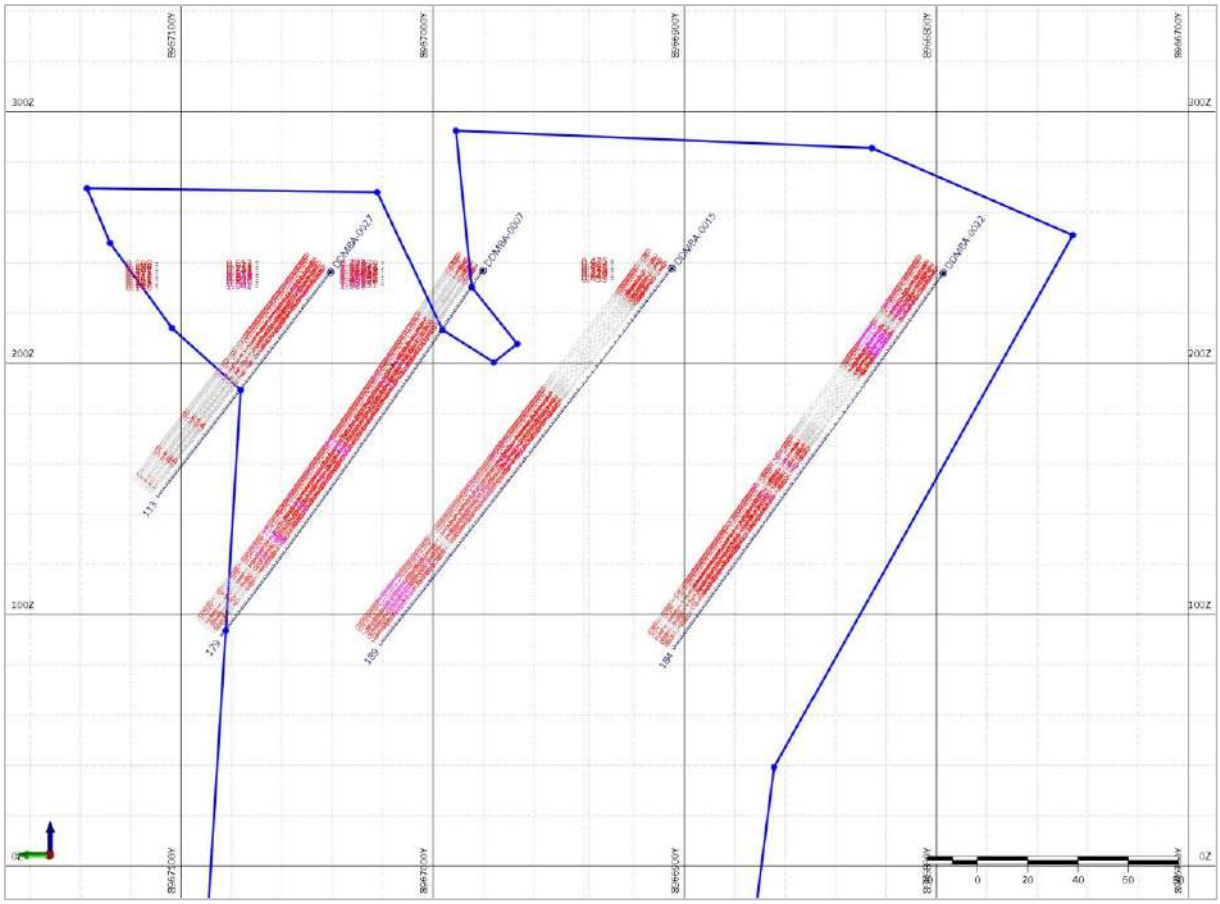


Figure 14-6 - Geological interpretation, section 12.

All strings interpreted were extrapolated above the topographic surface to ensure that there were no voids between the topographic surface and the top of the mineralized body. Scanned strings were used to assist in visualizing the overall geological structure of the deposit.

When interpreting geological boundaries of the mineralized zones, interpolation was performed at a half-distance to the next data points in each area, while maintaining the thickness of the mineralized zone.

The following criteria were used in the interpretation of the mineralized zones:

- The interpretation was based only on gold content and the logged lithological code.
- All strings were interpreted accurately and connected to the appropriate holes.
- The interpretation was assembled by extending half the distance to the next string of data between the first and last sections interpreted.

Within these vertical sections, the bodies of gold mineralization were interpreted according to the sampling data within the context of the geological model.

14.5 TRIANGULATION

Triangulation can be categorized into two main types: closed wireframes, which are used to model mineralized zones with clearly defined boundaries, and open surfaces, which are typically constructed to represent topographic features and weathering profiles. These different triangulation approaches serve distinct purposes in geological modeling, ensuring accurate spatial representation.

14.5.1. TOPOGRAPHY

String data files ***.STR** were used to Construct a Digital Surface Model (DSM), resulting in the topographic surface shown in Figure 14-7 and Figure 14-8.

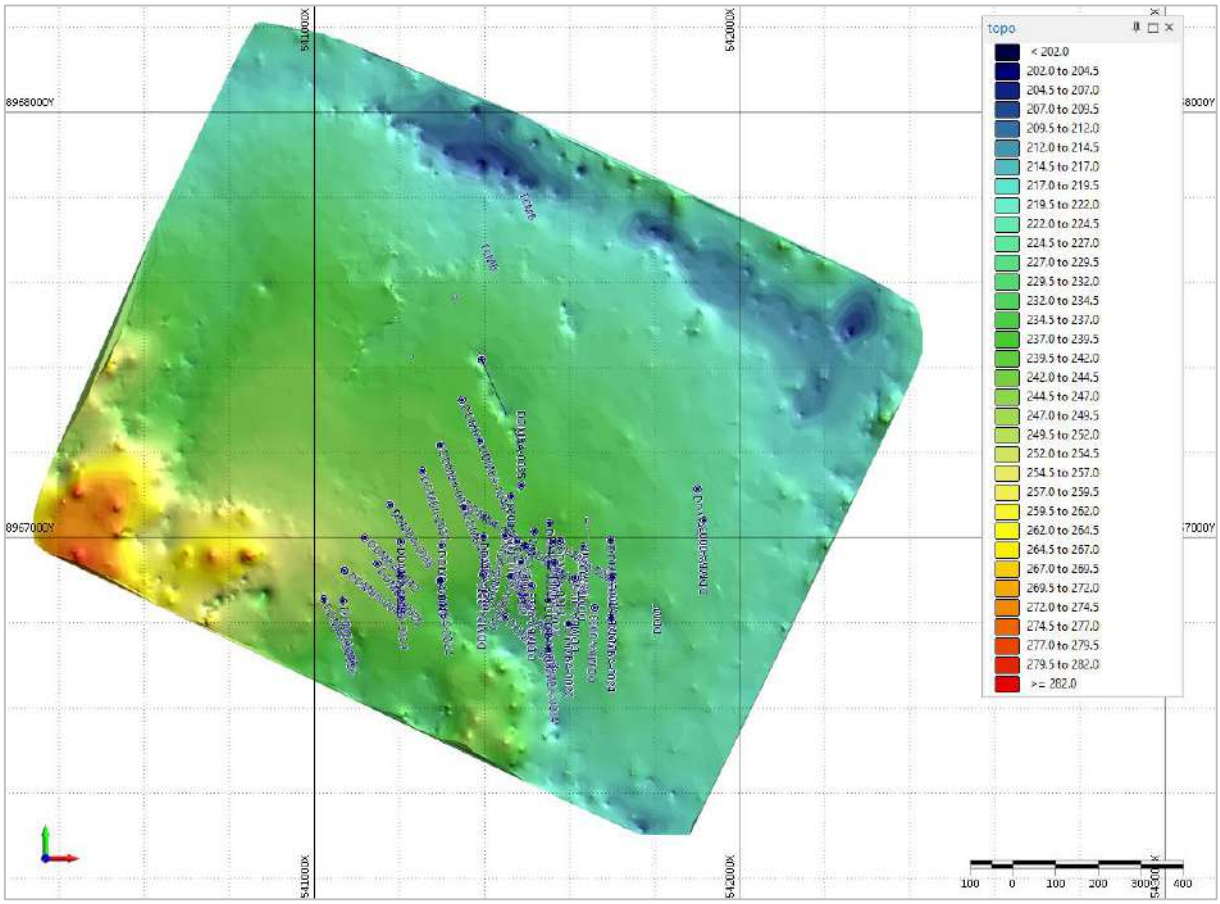


Figure 14-7 - Surface digital topographic base – Plan View.

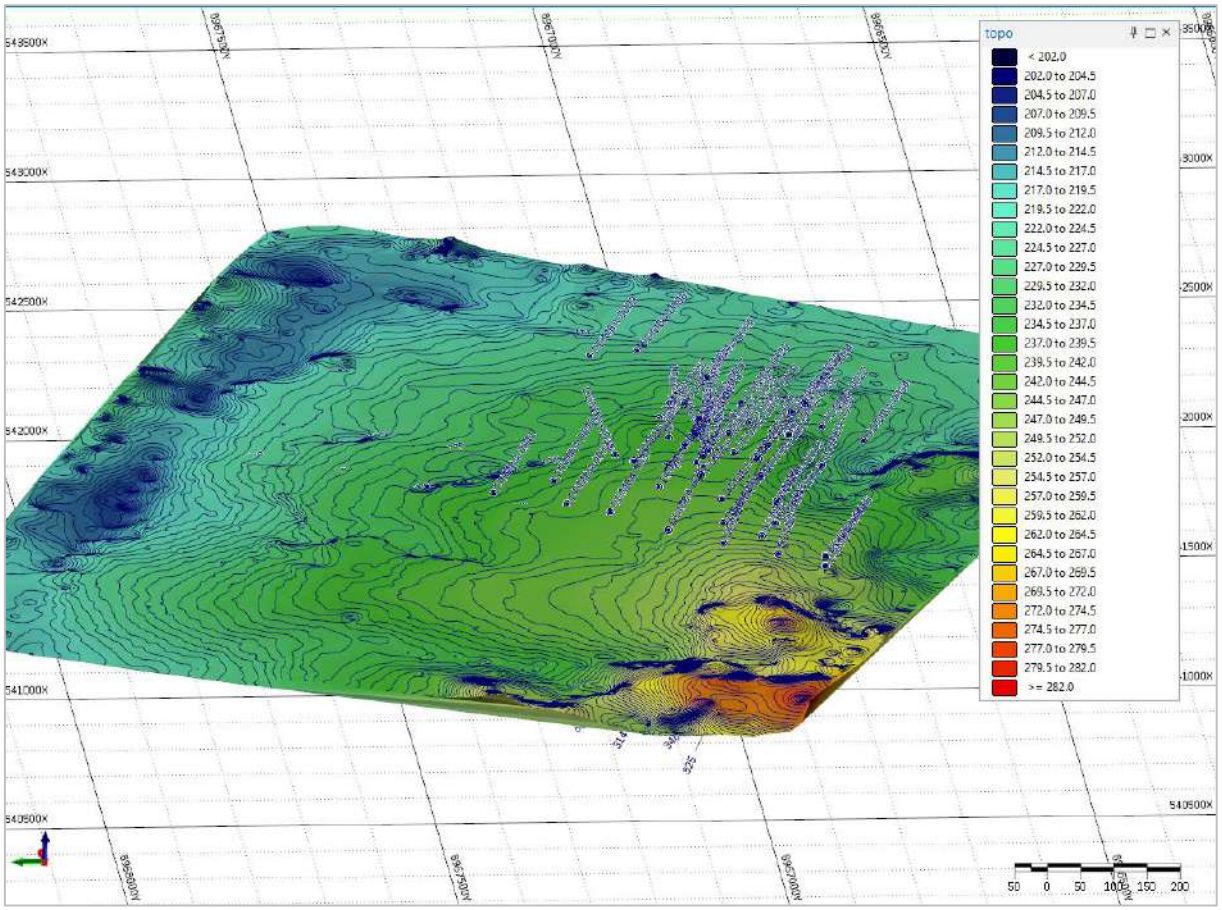


Figure 14-8 - Surface digital topographic base – – 3D View.

14.5.2 WEATHERING ZONE

The weathering zone that determines the separation of friable and hard rock ore was based primarily on interpreting the hardness and friability data from the geological logs and reviewing drill core photos. The lower contact of the weathering zone was interpreted as the contact between friable and hard rock material.

The following files were generated from the LITHOLOGY.DAT: SEAM_SAP.DAT. These files contain the coordinates of each lithological interval, and a new code: ROOF for the Top and FLOOR for the Base of the saprolite zone.

From the SEAM_SAP_FLOOR.DAT file Base surfaces for the saprolite zone were created. The grid creation used the IDW2 interpolation method with a cell size of 2 × 2 meters. Grids were converted into a digital surface DTM (Digital Terrain Model), as shown in Figure 14-9.

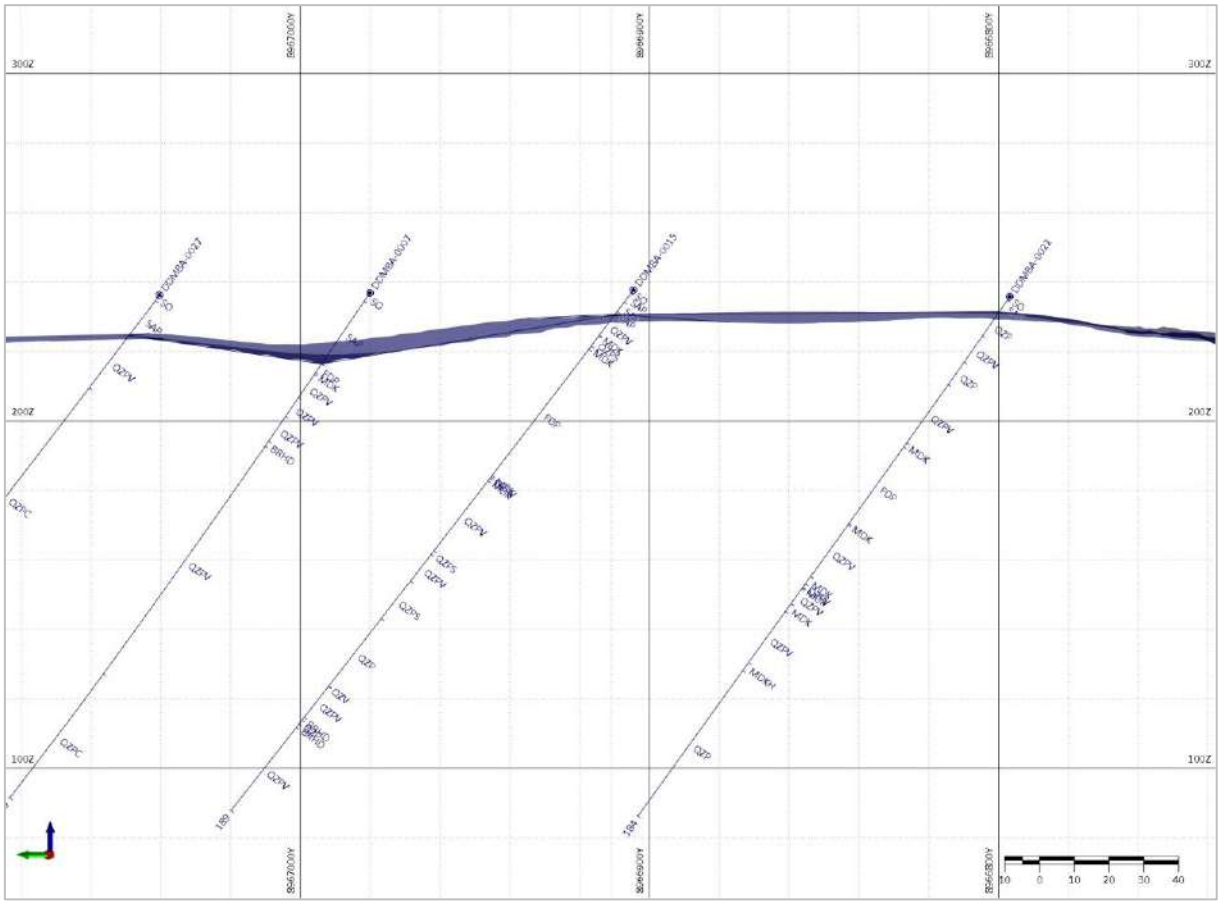


Figure 14-9 - Surface digital alteration zone.

14.5.3. WIREFRAME CLOSED

The strings were used in the interpretation model to generate a continuous three-dimensional triangulated mesh for each of the mineralized zones (Figure 14-10).

The interpretation of the mineralized zones was extrapolated above topography. Triangulation of the extrapolated mineralized zones was required where the solids were cut by the topographic surface. This procedure was used to ensure the continuity of the mineralized zones to the topography without loss of volume and mass. Figure 14-11 shows the results of triangulation of all mineralized zones cut by the topographic surface.

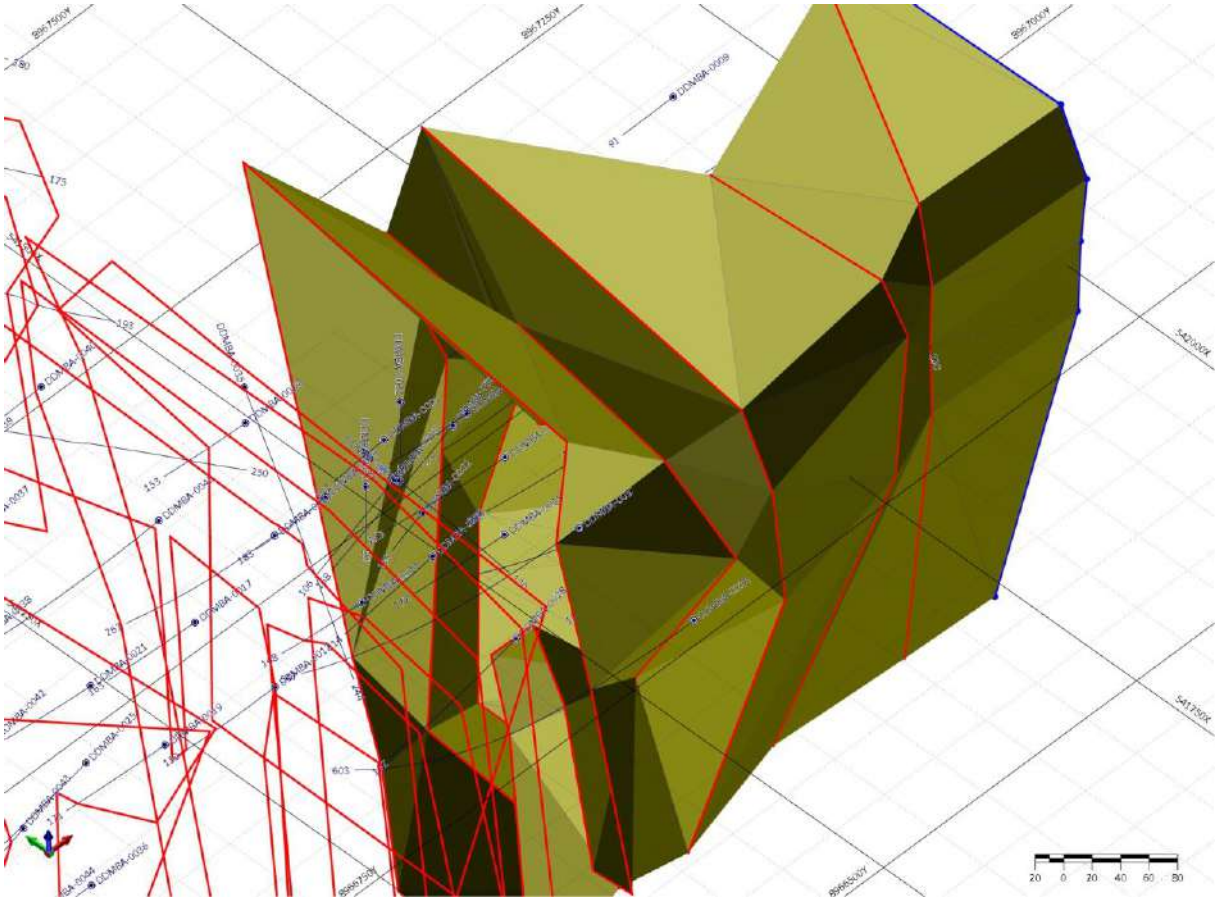


Figure 14-10 - Triangulation of mineralized zones.

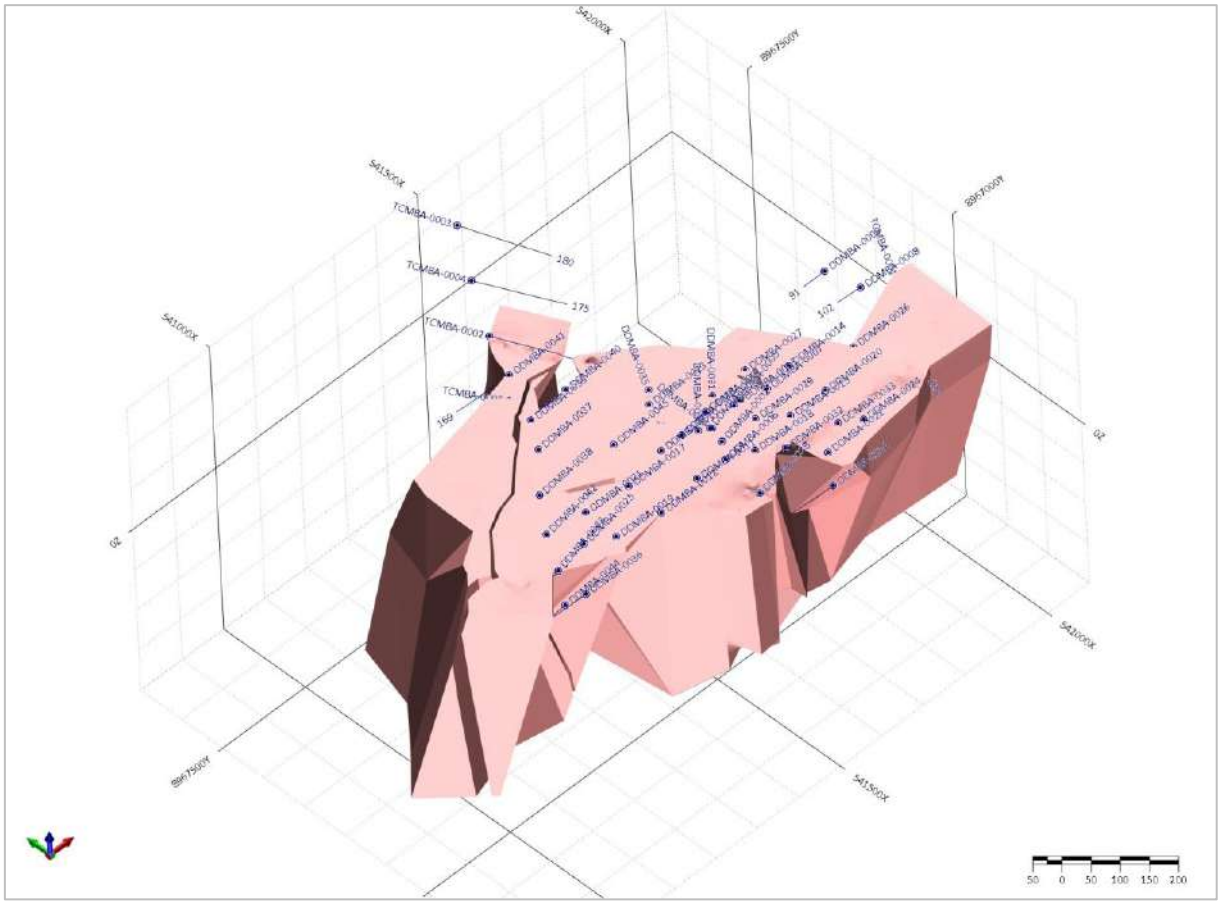


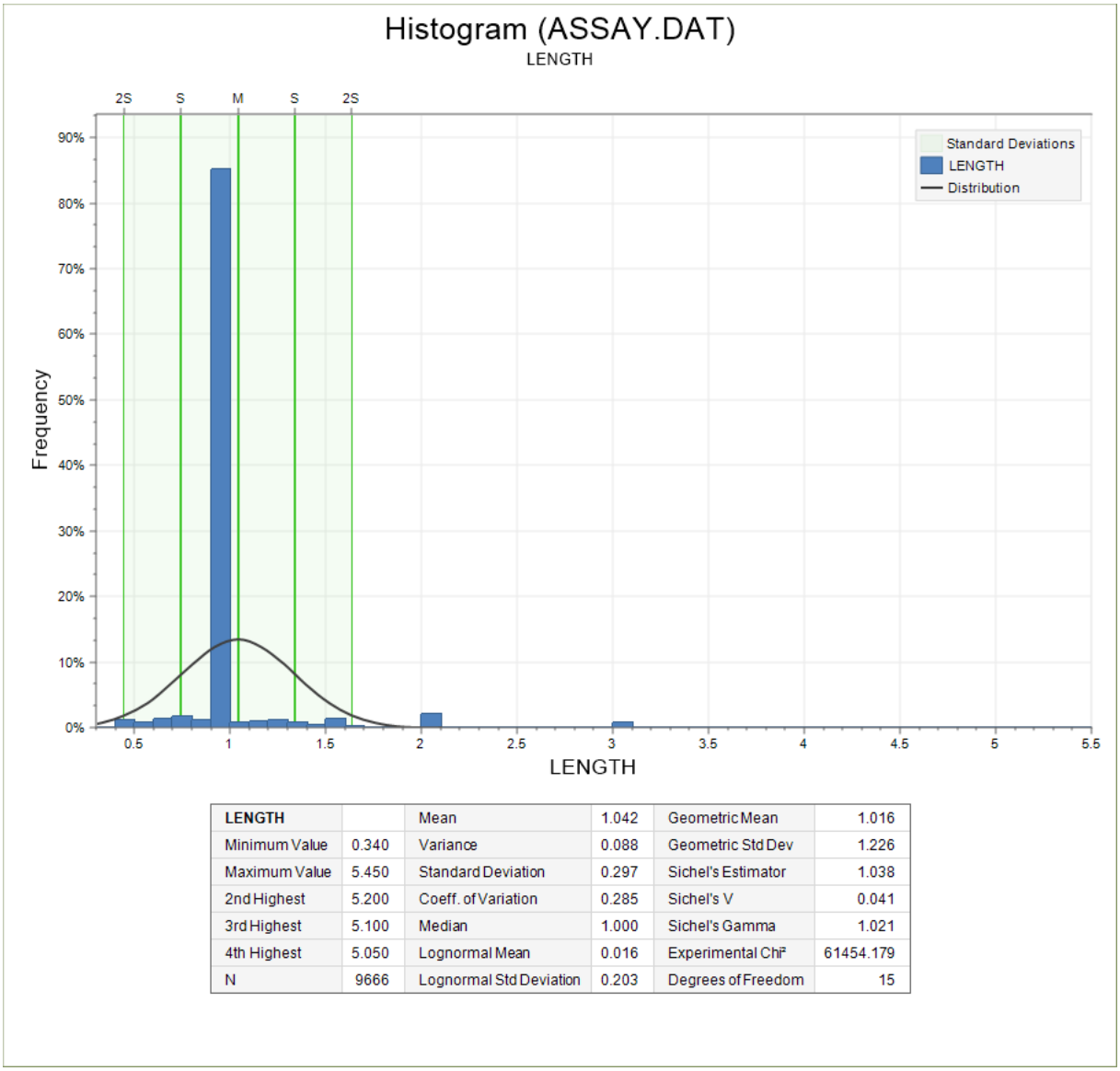
Figure 14-11 - Triangulation of the mineralized zones cut by the topographic surface. View shows all mineralized zones in the area.

14.6 DATA SELECTION

The selection of drillhole data is a standard certification procedure. It is essential that, in classical statistical analysis, geostatistics and the grade interpolation process, the correct samples are used. The interpreted solids defined by gold analyses were used for the drill hole sample selection.

In order that the samples used for the interpolation had the same weight by size, an analysis was completed to define the down-hole length of the composites. The results of the analysis of down-hole length indicate that values range from 0.34 to 5.45 meters with a mean of 1.04 meters.

An analysis of samples of the mineralized zones indicates that about 90% of the samples have a length of 1 m. Figure 14-12 shows a graph of sampling length distribution.



LENGTH		Mean	1.042	Geometric Mean	1.016
Minimum Value	0.340	Variance	0.088	Geometric Std Dev	1.226
Maximum Value	5.450	Standard Deviation	0.297	Sichel's Estimator	1.038
2nd Highest	5.200	Coeff. of Variation	0.285	Sichel's V	0.041
3rd Highest	5.100	Median	1.000	Sichel's Gamma	1.021
4th Highest	5.050	Lognormal Mean	0.016	Experimental Chi²	61454.179
N	9666	Lognormal Std Deviation	0.203	Degrees of Freedom	15

Figure 14-12 - Histogram of size distribution of samples inside the mineralized zone.

Accordingly, the length of 1 m was adopted for the composite samples, converting all the samples into 1 meter intervals. The process of creating the composite intervals started at the hole collar and proceeded in the direction of drilling (downwards). Intervals below 0.75 m were excluded. The results of statistical analyses of samples composited are shown in Table 14-2.

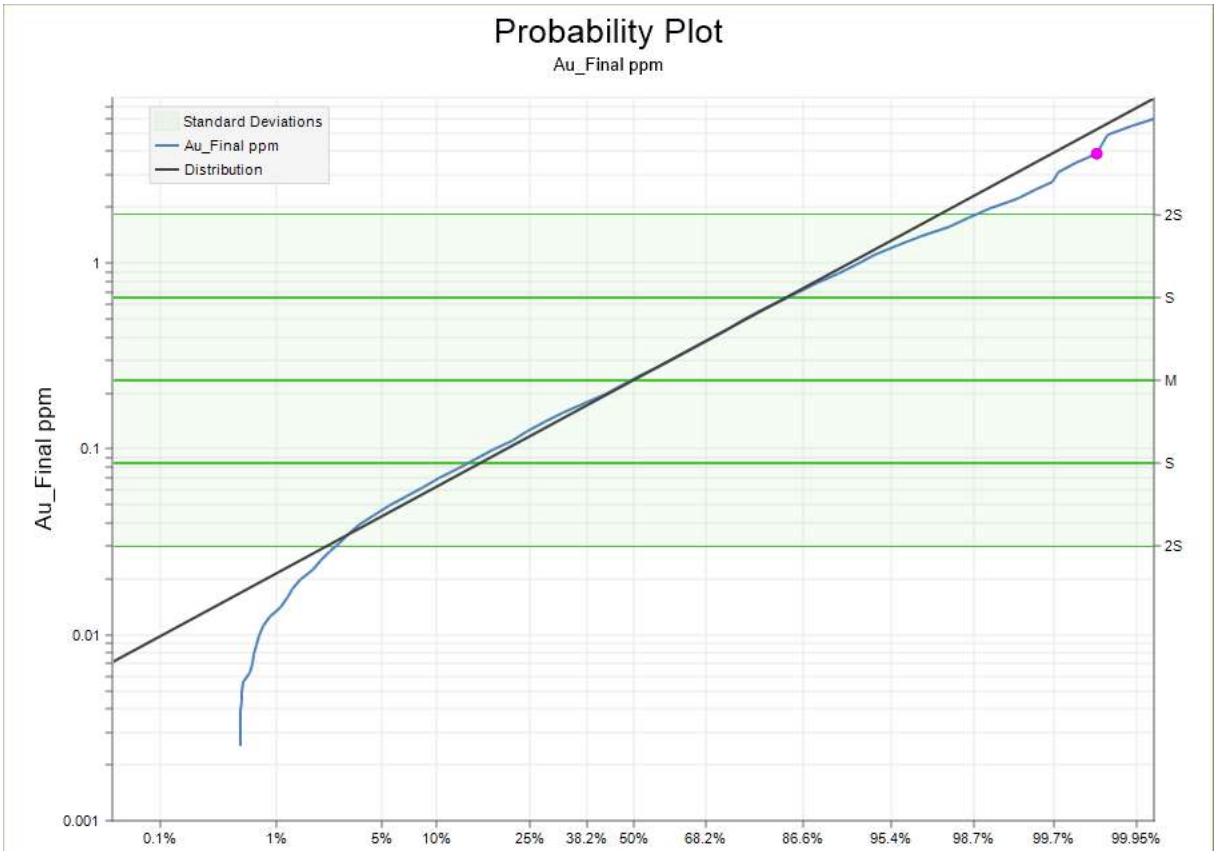
Table 14-2 - Results of statistical analysis performed.

Element	Number of samples	Minimum	Maximum	Mean	Median	Variance	Standard deviation
Samples composited							
Au	7191	0.003	7.727	0.377	0.237	0.18820	0.43382

14.7 CAPPING

Capping thresholds were determined independently for each mineralized domain using statistical analysis of composited assay data, supported by histograms and probability plots. Particular attention was given to the upper tail of the gold grade distribution to identify anomalous high-grade values and assess their potential influence on resource estimation.

Probability plots were used as the principal graphical tool for evaluating capping thresholds, first step of the curve, which represents the end of the normal data distribution, occurs at 3.9 ppm Au. The following sections present the analysis and adopted capping thresholds for each exploration target.



Au_Final ppm		Mean	0.377	Geometric Mean	0.235
Minimum Value	0.003	Variance	0.188	Geometric Std Dev	2.794
Maximum Value	7.727	Standard Deviation	0.434	Sichel's Estimator	0.399
2nd Highest	6.836	Coeff. of Variation	1.150	Sichel's V	1.055
3rd Highest	5.676	Median	0.237	Sichel's Gamma	1.695
4th Highest	5.646	Lognormal Mean	-1.448	Experimental Chi²	567.349
N	7191	Lognormal Std Deviation	1.027	Degrees of Freedom	53

Figure 14-13 - Graph of the probability of distribution of Au (ppm).

14.8 MODELLING

The block model was generated from the discretization of the three-dimensional solids into blocks of defined dimensions. The parameters of the blocks are listed below, in Table 14-3.

The process of discretization of the solids included the sub-blocking process. Initially, the model was filled with blocks measuring 25 (X) by 25 (Y) by 10 (Z) meters, which were divided into subunits of smaller size, with a factor for size subdivision of 10 by 10 by 10 subunits in contact with the surrounding three-dimensional solids. As a result, at the limit within solids, the size of the blocks became 2.5 (X) by 2.5 (Y) by 1.0 (Z) meters.

The initial size of the blocks was selected based on the morphology of the mineralized bodies and the drill hole spacing, which averages approximately 50 meters. This block size aims to reflect the geological continuity while maintaining consistency with the available data resolution. The resultant model contains 260,022 blocks.

The solids were used to create a block model within the mineralized geological body. This solid was used to encode the respective blocks. The digital model of the topographic surface was used to limit the block models along the vertical axis. The blocks were generated with faces parallel to the North/South and East/West axes.

Table 14-3 - Block model parameters.

Directions	Minimum	Maximum	Block Size (m)	Minimum sub-block size (m)	Number of primary blocks
East	540809	542009	25	2.50	49
North	8966752	8967452	25	2.50	29
RL - Elevation	-302	258	10	1.00	57

14.9 GEOSTATISTICAL ANALYSIS

Geostatistical analysis was performed separately for two structural domains, which are separated by a fault zone and associated dykes. This subdivision was adopted to account for the structural characteristics of the deposit and potential differences in the spatial continuity of gold mineralization between the domains. The spatial distribution of the two structural domains is shown in Figure 14-4

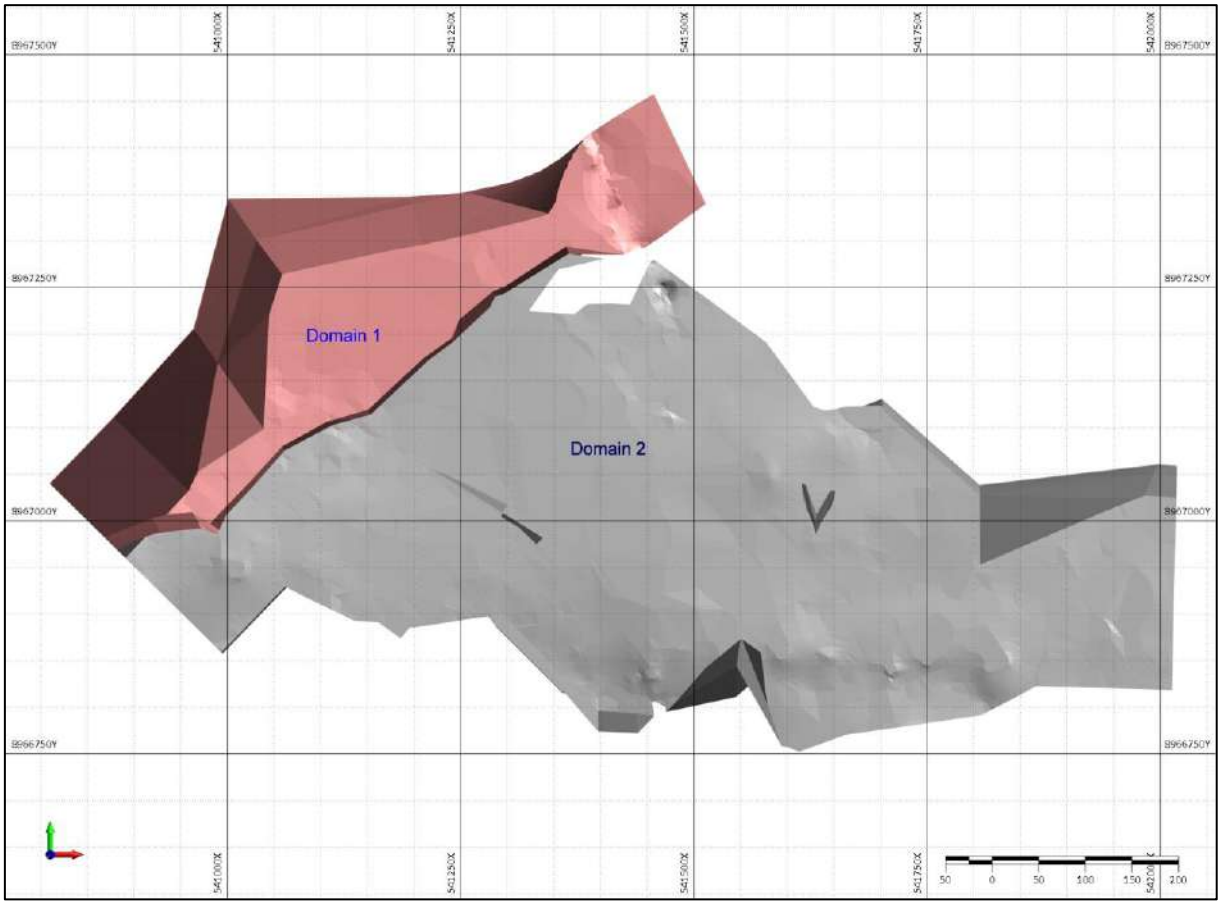


Figure 14-14 - The spatial distribution of the two structural domains.

Experimental semivariograms were constructed independently for each structural domain using 1 m composite samples and gold grades (ppm).

14.9.1 DOMAIN 1

The resulting semivariograms are presented in Figure 14-15 to Figure 14-17.

The variogram models were evaluated using cross-validation to assess their performance in grade estimation. The cross-validation results, including statistical estimation errors, are presented in Table 14-4. Scatter plots comparing composite sample grades with cross-validation estimates were also generated to assess the relationship between observed and estimated gold grades. The results are illustrated in Figure 14-22.

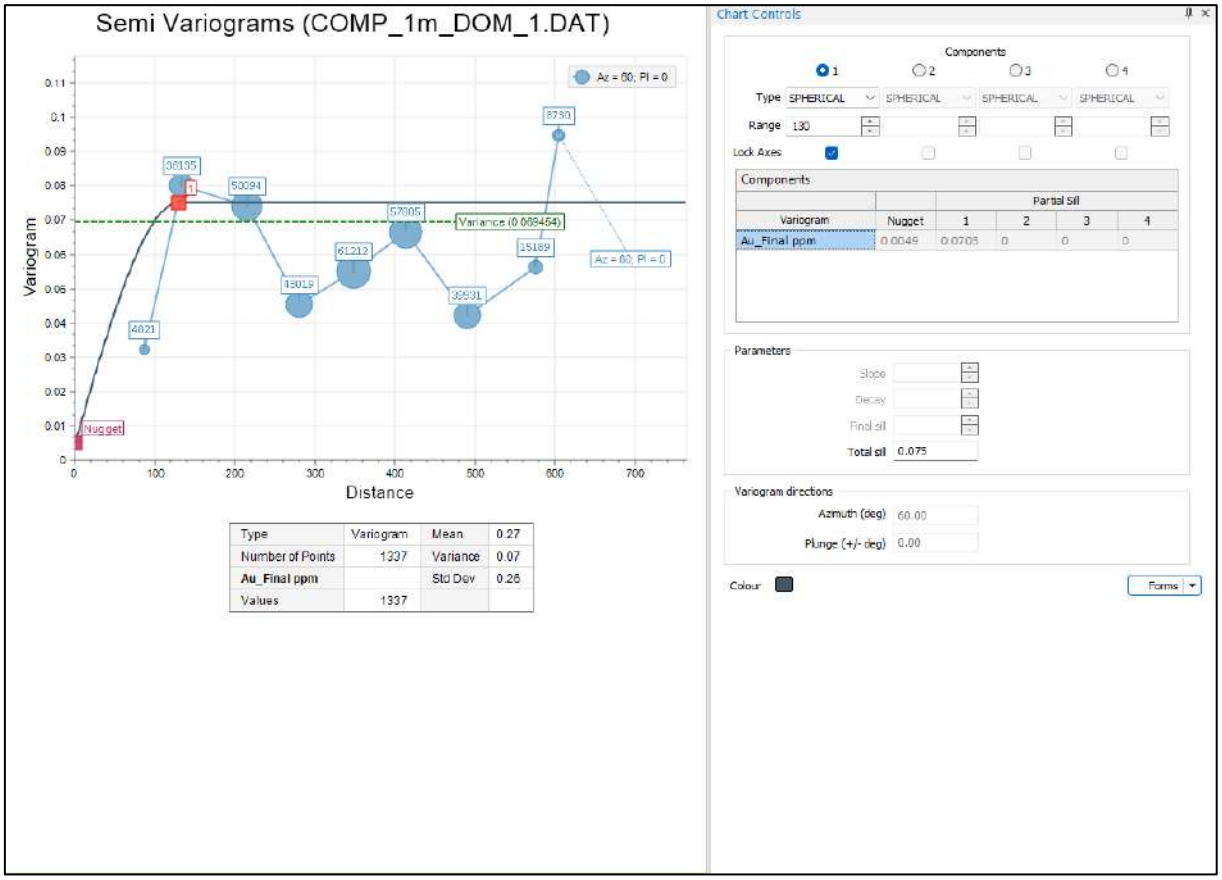


Figure 14-15 - First axis to Au (ppm), Domain 1.

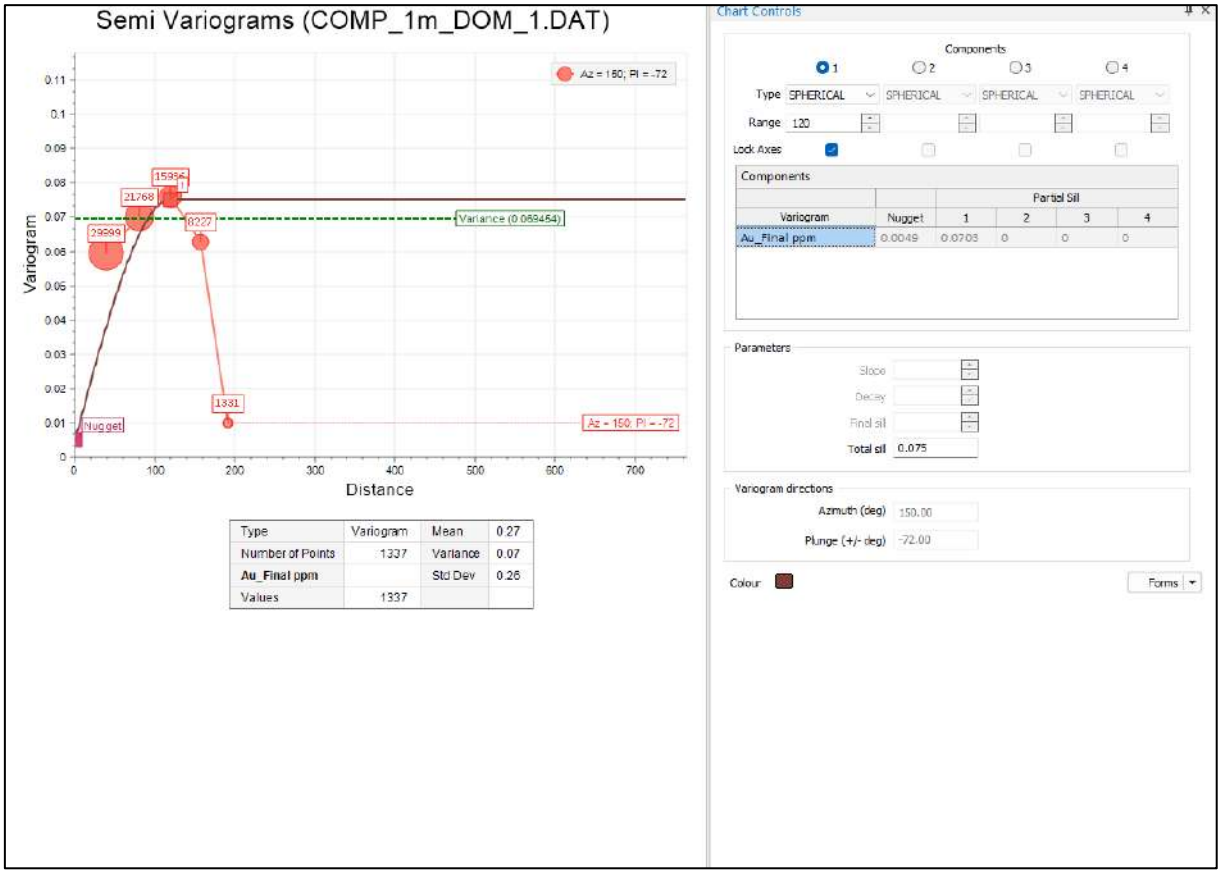


Figure 14-16 - Second axis to Au (ppm), Domain 1.

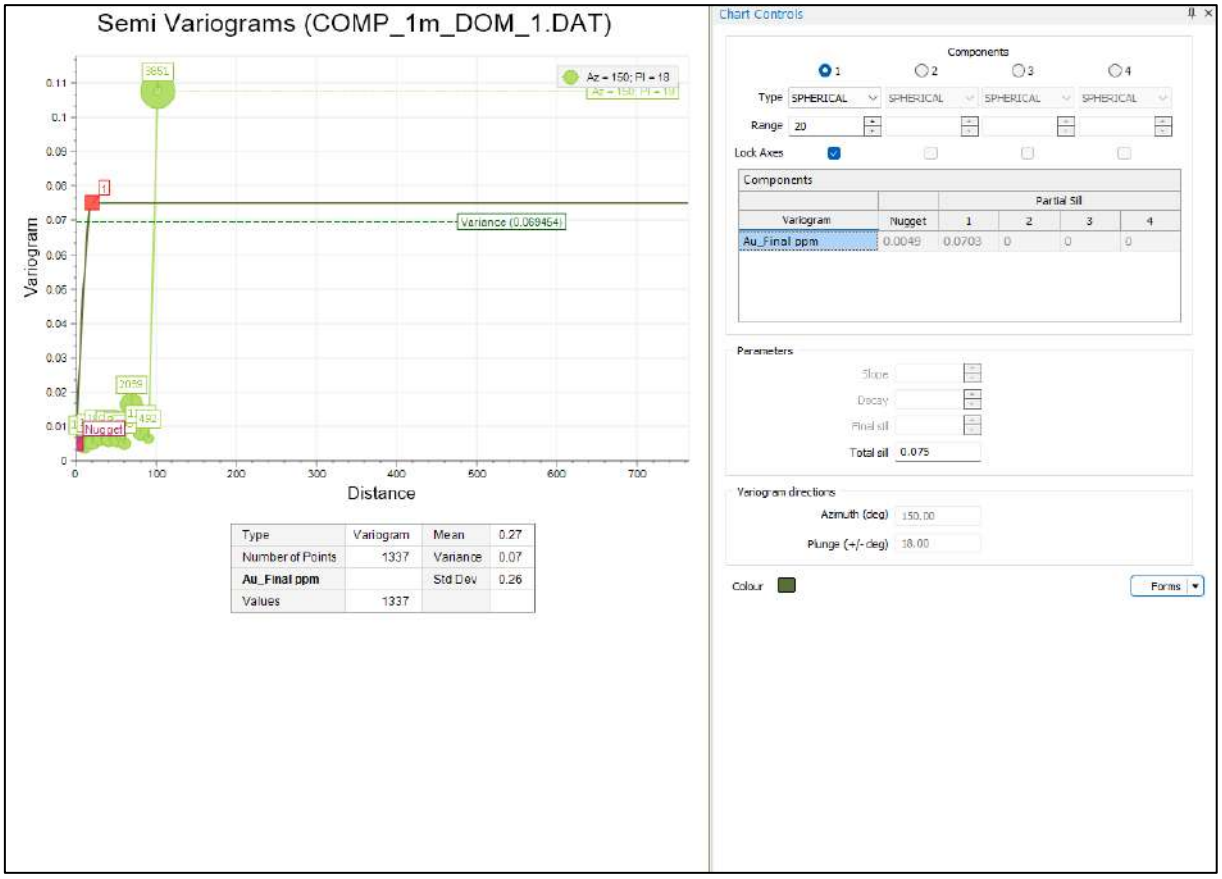


Figure 14-17 - Third axis to Au (ppm), Domain 1.

Table 14-4 - Cross-Validation verification results for Au (ppm), Domain 1.

Metadata Label	Metadata Value	Field Name	Mean	Std Dev
Output File	cv_au_d1.DAT			
Input File	COMP_1m_DOM_1.DAT			
Analysis varb	Au_Final ppm			
Transformation	None			
Number of points	1337			
Raw Data		Au_Final ppm	0.271253676	0.263541913
Standard error		STD_ERROR	0.092632656	0.006534957
Estimate		ESTIMATE	0.271445603	0.197922942
Residual		RESIDUAL	-0.000191927	0.180515828
Error statistic		ERROR_STAT	-0.001216137	2.004957209
RMSE			0.180448410	

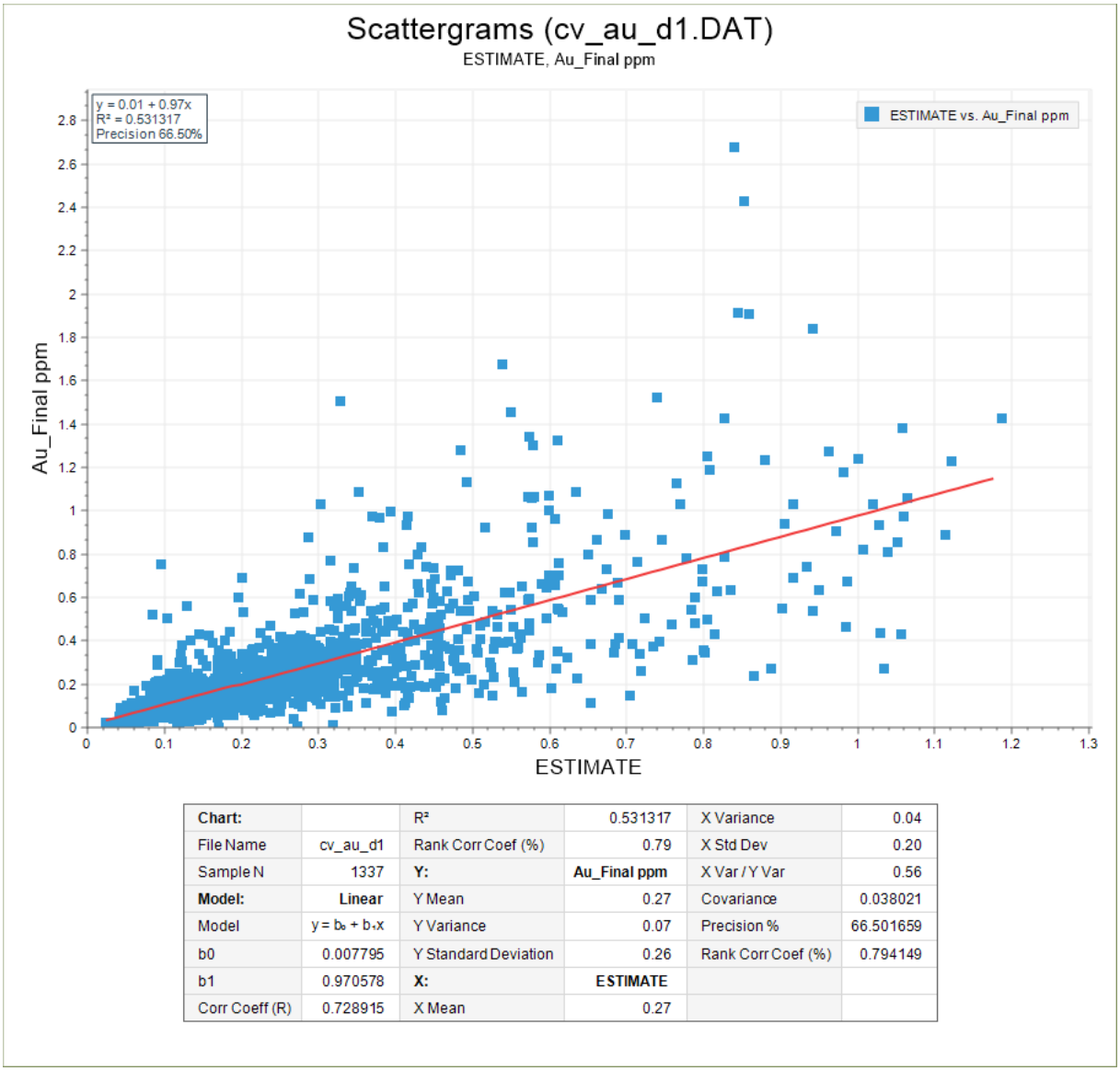


Chart:		R²	0.531317	X Variance	0.04
File Name	cv_au_d1	Rank Corr Coef (%)	0.79	X Std Dev	0.20
Sample N	1337	Y:	Au_Final ppm	X Var / Y Var	0.56
Model:	Linear	Y Mean	0.27	Covariance	0.038021
Model	$y = b_0 + b_1 x$	Y Variance	0.07	Precision %	66.501659
b0	0.007795	Y Standard Deviation	0.26	Rank Corr Coef (%)	0.794149
b1	0.970578	X:	ESTIMATE		
Corr Coeff (R)	0.728915	X Mean	0.27		

Figure 14-18 - Linear diagram of dependence between composite samples data and Au grade (ppm) estimates, Domain 1.

14.9.2 DOMAIN 2

The resulting semivariograms are presented in Figure 14-19 to Figure 14-21.

The variogram models were evaluated using cross-validation to assess their performance in grade estimation. The cross-validation results, including statistical estimation errors, are presented in Table 14-5. Scatter plots comparing composite sample grades with cross-validation estimates were also generated to assess the relationship between observed and estimated gold grades. The results are illustrated in Figure 14-22.

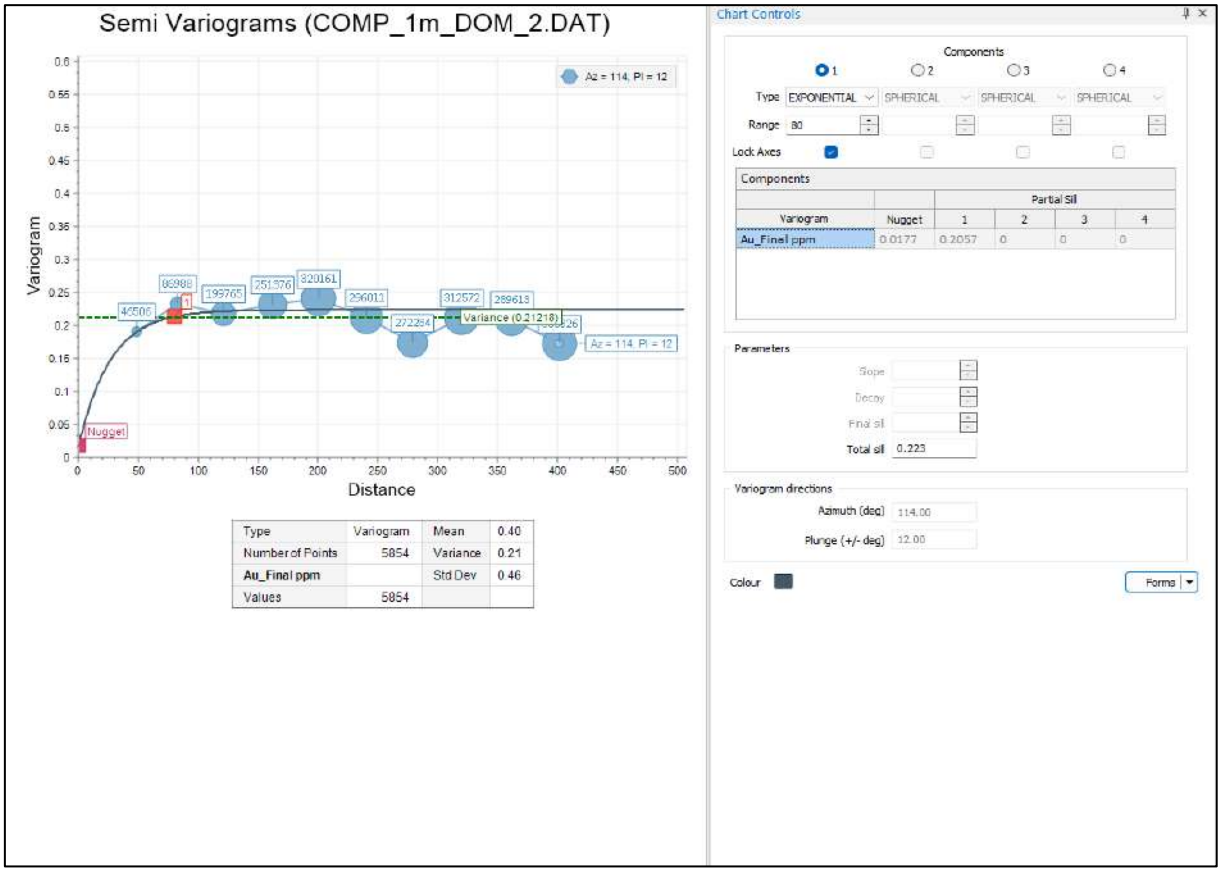


Figure 14-19 - First axis to Au (ppm), Domain 2.

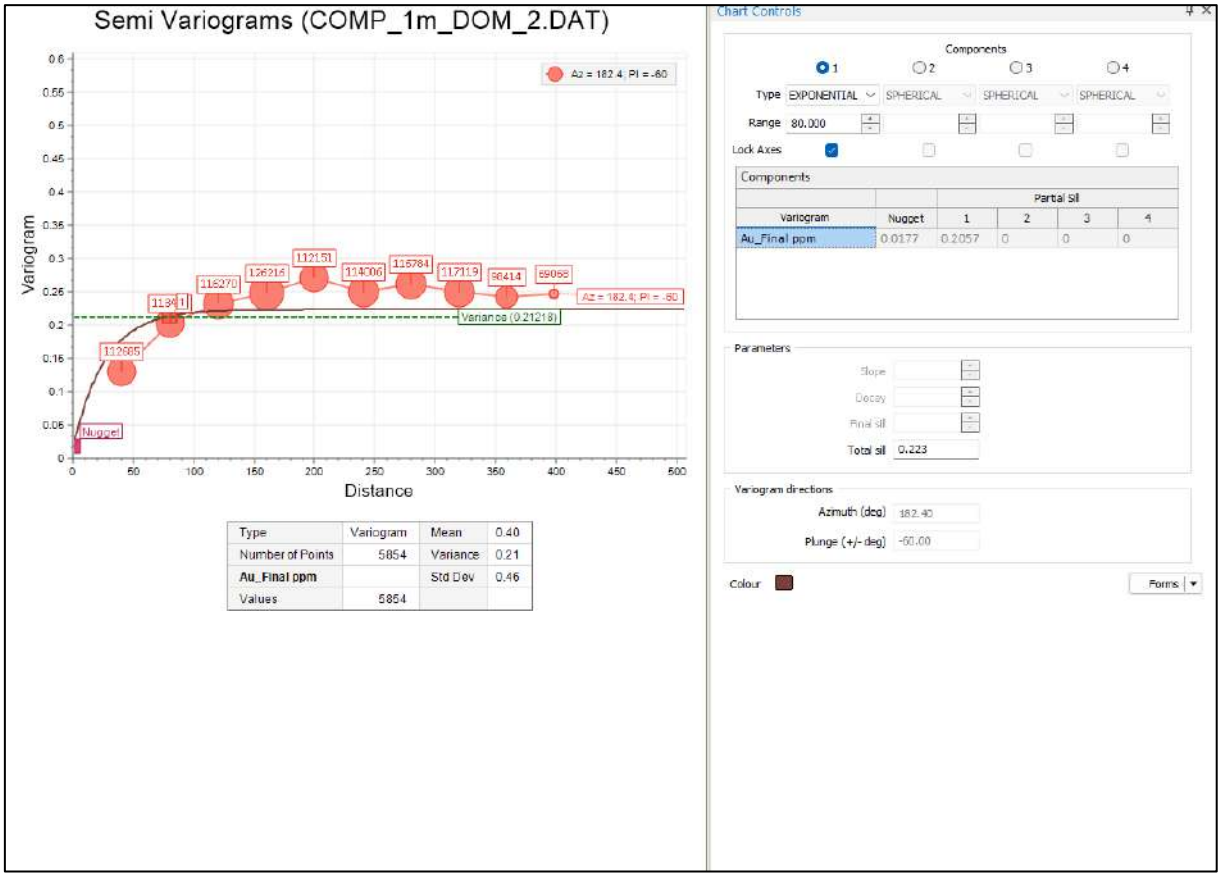


Figure 14-20 - Second axis to Au (ppm), Domain 2.

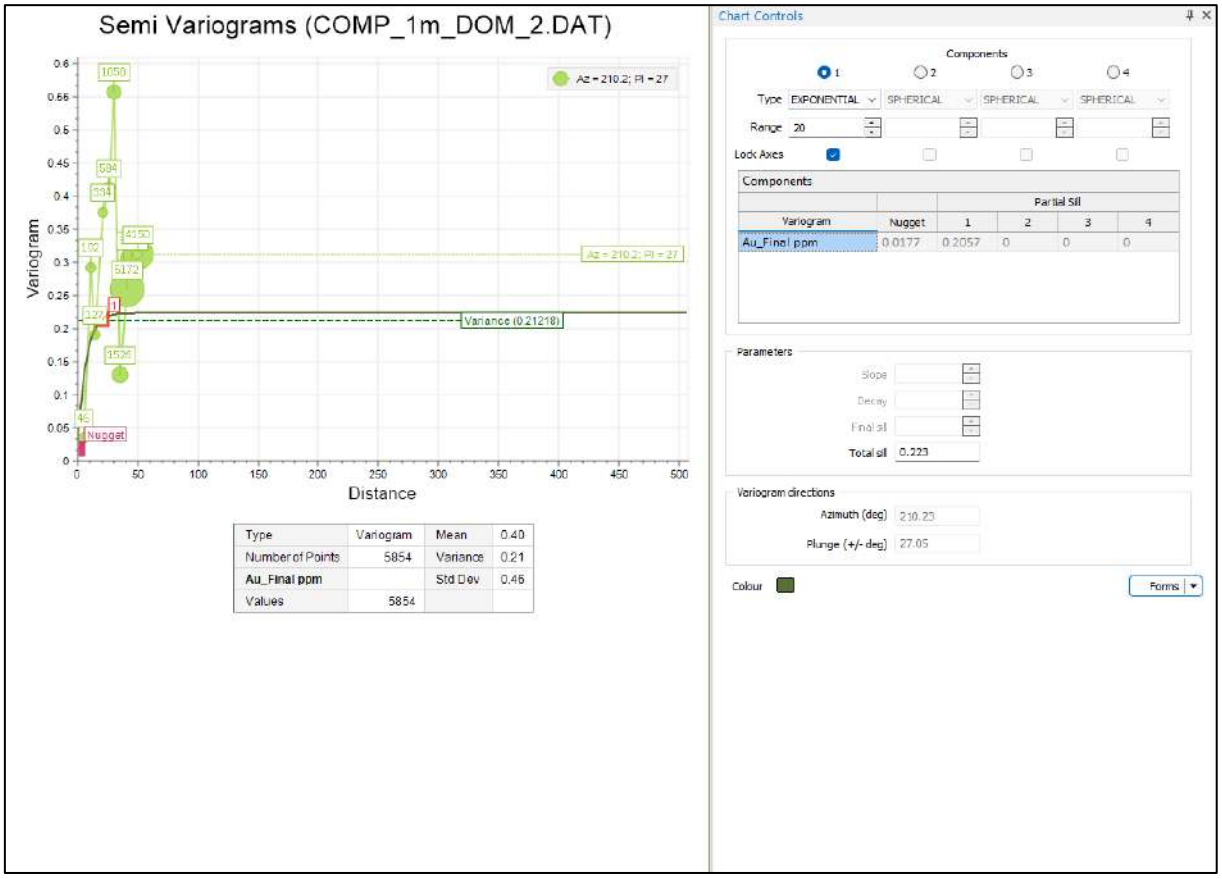


Figure 14-21 - Third axis to Au (ppm), Domain 2.

Table 14-5 - Cross-Validation verification results for Au (ppm), Domain 2.

Metadata Label	Metadata Value	Field Name	Mean	Std Dev
Output File	cv_au_d2.DAT			
Input File	COMP_1m_DOM_2.DAT			
Analysis varb	Au_Final ppm			
Transformation	None			
Number of points	5854			
Raw Data		Au_Final ppm	0.401562452	0.460632839
Standard error		STD_ERROR	0.186802263	0.016258096
Estimate		ESTIMATE	0.401836787	0.376456868
Residual		RESIDUAL	-0.000274335	0.298672651
Error statistic		ERROR_STAT	-0.000618090	1.578576256
RMSE			0.298647265	

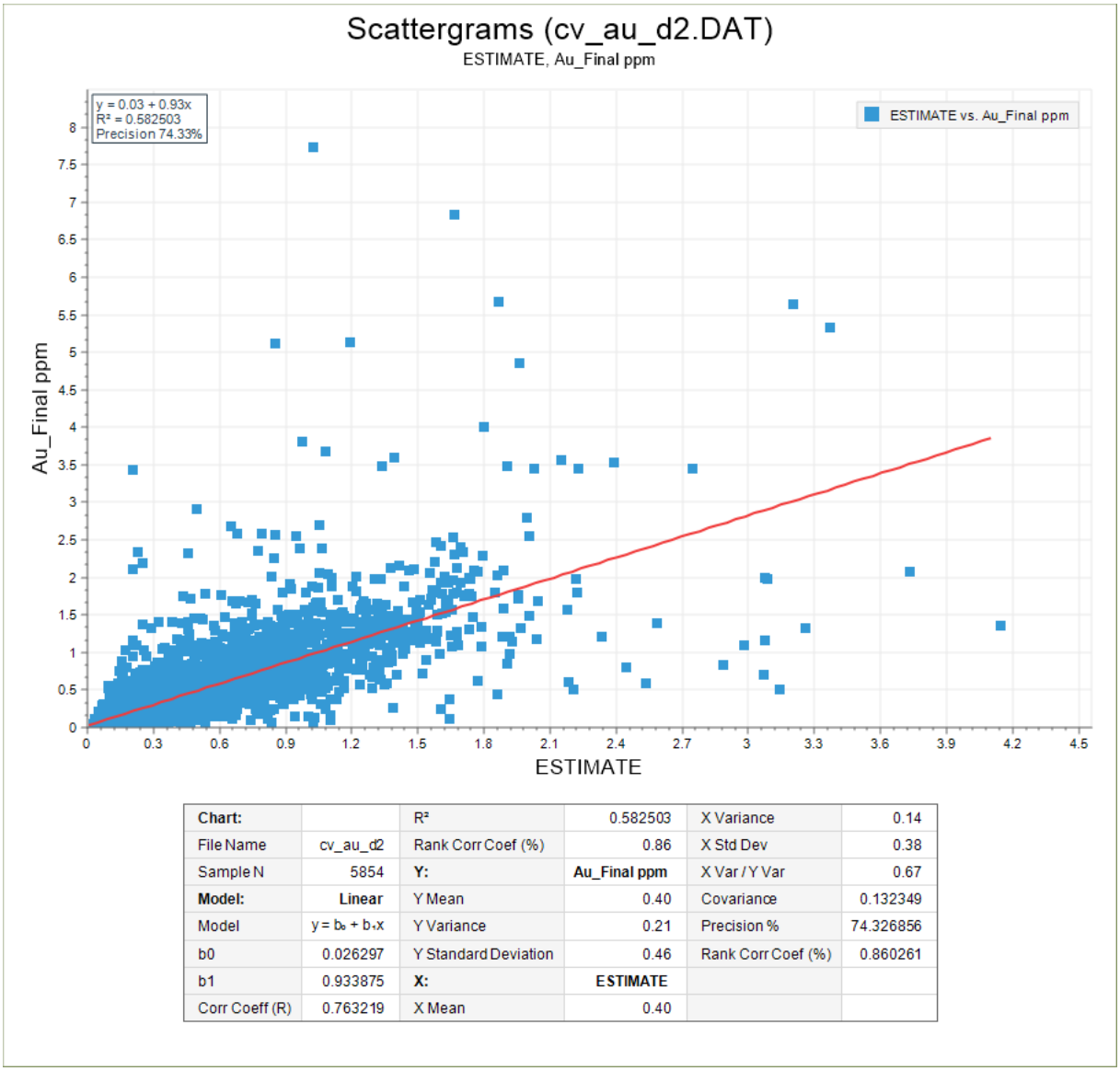


Chart:		R²	0.582503	X Variance	0.14
File Name	cv_au_d2	Rank Corr Coef (%)	0.86	X Std Dev	0.38
Sample N	5854	**Y:**	**Au_Final ppm**	X Var / Y Var	0.67
Model:	**Linear**	Y Mean	0.40	Covariance	0.132349
Model	$y = b_0 + b_1 x$	Y Variance	0.21	Precision %	74.326856
b0	0.026297	Y Standard Deviation	0.46	Rank Corr Coef (%)	0.860261
b1	0.933875	**X:**	**ESTIMATE**		
Corr Coeff (R)	0.763219	X Mean	0.40		

Figure 14-22 - Linear diagram of dependence between composite samples data and Au grade (ppm) estimates, Domain 2.

14.10 GRADE INTERPOLATION AND MINERAL RESOURCE CLASSIFICATION

14.10.1. GRADE INTERPOLATION

Gold (ppm) was interpolated to the empty block model using Ordinary Kriging (OK), IDW2 (Inverse Distance Weighting with weight 2) and IDW3 (Inverse Distance Weighting with weight 3) methods. The parameters used for all three methods were the same and are described below.

The grade estimation was performed in five consecutive steps (rounds) using different sizes of search radii, criteria of number of composite samples and number of holes.

The definition of the search ellipse parameters was made through the geostatistical analysis. The search ellipsoid was divided into four sectors. The search radii were determined by the range of the variograms. The orientation of the search ellipsoid and the axes sizes for interpolated element are described in Table 14-6 and Table 14-7. The parameters of the search ellipse radii and interpolation parameters for each step (round) of the grade estimation is described in Table 14-6.

Table 14-6 - Direction of the search ellipsoid axes for Au (ppm).

Element	First axis azimuth	First axis dip	Second axis dip
Domain 1			
Au (ppm)	60	0	-72
Domain 2			
Au (ppm)	114	12	-60

Table 14-7 - Direction of the search ellipsoid axes and search ellipse parameters for Au (ppm).

Element	Axis	Length (meters)
Domain 1		
Au (ppm)	1	130
	2	120
	3	20
Domain 2		
Au (ppm)	1	80
	2	80
	3	20

Table 14-8 - Search radius and interpolation parameters for Au (ppm) and interpolation methods.

Round	Search ellipse size factor	Minimum composites	Maximum composites	Minimum hole number
1	0.667	3	12	2
2	1	2	12	2
3	2	2	12	1
4	100	1	12	1

The blocks for each zone of the mineralized body were interpolated using only composite samples belonging to the corresponding part of the mineralized body, i.e., the waste samples were not used. During the interpolation, the discretization process for each block, evaluated by the X, Y axes with a factor of 4 and Z with a factor of 2, was used. This makes it possible to evaluate each block in thirty-two (32) positions and assign to the center of the block an average of these evaluations. This increases the precision of the grade estimation in each block.

The limitations presented by each sector of a search ellipse were the maximum number of points in the sector and the minimum total number of points in the interpolation that varies depending on the size of the ellipse, from 4 to 1. Thus, the maximum total number of samples involved in the interpolation was 12 samples.

To evaluate the influence of the nugget effect on the estimation of geological resources, the element Au_cut was interpolated with application of cut-off grades (capping). Table 14-9 shows the capping values.

Table 14-9 - Cut-off grade values(capping).

Element	Cut-off Grade
Au (ppm)	3.90

14.10.2. MINERAL RESOURCE CLASSIFICATION

The classification of resources was carried out according to the guidelines under NI43-101. The resources were classified as Indicated and Inferred according to the degree of reliability of the different estimation runs and the data used for the interpolation of the block model. Solids were created and were used to label the included blocks to each of these zones of confidence level.

For the **Indicated Resource,** a wireframe that encompasses the area with a 50×50 and 50×100 meter regular drilling grid was created. For interpolation, an average of 3 holes and 8 composite samples were used.

All other blocks were classified as **Inferred Resource**.

The three-dimensional visualization of the block model with the spatial distribution of the resource classes is shown in Figure 14-23.

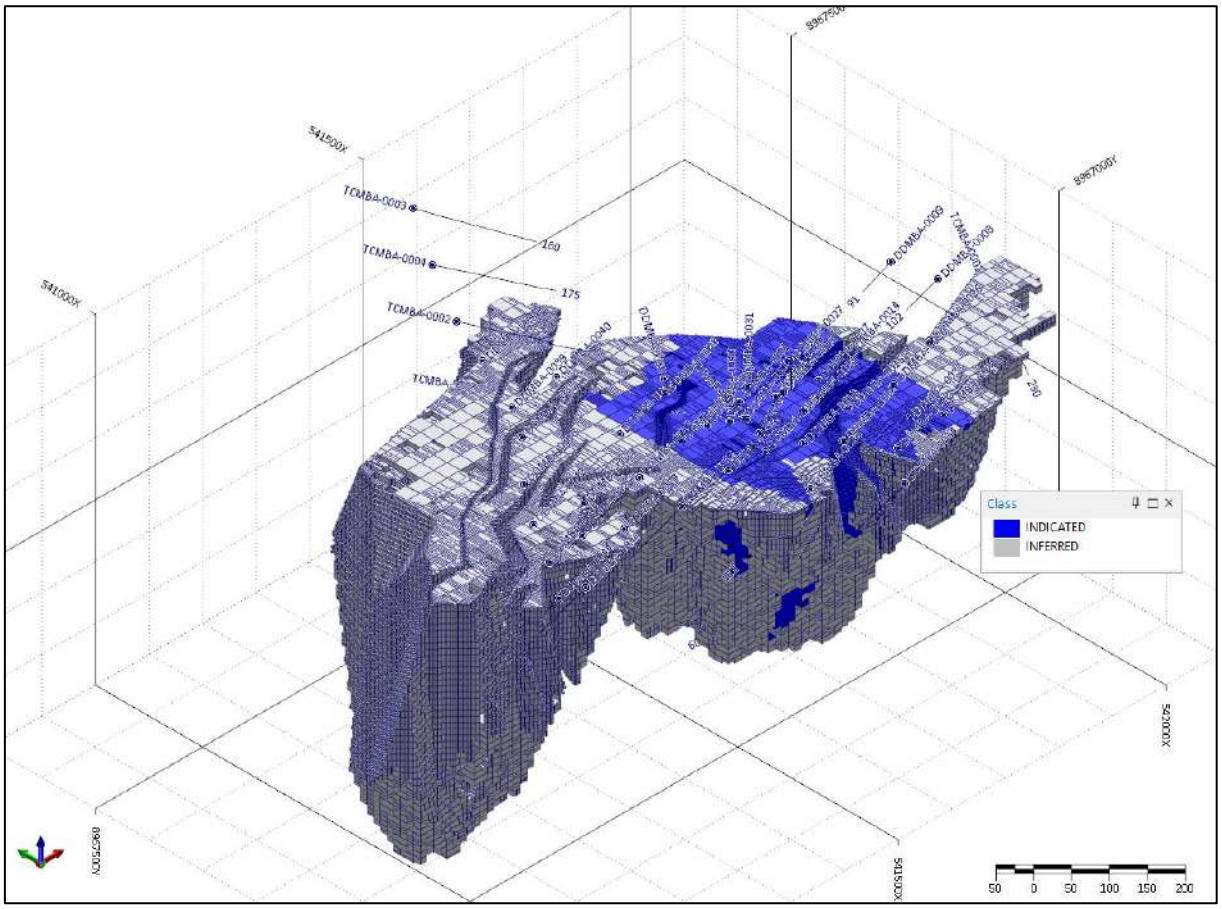


Figure 14-23 - Resources classified as Indicated and Inferred.

14.11 DENSITY VALUES FOR THE BLOCK MODEL

The density values applied to the block model were determined based on available specific gravity data and were assigned according to the lithological domain of each block. For the fresh rock domains, a fixed density value of 2.63 t/m³ was applied. This value represents the arithmetic mean of 856 specific gravity measurements collected by Altamira from diamond drill core samples using standard industry procedures. Given the robust dataset, this density value is considered reliable and representative of the fresh rock material.

For the saprolite domain, a density of 1.68 t/m³ was assigned, based on the average of 18 specific gravity measurements. This value is consistent with typical densities observed in deeply weathered tropical saprolite.

It is recommended that additional specific gravity tests be conducted in the saprolite zone. Increasing the number of measurements would improve the confidence in the assigned density and allow for a more accurate representation of spatial variability.

14.12 VERIFICATION OF THE BLOCK MODEL

The block model with interpolated grades was subjected to visual and statistical verification. Histograms and probability graphs of the interpolated grades were built. Subsequently, the interpolated grades of the block model were compared with the same histograms and probability graphs of the composite samples. The histograms and graphs of the interpolated grades and composite samples were similar, and the block model histograms were smoother than the composite histograms. The comparisons confirmed the validity and consistency of the constructed block model. The comparison histograms and probability plots are illustrated in Figure 14-24.

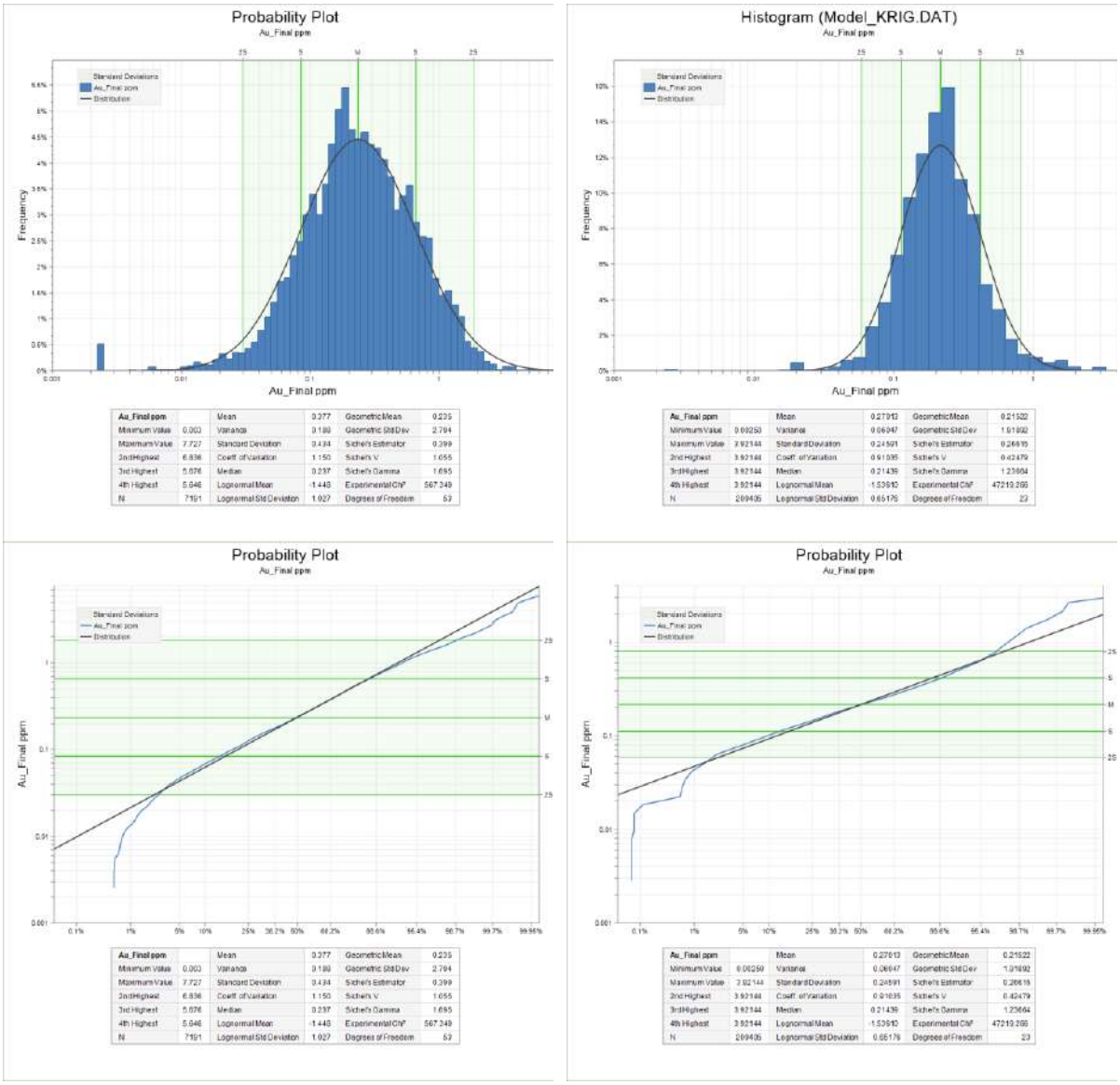


Figure 14-24 - Histogram and graph of the probability of distribution of Au (ppm) in composite samples (left) and block model interpolated by the Ordinary Kriging method (right).

In addition, the interpolated grades were compared visually with the actual sample grades. A comparison between the actual sample grades and interpolated grades shows an approximate relation, indicating the precision of the estimated grades of the block model. Several sections were constructed showing the grades of the block model and the grades along the drill holes. The visual comparison is illustrated in the following figures (Figure 14-25 to Figure 14-27). collates all sections used in the analysis.

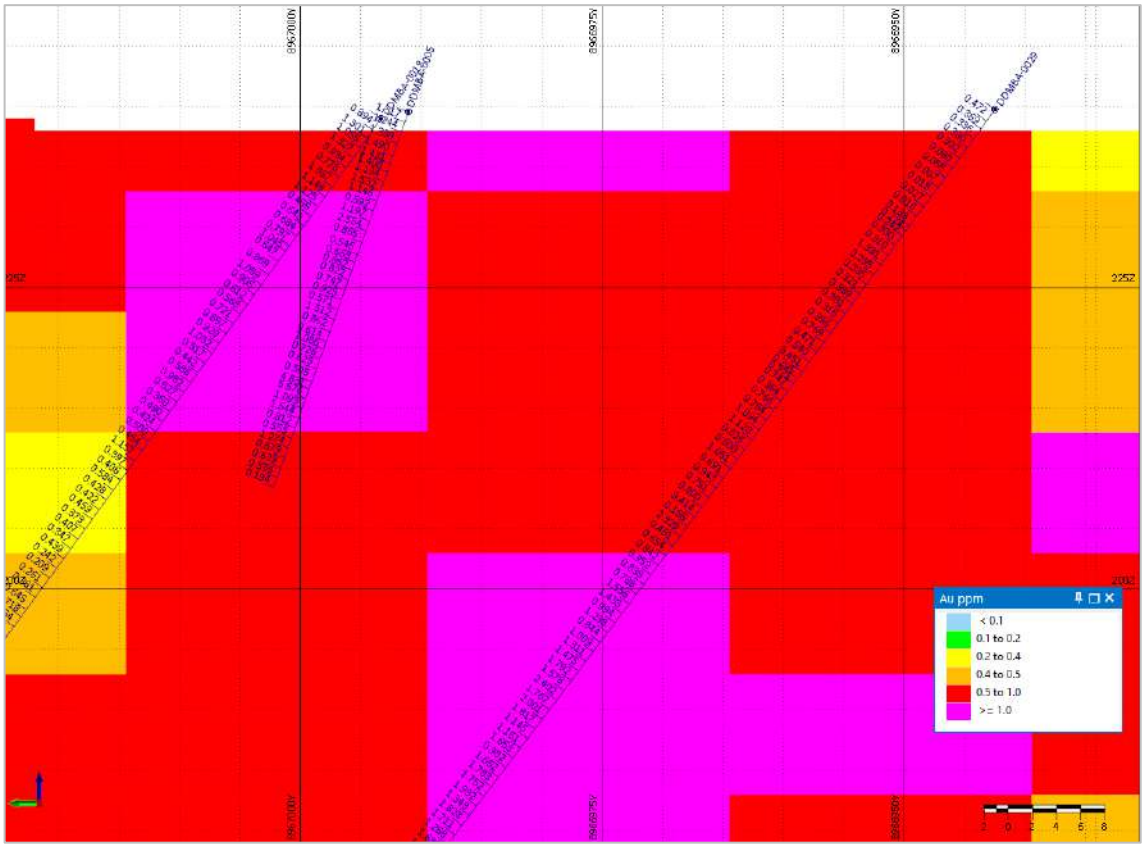


Figure 14-25 - Au (ppm) visualization with block model - Section Sec_MBA-0005-29.

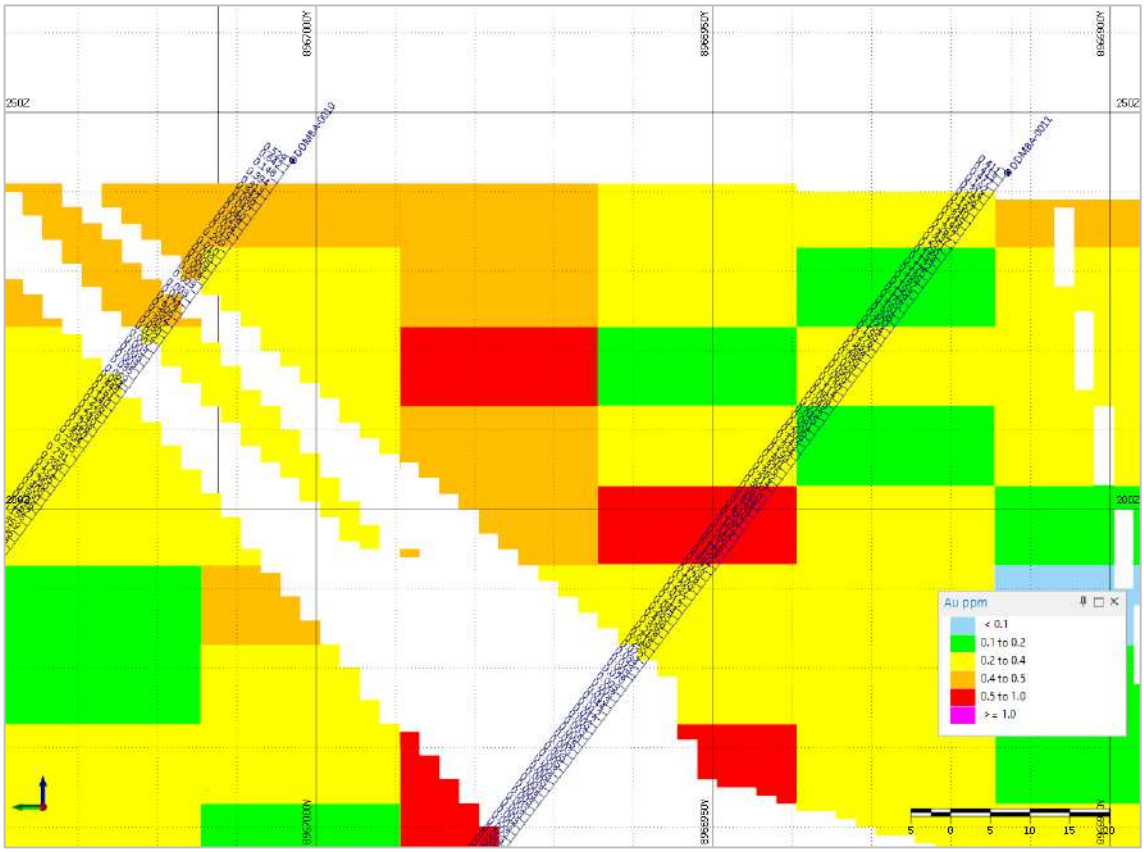


Figure 14-26 - Au (ppm) visualization with block model – Section Sec_MBA-0010-11.

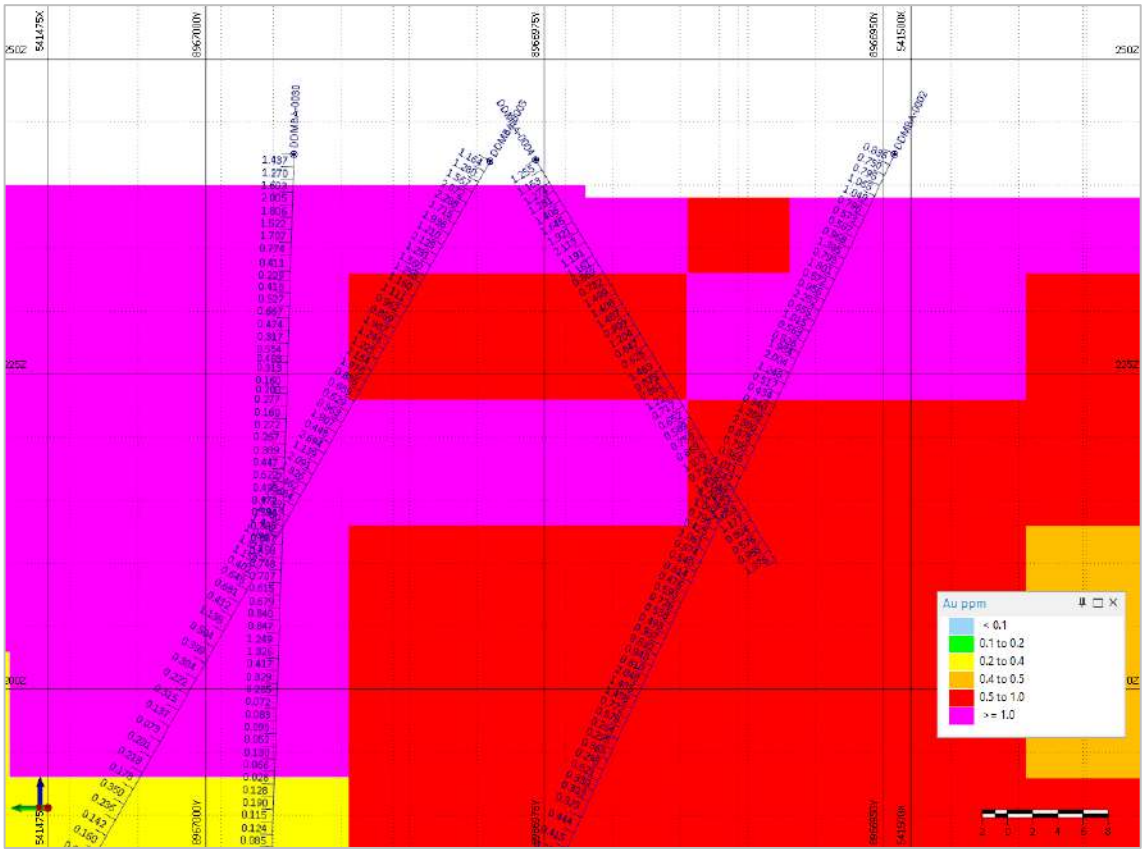


Figure 14-27 - Au (ppm) visualization with block model – Section Sec_MBA-0030-02.

The average grade of the chemical variable (gold) from the model was compared with the average grade of the chemical variable from the sampling interval file for gold interpolated by the three different methods. The comparison showed a very satisfactory result.

A comparison was made between a provisional polygonal estimation using the "interval" weighting method and the interpolation data by the Kriging and IDW3 methods for mineralized bodies. This comparison is presented in Table 14-10. The average difference between the average grades of gold (ppm) for all interpolation methods, in relative percentages, is lower than 5.512% and the difference between the volumes of the solid and of the block model is less than 0.045%. These results confirm the good convergence and high reliability of the estimated block model data. The analysis for gold (ppm) after application of capping (Au_cut) was also satisfactory. A difference in the average grades of gold (ppm) between wireframes and the block model estimated by Kriging of 47% (relative percent), is expected and satisfactory.

Table 14-10 - Data comparison between different estimation methods for Au (ppm).

ESTIMATION METHOD	VOLUME m^3	Au ppm	Au_cut ppm
Block Model (Krig)	116,899,756.25	0.246	0.243
Block Model (IDW3)	116,899,756.25	0.259	0.246
Relative difference %	0.00	-5.512	-1.223
Block Model (Krig)	116,899,756.25	0.246	0.243
Wireframe	116,909,326.70	0.362	0.360
Relative difference %	-0.008	-47.215	-47.931

In order to verify the influence of the nugget effect on the geological resource estimation, the results of the calculation for interpolated grades with and without capping were compared. The results of this comparison are shown in Table 14-11. For gold, the difference in relative percentage is 1.228%, which indicates a relatively insignificant influence of the higher-grade samples in the geological resource estimation.

Table 14-11 - Resource calculation comparison with and without capping for gold.

Au ppm ppm	Au_cut Ppm	Relative Def. Au-Au_CUT %
0.246	0.243	1.228

14.13 RESULTS OF THE RESOURCE EVALUATION

VMG estimated the Indicated Mineral Resources and Inferred Mineral Resources for the Maria Bonita Project reported herein, in accordance with NI 43-101 and the current CIM Definition Standards on Mineral Resources and Mineral Reserves adopted by CIM Council on May 10, 2014. The Mineral Resources were estimated in conformity with the CIM Estimation of Mineral Resource and Mineral Reserves Best Practices guidelines.

The CIM Definition Standards on Mineral Resources and Mineral Reserves require that an estimated Mineral Resource must have reasonable prospects for eventual economic extraction. The Mineral Resource estimate discussed herein has been constrained by reasonable potential mining open pit design parameters, using economic and technical assumptions appropriate for an open pit mining scenario. The potential mining open pit shells described below are preliminary and conceptual in nature.

VMG has based the resource categories and cut-off grades of the deposit in the Mineral Resource estimate stated herein, on the requirement of “reasonable prospects for eventual

economic extraction", assuming an open pit mining method production scenario. Dr. Myadzel believes this is warranted for the deposit given the following:

- Long-term gold price based on a 1-year rolling annual trailing average
- Exchange rate for US$ to R$ based on the 2026 average of 5.20
- Mineral process recovery of 90% for gold, based on the metallurgical testing described in section 13 of this report
- Operating costs (mining, processing, general and administrative) have been considered
- The scale of the deposit
- The near-surface disposition of the mineral resource with 99,5% of the reported resource tonnes within 300 metres of the surface
- The disseminated and continuous nature of gold mineralization, making the deposit amenable to low-cost bulk mining open pit methods
- The host rocks are granitoids suggesting the potential for exceptionally stable rock quality and geomechanics likely resulting in steep pit walls
- Good infrastructure including power, roads and water, resulting in relatively low unit capital and operating cost requirements

Pit shells were derived from first principles using Micromine pit optimization software to estimate material in the block model with reasonable prospects for eventual economic extraction. Pit shells were developed by considering blocks measuring 2.5 m x 2.5 m x 1 m on constraining boundaries. The overall pit slope angle was judged to be 70^{o}. The main input assumptions are summarized in Table 14.12. A plan view and section view of the assumed pit constraints are illustrated in Figure 14.25 and Figure 14.26 respectively.

Table 14-12 – Open Pit Constrained Resource Inputs and Assumptions

Parameter	Value	Unit
Density	in Block Model	t/m³
OPEX Mining Cost	5.00	US$/tonne
G&A Cost	2.50	US$/tonne
Processsing Cost	9.00	US$/Product
Mining Recovery	90	%
Dilution	10	%
CutOff	0.13	ppm
Product Selling Price	3,300.00	US$/oz
Au Recovery	90	%
Pit Slope Angle oxide	40	Degrees
Pit Slope Angle primary	70	Degrees
Production	0.35	Mt/year
Discount rate	8	% per year

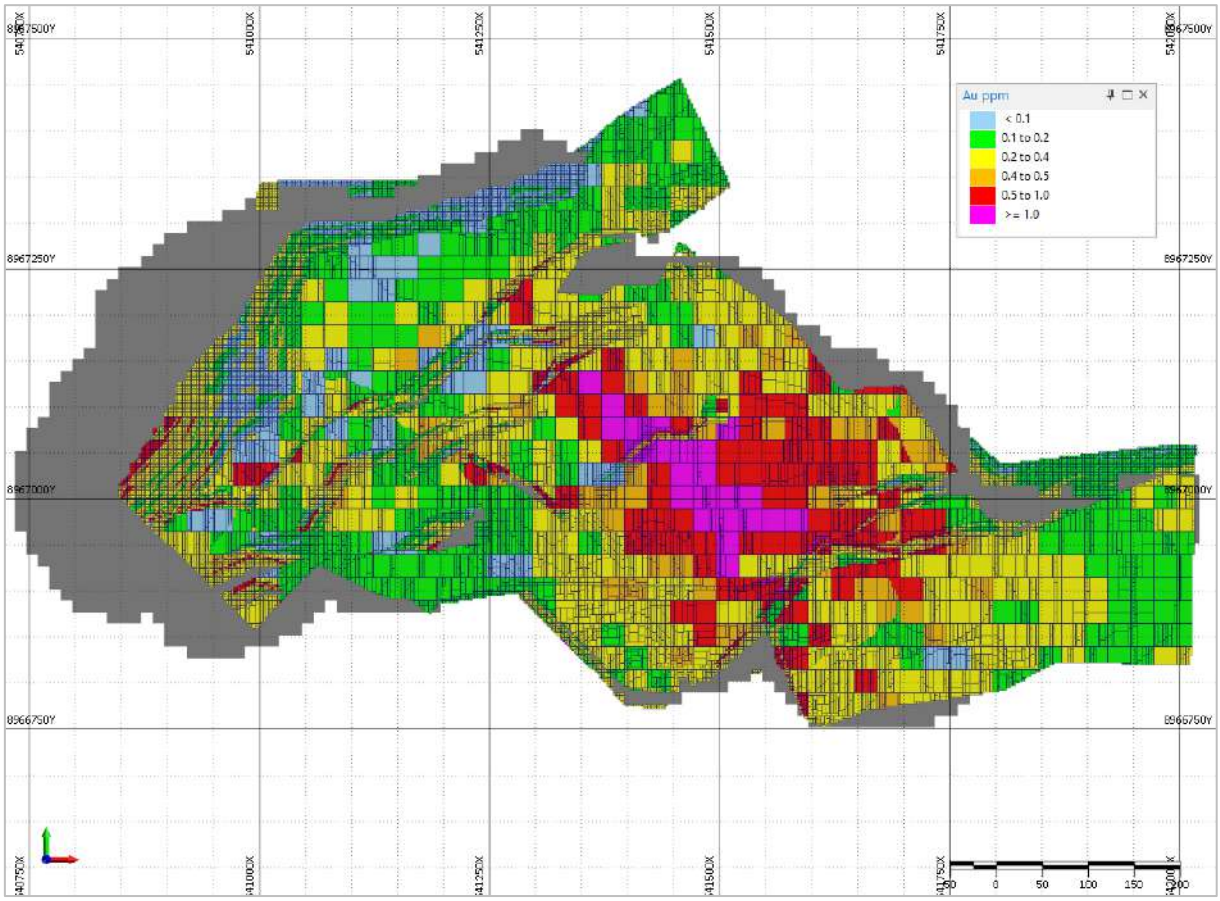

Au ppm
< 0.1
0.1 to 0.2
0.2 to 0.4
0.4 to 0.5
0.5 to 1.0
>= 1.0
8967500Y
8967250Y
8967000Y
8966750Y
541000X
541250X
541500X
541750X
0
50
100
150

Figure 14-28 – Pit Constraining surface around estimated Block Model – Plan View.

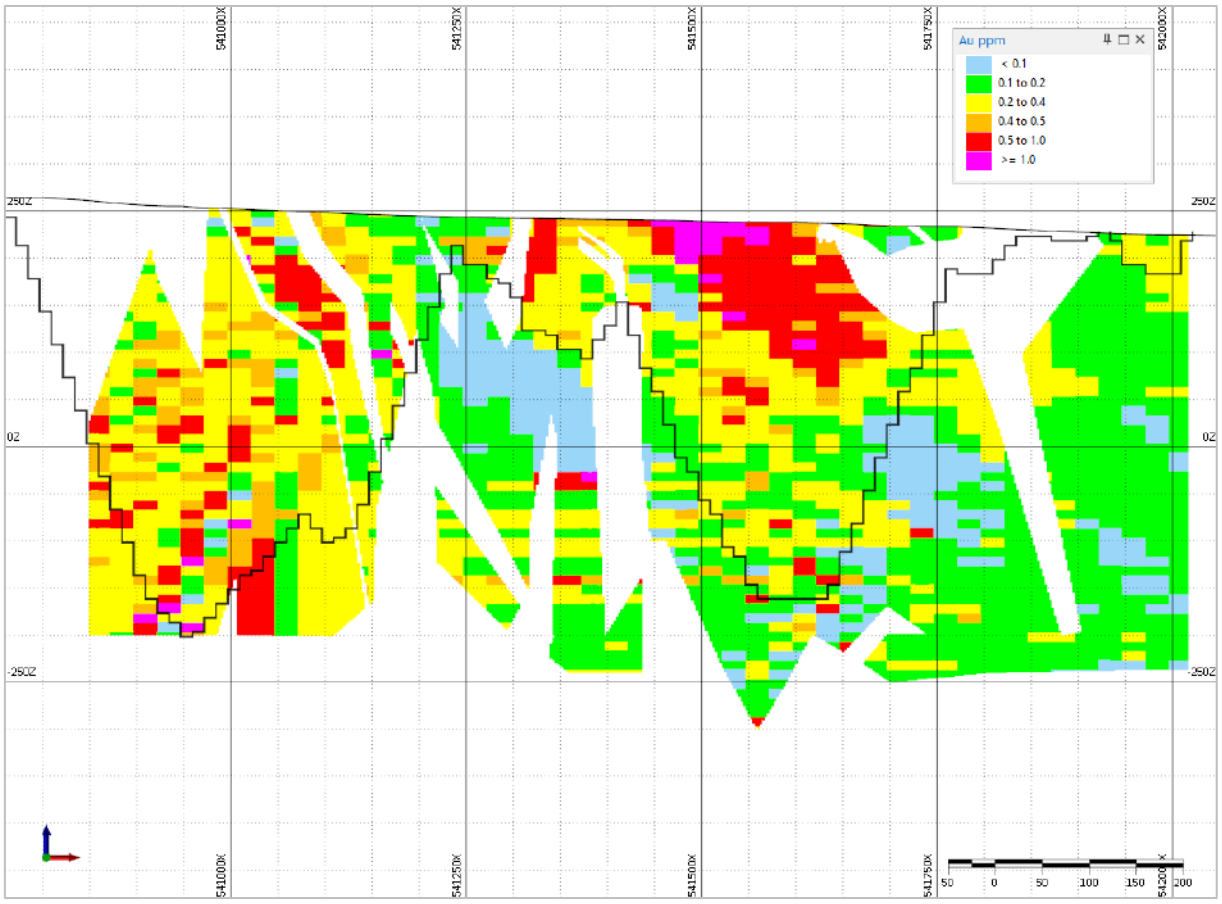


Figure 14-29 – Pit Constraining Surface around estimated Block Model – Section View Looking North.

The results of the evaluation of resources, based on the block model interpolated by the Ordinary Kriging (OK) method, of gold mineralization of the Project is presented in Table 14-13.

To assess the influence of high-grade samples on the Mineral Resource estimate, the results obtained with and without grade capping were compared. A capping threshold of 3.9 ppm Au was applied, resulting in a relative difference of only 1.228% between the two estimates. This indicates that high-grade samples have a limited influence on the overall Mineral Resource estimate. Therefore, it was decided to use the uncapped grades for the final Mineral Resource estimation. The resource estimation is shown in Table 14-13.

Table 14-13 - Gold Resources Calculated by Ordinary Kriging (OK) Method Assuming a 0.24 ppm Au cut-off grade.

CUT-OFF	CLASS	CATEGORY	VOLUME	TONNES	DENSITY	Au	M_Au
Au ppm			m3	t	(t / m3)	ppm	ozt
0.24	Indicated	Saprolite	886,756	1,489,751	1.68	0.65	30,898
		Fresh Rock	9,067,869	23,848,495	2.63	0.49	372,978
	Inferred	Saprolite	846,475	1,422,078	1.68	0.38	17,171
		Fresh Rock	25,902,138	68,122.622	2.63	0.41	891,305
	TOTAL		**36,703,238**	**94,882,945**	**2.59**	**0.43**	**1,312,353**

The resources estimated for gold with the application of several cut-off grades are presented in Appendix III.

ITEM 23: ADJACENT PROPERTIES

There are no other Adjacent Properties.

ITEM 24: OTHER RELEVANT DATA AND INFORMATION

There is no other relevant data or information.

ITEM 25: INTERPRETATION AND CONCLUSIONS

This report refers to the Maria Bonita Project located within exploration permit 850.224/2009.

The Maria Bonita Project is as an uncommon type of porphyry gold deposit. The Maria Bonita gold mineralization is intrinsically associated with A-type quartz veining, occurring as swarms of straight and irregular veins that intersect in "sheets" and/or "stockwork" patterns. Two types of veins are observed: the first is colorless, composed mostly of quartz; the second, associated with the first, consists of fine-grained dark green (largely chlorite) minerals. Bulk gold grades vary directly with the intensity of veining. Macroscopically, sulfides are rare to absent in the main eastern porphyry body, whereas accessory pyrite is more abundant at Maria Bonita West.

The exploration work completed to date consists of surface geological mapping, soil sampling, topographic surveying, 43 diamond drill holes (8,694.30 m), 59 mechanized auger drill holes (544.70 m), five exploration trenches (1,028.0 m), and 9,170 sample assays.

The chemical analyses were performed at SGS Geosol and used an internal Altamira-managed QA/QC program as well as industry standard contractor laboratory internal QA/QC measures.

The average density value of 2.63 t/m^3 was obtained from the average of 856 density measurements for fresh rock. For the saprolite domain, a density of 1.68 t/m^3 was assigned based on the average of 18 specific gravity measurements

The model generated for the Mineral Resource estimate was based on drilling information performed on an irregular grid, with distances between holes that vary between 50 and 100 meters. Twelve vertical north-south geological sections were created with an average distance of 50 and 100 meters between sections.

The model herein reports an Indicated Mineral Resource of 25.3 million tonnes at a grade of 0.50 ppm Au, and an Inferred Mineral Resource of 69.5 million tonnes at a grade of 0.41 ppm Au.

Both estimates were calculated using a cut-off grade of 0.24 ppm Au.

Preliminary economic indicators are that the deposit may be economically extractable at some point in the future. The level of confidence, i.e., the category, of a resource estimate may change with additional exploratory work, such as sampling, drilling and metallurgical testing, along with other modifying factors.

The author is of the opinion that Altamira has successfully highlighted the mineral resource potential at the Project and considers the Project to be sufficiently robust to warrant conducting additional definition drilling to increase the Mineral Resources, conduct metallurgical testing and to complete a Preliminary Economic Evaluation of the Maria Bonita Project for a potential open pit mining operation as a prelude to a future Feasibility Study.

VMG conducted the evaluation of Mineral Resources of Altamira's Maria Bonita Project in compliance with NI 43-101. The work took place from September 2026 to November 2026.

The main activities developed by VMG were:

- Site visit, discussions with the Altamira technical staff, understanding of the geology and mineralization of the deposit, and verification of the geological work performed by Altamira and contractors on site, and in off-site laboratories, as well as verification of the materiality of the achieved results.
- Validation of the drilling database and the topographic information.
- Verification of the QA/QC program established by Altamira for geological work and of its application to the work program.
- Selection of the drilling data used in the definition of Mineral Resources.
- Interpretation of the geological model.
- Conduction of statistical and geostatistical studies.
- Estimation of Mineral Resources, as well as their quantification and classification.
- Disclosure of the Mineral Resources for the Maria Bonita Project in accordance with NI-43-101.

VMG observed that the results obtained from QA/QC were acceptable. VMG did not visit the assay laboratories, but the SGS Geosol laboratory is a reputable international company which meets or exceeds the industry standards for sample preparation and analysis.

The materiality of the work developed by Altamira, as well as the materiality of the deposit and the developed studies, are sufficient to support the disclosure of Mineral Resources of the Maria Bonita Project in accordance with NI-43-101.

ITEM 26: RECOMMENDATIONS

26.1 WORK PROGRAM

VMG, based on the studies and work carried out on the Mineral Resources of the Maria Bonita Project, owned by Altamira, makes the following recommendations:

- Complete a 10,000 m drilling program targeting resource extensions and infill areas to support the potential conversion of Inferred Resources to Indicated and Indicated Resources to Measured.
- Analyze approximately 11,000 samples, including appropriate QA/QC control samples.
- Strengthen the QA/QC program through the systematic inclusion of coarse reject duplicates and laboratory pulp duplicates.
- Complete 200 density determinations, with particular emphasis on obtaining representative coverage of the saprolite and principal geological domains.
- Undertake 50 mineralogical studies to characterize the principal mineralized domains and support metallurgical testwork.
- Complete metallurgical testwork on 10 representative samples or composites covering the main mineralized lithologies, weathering profiles and depth intervals.
- Undertake environmental studies to support project development and permitting.
- Conduct geotechnical studies to characterize the rock mass and establish preliminary pit slope design parameters.
- Provide administrative and logistical support for the proposed work program.

26.2 BUDGET

The estimated budget for this work program is shown in Table 26-1.

Table 26-1 - Estimated Budget.

Work Program	Units Type Work	Units	Unit Cost	Cost US$
Drilling	Meters	10,000	211.54	2,115,384.62
Assaying	Sample	11,000	23.27	255,961.54
Density test	Sample	200	3.17	634.62
Mineralogical studies	Study	50	287.69	14,384.62
Metallurgical tests	Sample	10	10,576.92	105,769.23

Environmental studies	Study	1	317,307.69	317,307.69
Geotechnical studies	Study	1	158,653.85	158,653.85
Administrative expenses	Adm	1	48,076.35	48,076.35
TOTAL				3,016,172.50

ITEM 27: REFERENCES

Alta Floresta Gold Mineração Ltd. Exploration Database. [Access Database] 2019.

Chapleau Resources Limited. Aug 2007. Maria Bonita Project, Mato Grosso and Para State, Brazil, Exploration Progress, August 2006 – July 2007. Aug 2007.

Duarte, Tiago. 2015. Geologia, geoquímica e geocronologia do Domínio Vulcânico do Arco Magmático Juruena, SW do Cráton Amazônico: Implicações geotectônicas. 2015.

Global Resource Engineering Ltd. Geologic and Block Model. [LeapFrog GEO] 2019

Gustavson Associates, LLC. Mar 24, 2016. NI 43-101 Technical Report on Resources Maria Bonita Project. Mar 24, 2016.

Global Resource Engineering Ltd, NI 43-101 Technical Report Maria Bonita Project - Mineral Resource Estimate, 2019

Sillitoe, Dr R. H. Maria Bonita Prospect, Review Highlights, Unpublished report to Altamira Gold. 2024

Sillitoe, Dr R. H. Maria Bonita Prospect, Review Highlights, Unpublished report to Altamira Gold. 2026

GLOSSARY

%	percent.
3D	Three-dimensional.
Au	Gold
Assay	Chemically or physically measured amount of material within a sample.
Anisotropy	Characteristic of a variable having different physical properties when measured in different ways.
Azimuth	Angle at which an exploration hole has been drilled (deviation from northward)
Correlation coefficient	A statistical measure of the degree of similarity between two parameters.
Coefficient of variation	In statistics, a normalized measure of the variation present in a sample from the population.
Collar	Geographic coordinates of a drill hole or starting point of a shaft.
Compositing	In sampling and resource estimation, process designed to assign all sample data into intervals of a given equal size.
Cut Off grade	The threshold above which the material is selectively mined or used.
DD	Rotary Diamond Core Drilling
Declustering	In geostatistics, the process that allows the restricted grouping of samples within the octant sectors.
Standard Deviation	A statistical measure of the dispersion of sample data around the mean value.
ANM	Agência Nacional de Mineração
Geostatistics	Science that studies and describes the spatial continuity of any type of natural phenomenon
Cumulative frequency plot	Graphical representation of the data sorted in ascending or descending order, which are shown in a non-decreasing function between 0% and 100%. The forms of percentage frequency and percentage cumulative frequency are interchangeable, since one can be obtained from the other.
Probability graph	Plot showing cumulative frequencies on different intervals in a probability plot on a logarithmic scale.
ha	Hectare
HG	High Grade
Histogram	A graphical representation of the data distribution by frequency of occurrence.
Inverse Distance Weighting	Geostatistical method for calculating Mineral Resources. Since this method causes the weight of each sample to be inversely proportional to its distance from the point that is being estimated, this gives more weight to the nearest samples and less to those that are more distant. The method works very efficiently with regularly scaled data. Extreme versions of the Inverse Distance Weighting are the global declustering methods such as the polygonal method and the local sample average method

IDW	Inverse Distance Weighting
Km	Kilometers
Ordinary Kriging	Kriging is a regression method used to approximate or interpolate data.
LG	Low Grade
lithology	File with the lithological description of the Samples
Lognormal	Refers to the distribution of a variable whose logarithm's distribution is normal.
LOI	Loss on ignition
m	Meter
M	Million or mega
Median	Value of the average sample in a data set arranged in class order.
Mt	Millions of tons.
NI 43 -101	National Instrument 43-101
º C	Celsius Degrees
OK	Ordinary Kriging
Percentile	One hundredths of the total data. The 50th percentile is the median.
GDP	Gross domestic product
Population	In geostatistics, population includes samples with properties that show the same (or close) geostatistical characteristics. Ideally, a population is characterized by linear distribution.
Ppm	Parts per million
Precision	The precision of quality control analyses refers to the percentage of difference between an analysis and its repetition, for example, a precision of 10% would mean that the initial analysis and the repetition differ by 10%. The closer to 0%, the better is the precision.
Range	Distance at which the variogram reaches its plateau.
RC	Rotary-percussive drilling
Resource	Geological mineral resources (may be mineable and not mineable).
RL	Reduced level, that is, elevation relative to a local datum.
SG	Specific Gravity (unit in grams per cubic centimeter).
t	Metric Tonnes.
t/m^3	Tonnes per cubic meter.
Triangular Mesh	Three-dimensional surface defined by triangles.
Solid triangular mesh	Closed triangular mesh.
Ton	Tonnes
Variance	In statistics, a measure of the dispersion over the average value of a data set.

APPENDIX I - STANDARDS CERTIFICATES

ITAK

Certificate of Analysis 0836

Date: 12-09-2019
Version: 02

CRM ITAK-577

Certified Reference Material – Gold Ore

Table 1 – ITAK-577 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c]	1.145	0.067	0.041	0.053	± 0.017

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1*).
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-577 – Informative Values

Element/Unit	Reference Value [6]
S (%) [d]	1.38

[6] This value is informative.

DESCRIPTION

ITAK-577 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the Midwest of Brazil in 2013.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-577 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-577.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-577 was analyzed by fourteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-090/19 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-577 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Fire Assay Method and determination by Gravimetric Method.
- **c**: Fire Assay Method and determination by Atomic Emission Spectrometry – ICP-OES.
- **d**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **December 09, 2029**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

ITAK

Certificate of Analysis 0853

Date: 03-20-2020
Version: 01

CRM ITAK-644

Certified Reference Material – Gold Ore

Table 1 – ITAK-644 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b]	0.334	0.019	0.012	0.015	± 0.0052

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1*).
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-644 – Informative Values

Element/Unit	Reference Value [6]
S (%) [c]	0.06

[6] This value is informative.

DESCRIPTION

ITAK-644 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the South of Brazil in 2019.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-644 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-644.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-644 was analyzed by twelve specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-011/2020 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-644 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b:** Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **c:** Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **March 20, 2030.**

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Certificate of Analysis 0859

Date: 06-08-2020
Version: 01

CRM ITAK-659

Certified Reference Material – Gold Ore

Table 1 – ITAK-659 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c, d]	0.314	0.022	0.013	0.018	± 0.0051

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis *(n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-659 – Informative Values

Element/Unit	Reference Value [6]
S (%) [e]	0.43

[6] This value is informative.

DESCRIPTION

ITAK-659 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the Northeast of Brazil in 2020.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-659 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-659.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-659 was analyzed by sixteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-017/2020 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-659 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Fire Assay Method and determination by Atomic Emission Spectrometry (ICP).
- **c**: Fire Assay Method and determination by Gravimetric Method.
- **d**: Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **e**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **June 08, 2030**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

ITAK

Certificate of Analysis 0916

Date: 02-07-2022
Version: 01

CRM ITAK-663

Certified Reference Material – Gold Ore

Table 1 – ITAK-663 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c, d]	1.614	0.082	0.043	0.070	± 0.020

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1*).
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-663 – Informative Values

Element/Unit	Reference Value [6]
S (%) [e]	0.33

[6] This value is informative.

DESCRIPTION

ITAK-663 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the South of Brazil in 2021.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-663 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-663.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-663 was analyzed by sixteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-012/2022 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-663 are mentioned as follows:

- **a:** Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b:** Fire Assay Method and determination by Gravimetric Method.
- **c:** Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **d:** Fire Assay Method and determination by Atomic Emission Spectrometry – ICP-OES.
- **e:** Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **February 07, 2032.**

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

CTRS
Centro Tecnológico de Referência SulAmericano

Certificado de Análise 190012

Material de Referência Certificado

CTRS 0901B

(Minério de Ouro e Cobre)

	Au	Cu	S	Fe	Zn	Pb	Ag
	g/t	%	%	%	%	%	g/t
Método de Análise	FA - EAA	4A - EAA	EIV	4A - EAA	4A - EAA	4A - EAA	4A - EAA
Valor Certificado [1]	0,424	0,429	2,62	4,98	0,0079	0,0022	1,0
Desvio Padrão [2]	0,021	0,010	0,07	0,17	0,0008	0,0009	0,2
Incerteza Expandida [3]	0,042	0,020	0,14	0,34	0,0016	0,0018	0,4
Limite Superior [4]	0,466	0,449	2,76	5,32	0,0095	0,0040	1,4
Limite Inferior [4]	0,382	0,409	2,48	4,64	0,0063	0,0004	0,6

[1] O Valor Certificado para o constituinte é a melhor estimativa do valor verdadeiro, baseado nos resultados dos 11 (onze) laboratórios comerciais e um Laboratório de Mineradora, todos especialistas nesta área, participantes do Programa Interlaboratorial para certificação, coordenado pelo **Centro Tecnológico de Referência SulAmericano**. Resultados expressos em massa-massa (m/m).

[2] Desvio-Padrão estimado.

[3] Incerteza Expandida, calculada com 95% de Intervalo de Confiança (*Confidence Interval*).

[4] Os Limites Superiores e os Limites Inferiores de cada parâmetro foram calculados com 95% de Intervalo de Confiança conforme *ISO Guide* 35:2012– *Reference materials – General and statistical principles for certification*. Os Limites Superiores e Inferiores com 95% de IC foram calculados para utilização em controle estatístico para análises individuais (n = 1).

Métodos de análise utilizados

O parâmetro Ouro foi determinado por fusão pelo método de Fire Assay, copelação e leitura por Espectrometria de Absorção Atômica (FA – EAA).

Os parâmetros Cobre, Ferro, Zinco, Chumbo e Prata foram determinados por digestão com dois e quatro ácidos, utilizando HCl, HNO_3 e HF, HCl, HNO_3 e $HClO_4$ respectivamente e leitura por Espectrometria de Absorção Atômica (4A - EAA).

O parâmetro Enxofre foi determinado por combustão e detecção por Espectrometria no Infravermelho (EIV).

Laboratórios Participantes do Processo de Certificação:

- ActLab, Canadá
- Acme Analytical Laboratories, *Canadá*
- ALS Minerals, *Canadá*
- ALS Minerals, *Peru*
- INTERTEK *Minerals, Austrália*
- INTERTEK *Minerals, Chile*
- INTERTEK *Minerals, Indonésia*
- Fundação Gorceix, *Brasil*
- Laboratório Geológico, *Chile*
- Mineração Maracá, *Brasil*
- SGS, Canadá

Origem do MRC

O material CTRS 0901B teve origem a partir de uma amostra de minério de Ouro e Cobre proveniente do Estado de Goiás.

Rodovia MG-877 km 14 – Caixa Postal 675 – Poços de Caldas – MG - 37.701-970
Fone/fax: 31 – 3097-1930
e-mail: contato@ctrsulamericano.com - site: www.ctrsulamericano.com

CTRS
Centro
Tecnológico
de Referência
SulAmericano

Uso do MRC

O MRC CTRS 0901B é adequado ao uso no desenvolvimento, validação e controle de qualidade de métodos analíticos e na calibração de equipamentos para determinação de constituintes principais em minério de ouro e cobre. O MRC CTRS 0901B também é indicado para Controle de Qualidade e Qualidade Assegurada (QA/QC) em programas de pesquisa e exploração mineral.

Preparação Física e Embalagem

O material foi seco a 105°C, britado, pulverizado, com granulometria controlada abaixo de 75µm e homogeneizado.

Homogeneidade e Estabilidade

O material CTRS 0901B foi avaliado quanto à homogeneidade e estabilidade. Os ensaios de homogeneidade e estabilidade foram realizados em um laboratório comercial especializado. Os testes de estabilidade possuem uma programação para verificação intermediária dos valores certificados.

Processo de Certificação

O material CTRS 0901B foi preparado com base nas orientações do ABNT NBR ISO GUIA 34:2012. A certificação do CTRS 0901B foi efetuada com base na norma ISO GUIDE 35:2012 e através do processo de comparação interlaboratorial desenvolvido pelo Centro Tecnológico de Referência SulAmericano-CTRS. O processo de certificação ocorreu em 2019. A certificação do MRC contou com a participação de 10 Laboratórios comerciais e um Laboratório de Mineradora, todos especialistas.

Rastreabilidade Metrológica Internacional

A rastreabilidade do MRC CTRS 0901B é garantida pelo uso de técnicas e métodos analíticos validados com base em Materiais de Referência primários. Os valores certificados são rastreados metrologicamente as unidades de massa e teores dos parâmetros ao SI (Sistema Internacional).

Condições de Armazenamento do MRC: Local seco a temperatura ambiente.

Data de Validade: Dezembro de 2023.

Poços de Caldas / MG, 30 de Dezembro de 2019.

F. Magalhães, *M.Sc.*
Gerente Técnica
CRQ II 02.101.324

Rodovia MG-877 km 14 – Caixa Postal 675 – Poços de Caldas – MG - 37.701-970
Fone/fax: 31 – 3097-1930
e-mail: contato@ctrsulamericano.com - site: www.ctrsulamericano.com

ITAK

Certificate of Analysis 0945

Date: 08-03-2022

Version: 01

CRM ITAK-669

Certified Reference Material – Gold Ore

Table 1 – ITAK-669 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c]	0.881	0.049	0.028	0.040	± 0.013

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.

[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1*).

[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.

[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.

[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.

Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-669 – Informative Values

Element/Unit	Reference Value [6]
S (%) [d]	1.28

[6] This value is informative.

DESCRIPTION

ITAK-669 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the Midwest of Brazil in 2022.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-669 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-669.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-669 was analyzed by thirteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-041/2022 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-669 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Fire Assay Method and determination by Gravimetric Method.
- **c**: Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **d**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **August 03rd, 2032.**

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Certificate of Analysis 0854

Date: 03-20-2020
Version: 01

CRM ITAK-645

Certified Reference Material – Gold Ore

Table 1 – ITAK-645 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c]	0.898	0.037	0.016	0.034	± 0.011

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-645 – Informative Values

Element/Unit	Reference Value [6]
S (%) [d]	0.22

[6] This value is informative.

DESCRIPTION

ITAK-645 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the South of Brazil in 2019.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-645 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-645.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-645 was analyzed by fourteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-012/2020 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-645 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Fire Assay Method and determination by Gravimetric Method.
- **c:** Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **d**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **March 20, 2030**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.



Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Certificate of Analysis 0856

Date: 03-20-2020
Version: 01

CRM ITAK-648

Certified Reference Material – Gold Ore

Table 1 – ITAK-648 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c]	1.120	0.042	0.033	0.026	± 0.0091

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-648 – Informative Values

Element/Unit	Reference Value [6]
S (%) [d]	0.26

[6] This value is informative.

DESCRIPTION

ITAK-648 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the South of Brazil in 2019.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-648 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-648.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-648 was analyzed by fifteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-014/2020 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-648 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Fire Assay Method and determination by Gravimetric Method.
- **c:** Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **d**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **March 20, 2030**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.



Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Certificate of Analysis 0827

Date: 11-27-2019
Version: 01

CRM ITAK-655

Certified Reference Material – Gold Ore

Table 1 – ITAK-655 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c]	0.259	0.023	0.017	0.016	± 0.0040

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-655 – Informative Values

Element/Unit	Reference Value [6]
S (%) [d]	0.82

[6] This value is informative.

DESCRIPTION

ITAK-655 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the Southeast of Brazil in 2019.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-655 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-655.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-655 was analyzed by twenty specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-081/19 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-655 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Extraction by DIBK and determination by Atomic Absorption Spectrometry.
- **c:** Fire Assay Method and determination by Atomic Emission Spectrometry – ICP-AES.
- **d:** Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **November 27, 2029**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.



Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Certificate of Analysis 0901

Date: 11-01-2021
Version: 01

CRM ITAK-670

Certified Reference Material – Gold Ore

Table 1 – ITAK-670 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c, d]	0.983	0.055	0.042	0.036	± 0.011

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-670 – Informative Values

Element/Unit	Reference Value [6]
S (%) [e]	0.29

[6] This value is informative.

DESCRIPTION

ITAK-670 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the South of Brazil in 2021.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-670 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-670.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-670 was analyzed by fifteen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-021/2021 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-670 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Fire Assay Method and determination by Gravimetric Method.
- **c:** Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **d**: Fire Assay Method and determination by Atomic Emission Spectrometry – ICP-OES.
- **e**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **November 01, 2031**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.



Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Certificate of Analysis 0947

Date: 09-08-2022
Version: 01

CRM ITAK-683

Certified Reference Material – Gold Ore

Table 1 – ITAK-683 – Certified Values

Element/Unit	Certified Value [1]	s [2]	s_r [3]	s_L [4]	U [5]
Au (g/t) [a, b, c, d]	0.758	0.058	0.032	0.048	± 0.013

[1] The Certified Value was calculated according to ISO Guide 35 and ISO 5725-2.
[2] The standard deviation for proficiency assessment was calculated according to ISO 13528 and 5725-2. This standard deviation can be used for control charts for individual analysis (*n=1)*.
[3] The within-laboratory standard deviation was calculated according to ISO 5725-2.
[4] The between-laboratory standard deviation was calculated according to ISO 5725-2.
[5] The extended standard uncertainty of the mean (α=5%) was calculated according to ISO Guide 35.
Note: The letters in front of the elements are codes for Analytical Methods used.

Table 2 – ITAK-683 – Informative Values

Element/Unit	Reference Value [6]
S (%) [e]	0.19

[6] This value is informative.

DESCRIPTION

ITAK-683 was prepared from a sample of Gold Ore donated by a Gold Mining Company from the South of Brazil in 2022.

This Certified Reference Material (CRM) is presented as a fine powder.

INTENDED USE AND INSTRUCTIONS

ITAK-683 provides an important control in analytical data from exploration and can be used as a tool for grade control in routine mining and laboratory operations.

This Certified Reference Material can be used for calibration of analytical equipment, assess and develop new methods, validation of analytical methods, and arbitration – proficiency testing for example.

The bottles/sachets content should be thoroughly mixed before taking samples of ITAK-683.

The Certified Reference Material should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Certified Reference Material should be stored in a dry place and without contact with excessive heat or moisture.

CERTIFICATION AND STATISTICAL EVALUATION OF ANALYTICAL DATA

ITAK-683 was analyzed by seventeen specialized laboratories. The statistical evaluation was carried out according to ISO GUIDE 35 and ISO 5725-2, using: identification and treatment of outliers, stragglers and technically invalid data, certified value calculation, standard deviation calculation, and extended standard uncertainty calculation.

The Technical Report: RT-043/2022 STD contains full details of all phases of manufacturing, certifying results, participating laboratories, and the statistical evaluation.
Note: This report is available on the ITAK database for CRM users.

ANALYTICAL METHODS

The methods used on the certification of CRM ITAK-683 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry - AAS.
- **b**: Fire Assay Method and determination by Gravimetric Method.
- **c:** Fire Assay Method and determination by Atomic Emission Spectrometry - ICP.
- **d:** Acid Decomposition and organic extraction (DIBK) and determination by Atomic Absorption Spectrometry.
- **e**: Infra Red Analyzer - Leco.

PERIOD OF VALIDITY

This CRM certification is valid until: **September 08th, 2032**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.



Bráulio de Freitas Pessoa
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CERTIFICATE OF ANALYSIS FOR

PORPHYRY COPPER-GOLD-MOLYBDENUM ORE

(Cadia Valley, New South Wales, Australia)

CERTIFIED REFERENCE MATERIAL

OREAS 504c

Summary Statistics for Key Analytes.

Constituent	Certified Value	1SD	95% Confidence Limits		95% Tolerance Limits	
			Low	High	Low	High
Pb Fire Assay						
Au, Gold (ppm)	1.48	0.045	1.47	1.50	1.47*	1.49*
Aqua Regia Digestion (sample weights 10-50g)						
Au, Gold (ppm)	1.46	0.058	1.43	1.50	1.46*	1.47*
4-Acid Digestion						
Ag, Silver (ppm)	4.22	0.288	4.10	4.34	4.09	4.35
Cu, Copper (wt.%)	1.11	0.030	1.10	1.12	1.09	1.13
Mo, Molybdenum (ppm)	512	13	507	518	506	519

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

*Gold Tolerance Limits for typical 30g fire assay and 25g aqua regia digestion methods are determined from 20 x 85mg INAA results and the Sampling Constant (Ingamells & Switzer, 1973).

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

TABLE OF CONTENTS

INTRODUCTION 7
SOURCE MATERIAL 7
COMMINUTION AND HOMOGENISATION PROCEDURES 8
PHYSICAL PROPERTIES 8
ANALYTICAL PROGRAM 9
STATISTICAL ANALYSIS 10
Homogeneity Evaluation 11
Performance Gates 13
PARTICIPATING LABORATORIES 17
PREPARER AND SUPPLIER 23
METROLOGICAL TRACEABILITY 23
COMMUTABILITY 23
INTENDED USE 24
STABILITY AND STORAGE INSTRUCTIONS 24
INSTRUCTIONS FOR CORRECT USE 24
HANDLING INSTRUCTIONS 24
LEGAL NOTICE 24
DOCUMENT HISTORY 24
QMS ACCREDITED 25
CERTIFYING OFFICER 25
REFERENCES 25

LIST OF TABLES

Table 1. Certified Values, SDs, 95% Confidence & Tolerance Limits for OREAS 504c 3
Table 2. Indicative Values for OREAS 504c. 6
Table 3. Physical properties of OREAS 504c. 8
Table 4. Neutron Activation Analysis of Au (in ppm) on 20 x 85mg subsamples. 12
Table 5. Performance Gates for OREAS 504c. 13

LIST OF FIGURES

Figure 1. Au (ppm) by Pb Fire Assay in OREAS 504c 18
Figure 2. Au (ppm) by Aqua Regia digestion in OREAS 504c 19
Figure 3. Ag (ppm) by 4-acid digestion in OREAS 504c 20
Figure 4. Cu (wt.%) by 4-acid digestion in OREAS 504c 21
Figure 5. Mo (ppm) by 4-acid digestion in OREAS 504c 22

Table 1. Certified Values, SDs, 95% Confidence & Tolerance Limits for OREAS 504c.

Constituent	Certified Value	SD	95% Confidence Limits		95% Tolerance Limits	
			Low	High	Low	High
Pb Fire Assay						
Au, Gold (ppm)	1.48	0.045	1.47	1.50	1.47*	1.49*
Aqua Regia Digestion (sample weights 10-50g)						
Au, Gold (ppm)	1.46	0.058	1.43	1.50	1.46*	1.47*
4-Acid Digestion						
Ag, Silver (ppm)	4.22	0.288	4.10	4.34	4.09	4.35
Al, Aluminium (wt.%)	7.07	0.220	6.99	7.15	6.92	7.22
As, Arsenic (ppm)	34.9	2.92	33.9	35.9	33.1	36.7
Ba, Barium (ppm)	850	25	840	860	831	870
Be, Beryllium (ppm)	2.31	0.196	2.22	2.40	2.17	2.45
Bi, Bismuth (ppm)	2.26	0.106	2.20	2.31	2.17	2.34
Ca, Calcium (wt.%)	2.52	0.112	2.47	2.56	2.46	2.57
Ce, Cerium (ppm)	49.8	4.55	47.7	51.9	48.0	51.5
Co, Cobalt (ppm)	16.2	0.94	15.7	16.6	15.6	16.7
Cr, Chromium (ppm)	58	5.1	56	60	56	60
Cs, Cesium (ppm)	8.16	0.351	7.99	8.34	7.94	8.39
Cu, Copper (wt.%)	1.11	0.030	1.10	1.12	1.09	1.13
Dy, Dysprosium (ppm)	3.76	0.146	3.68	3.84	3.63	3.89
Er, Erbium (ppm)	2.11	0.144	1.99	2.23	2.00	2.22
Eu, Europium (ppm)	1.03	0.13	0.91	1.15	IND	IND
Fe, Iron (wt.%)	6.08	0.191	6.01	6.16	5.98	6.18
Ga, Gallium (ppm)	17.2	0.88	16.8	17.6	16.7	17.7
Gd, Gadolinium (ppm)	4.14	0.200	3.99	4.30	3.92	4.37
Hf, Hafnium (ppm)	2.21	0.156	2.14	2.27	2.10	2.31
Ho, Holmium (ppm)	0.75	0.050	0.71	0.79	0.73	0.78
In, Indium (ppm)	0.24	0.016	0.24	0.25	0.23	0.26
K, Potassium (wt.%)	3.16	0.106	3.12	3.20	3.09	3.22
La, Lanthanum (ppm)	25.5	1.39	24.9	26.1	24.5	26.5
Li, Lithium (ppm)	25.9	1.42	25.3	26.6	25.1	26.7
Lu, Lutetium (ppm)	0.30	0.016	0.28	0.31	0.28	0.32
Mg, Magnesium (wt.%)	1.43	0.054	1.41	1.45	1.40	1.45
Mn, Manganese (wt.%)	0.051	0.002	0.050	0.051	0.049	0.052
Mo, Molybdenum (ppm)	512	13	507	518	506	519
Na, Sodium (wt.%)	2.04	0.053	2.02	2.06	2.01	2.08
Nb, Niobium (ppm)	14.2	0.60	13.9	14.5	13.8	14.6
Nd, Neodymium (ppm)	22.4	1.19	21.7	23.0	21.3	23.4

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

*Gold Tolerance Limits for typical 30g fire assay and 25g aqua regia digestion methods are determined from 20 x 85mg INAA results and the Sampling Constant (Ingamells & Switzer, 1973).

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 1 continued.

Constituent	Certified Value	SD	95% Confidence Limits		95% Tolerance Limits	
			Low	High	Low	High
4-Acid Digestion continued						
Ni, Nickel (ppm)	43.2	2.40	42.3	44.2	41.9	44.5
P, Phosphorus (wt.%)	0.094	0.003	0.093	0.096	0.092	0.097
Pb, Lead (ppm)	60	3.1	59	61	58	61
Pr, Praseodymium (ppm)	5.96	0.487	5.55	6.37	5.68	6.24
Rb, Rubidium (ppm)	142	5	140	144	137	147
Re, Rhenium (ppb)	353	25	340	366	341	365
S, Sulphur (wt.%)	1.11	0.036	1.10	1.13	1.09	1.14
Sb, Antimony (ppm)	1.62	0.088	1.57	1.66	1.55	1.68
Sc, Scandium (ppm)	12.6	0.67	12.3	12.9	12.3	13.0
Se, Selenium (ppm)	7.39	0.99	7.12	7.67	6.80	7.99
Sm, Samarium (ppm)	4.50	0.259	4.33	4.67	4.25	4.76
Sn, Tin (ppm)	5.42	0.215	5.33	5.52	5.22	5.62
Sr, Strontium (ppm)	360	16	353	366	351	368
Ta, Tantalum (ppm)	1.06	0.066	1.02	1.11	1.01	1.11
Tb, Terbium (ppm)	0.64	0.013	0.63	0.65	0.62	0.67
Te, Tellurium (ppm)	0.47	0.05	0.44	0.50	0.44	0.50
Th, Thorium (ppm)	12.6	0.67	12.3	12.9	12.0	13.3
Ti, Titanium (wt.%)	0.403	0.015	0.397	0.409	0.393	0.413
Tl, Thallium (ppm)	0.70	0.028	0.69	0.71	0.67	0.73
Tm, Thulium (ppm)	0.31	0.020	0.29	0.33	IND	IND
U, Uranium (ppm)	3.64	0.173	3.58	3.69	3.46	3.81
V, Vanadium (ppm)	122	6	120	125	120	125
W, Tungsten (ppm)	2.95	0.219	2.88	3.02	2.74	3.16
Y, Yttrium (ppm)	20.3	0.77	20.0	20.6	19.7	20.9
Yb, Ytterbium (ppm)	2.00	0.170	1.89	2.12	1.90	2.11
Zn, Zinc (ppm)	106	4	104	108	103	109
Zr, Zirconium (ppm)	72	5.5	69	74	69	74
Aqua Regia Digestion						
Ag, Silver (ppm)	4.19	0.306	4.06	4.32	4.09	4.29
Al, Aluminium (wt.%)	1.86	0.053	1.84	1.89	1.83	1.89
As, Arsenic (ppm)	34.5	2.57	33.6	35.4	33.1	35.9
Ba, Barium (ppm)	271	21	261	280	263	278
Be, Beryllium (ppm)	0.53	0.07	0.48	0.58	0.51	0.55
Bi, Bismuth (ppm)	2.28	0.148	2.21	2.35	2.20	2.36
Ca, Calcium (wt.%)	1.31	0.075	1.28	1.34	1.28	1.34
Ce, Cerium (ppm)	44.1	3.75	42.3	45.9	42.8	45.4

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 1 continued.

Constituent	Certified Value	SD	95% Confidence Limits		95% Tolerance Limits	
			Low	High	Low	High
Aqua Regia Digestion continued						
Co, Cobalt (ppm)	14.9	0.87	14.5	15.3	14.5	15.4
Cr, Chromium (ppm)	56	4.0	55	58	54	58
Cs, Cesium (ppm)	6.93	0.392	6.73	7.13	6.75	7.11
Cu, Copper (wt.%)	1.10	0.019	1.09	1.11	1.08	1.12
Dy, Dysprosium (ppm)	2.67	0.133	2.55	2.79	2.60	2.73
Er, Erbium (ppm)	1.48	0.043	1.44	1.52	1.44	1.52
Eu, Europium (ppm)	0.41	0.07	0.35	0.48	0.40	0.43
Fe, Iron (wt.%)	5.75	0.261	5.64	5.85	5.66	5.83
Ga, Gallium (ppm)	8.42	0.579	8.10	8.73	8.02	8.82
Gd, Gadolinium (ppm)	3.10	0.301	2.85	3.36	2.98	3.23
Ge, Germanium (ppm)	0.16	0.03	0.13	0.20	IND	IND
Hf, Hafnium (ppm)	0.47	0.031	0.45	0.48	0.44	0.50
Hg, Mercury (ppm)	0.064	0.011	0.058	0.070	IND	IND
Ho, Holmium (ppm)	0.48	0.043	0.45	0.52	0.46	0.50
In, Indium (ppm)	0.22	0.009	0.22	0.22	0.21	0.23
K, Potassium (wt.%)	0.809	0.032	0.796	0.823	0.795	0.823
La, Lanthanum (ppm)	22.0	1.83	21.3	22.8	21.3	22.7
Li, Lithium (ppm)	23.6	2.8	22.4	24.9	23.0	24.3
Lu, Lutetium (ppm)	0.18	0.013	0.18	0.19	0.18	0.19
Mg, Magnesium (wt.%)	1.15	0.034	1.13	1.16	1.13	1.17
Mn, Manganese (wt.%)	0.038	0.001	0.037	0.039	0.037	0.039
Mo, Molybdenum (ppm)	505	18	498	512	497	513
Na, Sodium (wt.%)	0.184	0.020	0.174	0.193	0.177	0.190
Nb, Niobium (ppm)	1.07	0.20	0.95	1.19	0.96	1.18
Nd, Neodymium (ppm)	19.0	0.57	18.5	19.4	18.3	19.6
Ni, Nickel (ppm)	41.3	1.55	40.7	41.9	40.2	42.5
P, Phosphorus (wt.%)	0.091	0.004	0.089	0.093	0.089	0.094
Pb, Lead (ppm)	51	1.7	50	51	49	53
Pr, Praseodymium (ppm)	5.06	0.155	4.94	5.18	4.94	5.18
Rb, Rubidium (ppm)	87	4.1	85	89	85	89
Re, Rhenium (ppb)	351	27	335	367	337	364
S, Sulphur (wt.%)	1.10	0.059	1.08	1.12	1.08	1.12
Sb, Antimony (ppm)	1.02	0.12	0.96	1.08	0.97	1.08
Sc, Scandium (ppm)	7.12	0.559	6.84	7.40	6.85	7.39
Se, Selenium (ppm)	7.00	0.91	6.57	7.43	6.54	7.46
Sm, Samarium (ppm)	3.49	0.200	3.33	3.64	3.33	3.65

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 1 continued.

Constituent	Certified Value	SD	95% Confidence Limits		95% Tolerance Limits	
			Low	High	Low	High
Aqua Regia Digestion continued						
Sn, Tin (ppm)	4.54	0.257	4.40	4.68	4.38	4.70
Sr, Strontium (ppm)	92	10	88	97	90	95
Tb, Terbium (ppm)	0.46	0.038	0.43	0.48	0.44	0.47
Te, Tellurium (ppm)	0.45	0.033	0.43	0.46	0.41	0.48
Th, Thorium (ppm)	12.3	0.65	12.0	12.6	11.9	12.7
Ti, Titanium (wt.%)	0.267	0.014	0.261	0.274	0.261	0.273
Tl, Thallium (ppm)	0.47	0.05	0.45	0.49	0.45	0.49
Tm, Thulium (ppm)	0.20	0.007	0.19	0.20	IND	IND
U, Uranium (ppm)	3.32	0.242	3.22	3.43	3.19	3.45
V, Vanadium (ppm)	108	5	105	110	106	109
W, Tungsten (ppm)	1.70	0.23	1.59	1.82	1.58	1.83
Y, Yttrium (ppm)	14.2	0.93	13.7	14.6	13.8	14.6
Yb, Ytterbium (ppm)	1.26	0.060	1.21	1.31	1.21	1.31
Zn, Zinc (ppm)	95	6.3	93	98	93	97
Zr, Zirconium (ppm)	12.1	1.10	11.5	12.7	11.7	12.5

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 2. Indicative Values for OREAS 504c.

Constituent	Unit	Value	Constituent	Unit	Value	Constituent	Unit	Value
Pb Fire Assay								
Pd	ppb	*125*	Pt	ppb	*11.7*			
4-Acid Digestion								
Cd	ppm	*0.30*	Ge	ppm	*0.24*	Hg	ppm	*< 2*
Aqua Regia Digestion								
B	ppm	*6.21*	Pd	ppb	*132*	Si	wt.%	*0.119*
Cd	ppm	*0.24*	Pt	ppb	*20.9*	Ta	ppm	*0.025*
B	ppm	*6.21*	Pd	ppb	*132*	Si	wt.%	*0.119*
Borate Fusion XRF								
Al_2O_3	wt.%	*13.67*	MgO	wt.%	*2.44*	SiO_2	wt.%	*60.22*
CaO	wt.%	*3.42*	MnO	wt.%	*0.070*	SO_3	wt.%	*2.71*
Fe_2O_3	wt.%	*8.81*	Na_2O	wt.%	*2.75*	TiO_2	wt.%	*0.680*
K_2O	wt.%	*3.85*	P_2O_5	wt.%	*0.215*			
Thermogravimetry								
LOI^{1000}	wt.%	*1.91*						
Infrared Combustion								
C	wt.%	*0.258*	S	wt.%	*1.07*			

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note: the number of significant figures reported is not a reflection of the level of certainty of stated values. They are instead an artefact of ORE's in-house CRM-specific LIMS.

Table 2 continued.

Constituent	Unit	Value	Constituent	Unit	Value	Constituent	Unit	Value
Laser Ablation ICP-MS								
Ag	ppm	*4.70*	Hf	ppm	*5.19*	Sm	ppm	*4.72*
As	ppm	*35.9*	Ho	ppm	*0.77*	Sn	ppm	*5.80*
Ba	ppm	*844*	In	ppm	*0.25*	Sr	ppm	*349*
Be	ppm	*2.70*	La	ppm	*26.2*	Ta	ppm	*1.08*
Bi	ppm	*2.45*	Lu	ppm	*0.33*	Tb	ppm	*0.63*
Cd	ppm	*0.25*	Mn	wt.%	*0.051*	Te	ppm	*0.50*
Ce	ppm	*51*	Mo	ppm	*507*	Th	ppm	*12.6*
Co	ppm	*18.0*	Nb	ppm	*14.4*	Ti	wt.%	*0.417*
Cr	ppm	*67*	Nd	ppm	*22.9*	Tl	ppm	*0.80*
Cs	ppm	*8.45*	Ni	ppm	*48.0*	Tm	ppm	*0.33*
Cu	wt.%	*1.11*	Pb	ppm	*63*	U	ppm	*4.01*
Dy	ppm	*3.75*	Pr	ppm	*6.03*	V	ppm	*126*
Er	ppm	*2.21*	Rb	ppm	*147*	W	ppm	*3.00*
Eu	ppm	*1.06*	Re	ppb	*470*	Y	ppm	*20.7*
Ga	ppm	*16.8*	Sb	ppm	*1.80*	Yb	ppm	*2.16*
Gd	ppm	*4.03*	Sc	ppm	*12.6*	Zn	ppm	*105*
Ge	ppm	*1.45*	Se	ppm	*< 5*	Zr	ppm	*189*

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note: the number of significant figures reported is not a reflection of the level of certainty of stated values. They are instead an artefact of ORE's in-house CRM-specific LIMS.

INTRODUCTION

OREAS reference materials are intended to provide a low cost method of evaluating and improving the quality of analysis of geological samples. To the geologist they provide a means of implementing quality control in analytical data sets generated in exploration from the grass roots level through to prospect evaluation, and in grade control at mining operations. To the analyst they provide an effective means of calibrating analytical equipment, assessing new techniques and routinely monitoring in-house procedures.

OREAS reference materials enable users to successfully achieve process control of these tasks because the observed variance from repeated analysis has its origin almost exclusively in the analytical process rather than the reference material itself.

SOURCE MATERIAL

OREAS 504c was prepared from a blend of porphyry copper-gold ore, barren granodiorite and a minor quantity of Cu-Mo concentrate. The ore was sourced from the Ridgeway underground mine located in the Cadia Valley Operations (CVO) situated in central western New South Wales, Australia. The barren I-type hornblende-bearing granodiorite was sourced from the Late Devonian Lysterfield granodiorite complex located in eastern Melbourne, Australia.

Mineralisation in the CVO region is hosted by a sequence of late Ordovician to Early Silurian volcanics, intrusives and sediments that occur within the Bogan Gate Synclinorial Zone of the Lachlan Fold Belt. The western portion of this zone is dominated by volcanics

and host to the Late Ordovician Goonumbla porphyry copper-gold deposits. These volcanics are interpreted to have erupted from shallow water to partly emergent volcanic centres and show a broad range in composition from shoshonite through to latite to trachyte. Coeval sub-volcanic quartz monzonite porphyries (and attendant mineralisation) have intruded the volcanics. They are generally small, sub-vertical, pipe-like intrusives. Typically the mineralised porphyries contain plagioclase and quartz phenocrysts in a matrix of fine-grained potassium feldspar and quartz with minor biotite and hornblende.

Copper-gold mineralisation occurs as stockwork quartz veins and disseminations associated with potassic alteration. This alteration is intimately associated spatially and temporally with the small finger-like quartz monzonite porphyries that intrude the Goonumbla Volcanics. Sulphides are zoned laterally from the centres of mineralisation. The central portions are bornite-rich with minor chalcopyrite, zoning outward through equal concentrations of bornite and chalcopyrite, to an outermost chalcopyrite-rich zone. Pyrite increases outward at the expense of bornite.

COMMINUTION AND HOMOGENISATION PROCEDURES

The material constituting OREAS 504c was prepared in the following manner:

- Drying of ore and barren granodiorite to constant mass at 105°C;
- Drying of Cu-Mo concentrate to constant mass at 85°C;
- Multi-stage milling of ore and concentrate to 100% minus 30 microns;
- Milling of barren granodiorite to 98% minus 75 microns;
- Combining ores, granodiorite and concentrate in appropriate proportions to achieve target grades;
- Homogenisation;
- Packaging into 10 and 60g units in laminated foil pouches and 500g units in plastic jars.

PHYSICAL PROPERTIES

OREAS 504c was tested at ORE Research & Exploration Pty Ltd's onsite laboratory for various physical properties. Table 3 presents these findings which should be used for informational purposes only.

Table 3. Physical properties of OREAS 504c.

CRM Name	Bulk Density (g/L)	Moisture%	Munsell Notation‡	Munsell Color‡
OREAS 504c	635	0.52	N6	Medium Light Gray

‡The Munsell Rock Color Chart helps geologists and archeologists communicate with color more effectively by cross-referencing ISCC-NBS color names with unique Munsell alpha-numeric color notations for rock color samples.

ANALYTICAL PROGRAM

Twenty seven commercial analytical laboratories participated in the program to certify the elements reported in Table 1. The following methods were employed:

- Gold via 15-50g fire assay with AAS finish (14 laboratories) and ICP-OES (12 laboratories) finish;
- Gold via 15-50g aqua regia digestion with ICP-MS finish (11 laboratories), AAS (4 laboratories) and ICP-OES (1 laboratory) finish;
- Aqua regia digestion for full elemental suite ICP-OES/MS and AAS finish (up to 26 laboratories depending on the element);
- 4-Acid digestion for full elemental suite ICP-OES/MS finish (up to 25 laboratories depending on the element);
- Gold by instrumental neutron activation analysis (INAA) on 20 x 85mg subsamples to confirm homogeneity (1 laboratory only: ANSTO, Lucas Heights, Australia);
- Major and trace elements determined by borate fusion XRF (Al_2O_3 to TiO_2), laser ablation with ICP-MS (Ag to Zr), LOI at 1000°C and C+S by infrared combustion furnace (1 laboratory only: Bureau Veritas Geoanalytical, Perth, Australia).

It is important to note that in the analytical industry there is no standardisation of the aqua regia digestion process. Aqua regia is a partial empirical digest and differences in recoveries for various analytes are commonplace. These are caused by variations in the digest conditions which can include the ratio of nitric to hydrochloric acids, acid strength, temperatures, leach times and secondary digestions. Recoveries for sulphide-hosted base metal sulphides approach total values, however, other analytes, in particular the lithophile elements, show greater sensitivity to method parameters. This can result in lack of consensus in an inter-laboratory certification program for these elements.

The approach applied here is to report certified values in those instances where reasonable agreement exists amongst a majority of participating laboratories. The results of specific laboratories may differ significantly from the certified values, but will, nonetheless, be valid and reproducible in the context of the specifics of the aqua regia method in use. Users of this reference material should, therefore, be mindful of this limitation when applying the certified values in a quality control program.

For the round robin program twenty 1kg test units were taken at predetermined intervals during the bagging stage, immediately following homogenisation and are considered representative of the entire prepared batch. Six 100g pulp samples were submitted to each laboratory for analysis received by each laboratory were obtained by taking two 100g samples from each of three separate 1kg test units. This format enabled nested ANOVA treatment of the results to evaluate homogeneity, i.e. to ascertain whether between-unit variance is greater than within-unit variance.

Table 1 presents the 119 certified values together with their associated 1SD's, 95% confidence and tolerance limits. Table 2 shows 76 indicative values for major and trace element composition and Table 3 provides indicative physical properties information. Gold homogeneity has been evaluated and confirmed by instrumental neutron activation analysis (INAA) on twenty ~85mg sample portions (see Table 4) and by a nested ANOVA program for both fire assay and aqua regia digestion (see '**nested ANOVA**' section).

Table 5 provides performance gate intervals for the certified values based on their pooled 1SDs. Tabulated results of all elements together with uncorrected means, medians, standard deviations, relative standard deviations and per cent deviation of lab means from the corrected mean of means (PDM^3) are presented in the detailed certification data for this CRM (**OREAS 504c DataPack-1.0.190408_165121.xlsx**).

Results are also presented in scatter plots for gold by fire assay, gold by aqua regia digestion, silver by 4-acid digestion, copper by 4-acid digestion and molybdenum by 4-acid digestion (Figures 1 to 5, respectively) together with ±3SD (magenta) and ±5% (yellow) control lines and certified value (green line). Accepted individual results are coloured blue and individual and dataset outliers are identified in red and violet, respectively.

STATISTICAL ANALYSIS

Certified Values, Confidence Limits, Standard Deviations and Tolerance Limits (Table 1) have been determined for each analyte following removal of individual, laboratory dataset (batch) and 3SD outliers (single iteration).

For individual outliers within a laboratory batch the z-score test is used in combination with a second method that determines the per cent deviation of the individual value from the batch median. Outliers in general are selected on the basis of z-scores > 2.5 and with per cent deviations (i) > 3 and (ii) more than three times the average absolute per cent deviation for the batch. In certain instances statistician's prerogative has been employed in discriminating outliers.

Each laboratory data set mean is tested for outlying status based on z-score discrimination and rejected if > 2.5. After individual and laboratory data set (batch) outliers have been eliminated a non-iterative 3 standard deviation filter is applied, with those values lying outside this window also relegated to outlying status.

Certified Values are the means of accepted laboratory means after outlier filtering. The INAA data (see Table 4) is omitted from determination of the certified value for Au and is used solely for the calculation of Tolerance Limits and homogeneity evaluation of OREAS 504c.

95% Confidence Limits are inversely proportional to the number of participating laboratories and inter-laboratory agreement. It is a measure of the reliability of the certified value. A 95% confidence interval indicates a 95% probability that the true value of the analyte under consideration lies between the upper and lower limits. *95% Confidence Limits should not be used as control limits for laboratory performance.*

Indicative (uncertified) values are provided in Table 2. Additional indicative values by other analytical methods are present where the number of laboratories reporting a particular analyte is insufficient (< 5) to support certification or where inter-laboratory consensus is poor.

Standard Deviation values (1SDs) are reported in Table 1. They provide an indication of a level of performance that might reasonably be expected from a laboratory being monitored by this CRM in a QA/QC program. They take into account errors attributable to measurement uncertainty and CRM variability. For an effective CRM the contribution of the latter should be negligible in comparison to measurement errors. The Standard Deviation

values include all sources of measurement uncertainty: between-lab variance, within-run variance (precision errors) and CRM variability.

The SD for each analyte's certified value is calculated from the same filtered data set used to determine the certified value, i.e. after removal of all individual, lab dataset (batch) and 3SD outliers (single iteration). These outliers can only be removed after the absolute homogeneity of the CRM has been independently established, i.e. the outliers must be confidently deemed to be analytical rather than arising from inhomogeneity of the CRM. **The standard deviation is then calculated for each analyte from the pooled accepted analyses generated from the certification program.**

In the application of SD's in monitoring performance it is important to note that not all laboratories function at the same level of proficiency and that different methods in use at a particular laboratory have differing levels of precision. Each laboratory has its own inherent SD (for a specific concentration level and analyte-method pair) based on the analytical process and this SD is not directly related to the round robin program.

The majority of data generated in the round robin program was produced by a selection of world class laboratories. The SD's thus generated are more constrained than those that would be produced across a randomly selected group of laboratories. To produce more generally achievable SD's the 'pooled' SD's provided in this report include inter-lab bias. This 'one size fits all' approach may require revision at the discretion of the QC manager concerned following careful scrutiny of QC control charts.

Homogeneity Evaluation

The tolerance limits (ISO 16269:2014) shown in Table 1 were determined using an analysis of precision errors method and are considered a conservative estimate of true homogeneity. The meaning of tolerance limits may be illustrated for copper by 4-acid digestion, where 99% of the time (1-α=0.99) at least 95% of subsamples (ρ=0.95) will have concentrations lying between 1.09 and 1.13 wt.%. Put more precisely, this means that if the same number of subsamples were taken and analysed in the same manner repeatedly, 99% of the tolerance intervals so constructed would cover at least 95% of the total population, and 1% of the tolerance intervals would cover less than 95% of the total population (ISO Guide 35). ***Please note that tolerance limits pertain to the homogeneity of the CRM only and should not be used as control limits for laboratory performance.***

Table 4 below shows the INAA data determined on 20 x 85mg subsamples of OREAS 504c. An equivalent scaled version of the results is also provided to demonstrate an appreciation of what this data means if 30g fire assay determinations were undertaken without the normal measurement error associated with this methodology.

The homogeneity of gold has been determined by INAA using the reduced analytical subsample method which utilises the known relationship between standard deviation and analytical subsample weight (Ingamells and Switzer, 1973). In this approach the sample aliquot is substantially reduced to a point where most of the variability in replicate assays should be due to inhomogeneity of the reference material and measurement error becomes negligible. In this instance a subsample weight of 85 milligrams was employed and the 1RSD of 0.191% was calculated for a 30g fire assay or aqua regia sample (3.58% at 85mg weights). These confirm the high level of gold homogeneity in OREAS 504c.

Table 4. Neutron Activation Analysis of Au (in ppm) on 20 x 85mg subsamples showing the equivalent results scaled to a typical fire assay (30g sample mass) method.

Replicate No	Au 85mg actual	Au 30g equivalent*
1	1.412	1.514
2	1.531	1.520
3	1.584	1.523
4	1.609	1.525
5	1.500	1.519
6	1.464	1.517
7	1.499	1.519
8	1.528	1.520
9	1.474	1.517
10	1.533	1.521
11	1.466	1.517
12	1.451	1.516
13	1.607	1.524
14	1.478	1.518
15	1.587	1.523
16	1.569	1.522
17	1.507	1.519
18	1.509	1.519
19	1.564	1.522
20	1.524	1.520
Mean	1.520	1.520
Median	1.516	1.520
Std Dev.	0.054	0.003
Rel.Std.Dev.	**3.58%**	**0.191%**

*Results calculated for a 30g equivalent sample mass using the formula: $x^{30g\ Eq} = \frac{(x^{INAA} - \bar{X}) \times RSD@30g}{RSD@85mg} + \bar{X}$

where $x^{30g\ Eq}$ = equivalent result calculated for a 30g sample mass
(x^{INAA}) = raw INAA result at 85mg
$\bar{X}$ = mean of 85mg INAA results

The homogeneity of OREAS 504c has also been evaluated in a **nested ANOVA** of the round robin program. Each of the twenty-five round robin laboratories received six samples per CRM and these samples were made up of paired samples from three different, non-adjacent sampling intervals. The purpose of the ANOVA evaluation is to test that no statistically significant difference exists in the variance between-units to that of the variance within-units. This allows an assessment of homogeneity across the entire prepared batch of OREAS 504c. The test was performed using the following parameters:

- Gold fire assay – 156 samples (26 laboratories each providing analyses on 3 pairs of samples);
- Gold aqua regia digestion – 102 samples (17 laboratories each providing analyses on 3 pairs of samples);
- Null Hypothesis, H_0: Between-unit variance is no greater than within-unit variance (reject H_0 if *p*-value < 0.05);
- Alternative Hypothesis, H_1: Between-unit variance is greater than within-unit variance.

P-values are a measure of probability where values less than 0.05 indicate a greater than 95% probability that the observed differences in within-unit and between-unit variances are real. The datasets were filtered for both individual and laboratory data set (batch) outliers prior to the calculation of *p*-values. This process derived *p*-values of 1.000 for Au by fire assay and 0.737 for Au by aqua regia digestion. Both *p*-values are insignificant and the Null Hypothesis is retained. Additionally, none of the other certified values showed significant p-values. Please note that only results for constituents present in concentrations well above the detection levels (i.e. >20 x Lower Limit of Detection) for the various methods undertaken were considered for the objective of evaluating homogeneity

It is important to note that ANOVA is not an absolute measure of homogeneity. Rather, it establishes whether or not the analytes are distributed in a similar manner throughout the packaging run of OREAS 504c and whether the variance between two subsamples from the same unit is statistically distinguishable to the variance from two subsamples taken from any two separate units. A reference material therefore, can possess poor absolute homogeneity yet still pass a relative homogeneity test if the within-unit heterogeneity is large and similar across all units.

Based on the statistical analysis of the results of the inter-laboratory certification program it can be concluded that OREAS 504c is fit-for-purpose as a certified reference material (see 'Intended Use' below).

Performance Gates

Table 5 shows calculated for two and three standard deviations. As a guide these intervals may be regarded as warning or rejection for multiple 2SD outliers, or rejection for individual 3SD outliers in QC monitoring, although their precise application should be at the discretion of the QC manager concerned. A second method utilises a 5% window calculated directly from the certified value.

Standard deviation is also shown in relative percent for one, two and three relative standard deviations (1RSD, 2RSD and 3RSD) to facilitate an appreciation of the magnitude of these numbers and a comparison with the 5% window. Caution should be exercised when concentration levels approach lower limits of detection of the analytical methods employed as performance gates calculated from standard deviations tend to be excessively wide whereas those determined by the 5% method are too narrow. One approach used at commercial laboratories is to set the acceptance criteria at twice the detection level (DL) ± 10%.

i.e. Certified Value ± 10% ± 2DL (adapted from Govett, 1983)

Table 5. Performance Gates for OREAS 504c.

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Pb Fire Assay											
Au, ppm	1.48	0.045	1.39	1.57	1.35	1.62	3.04%	6.09%	9.13%	1.41	1.56
Aqua Regia Digestion (sample weights 10-50g)											
Au, ppm	1.46	0.058	1.35	1.58	1.29	1.64	3.97%	7.93%	11.90%	1.39	1.54

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 5 continued.

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
4-Acid Digestion											
Ag, ppm	4.22	0.288	3.65	4.80	3.36	5.08	6.81%	13.63%	20.44%	4.01	4.43
Al, wt.%	7.07	0.220	6.63	7.51	6.41	7.73	3.11%	6.22%	9.33%	6.71	7.42
As, ppm	34.9	2.92	29.0	40.7	26.1	43.6	8.36%	16.73%	25.09%	33.1	36.6
Ba, ppm	850	25	801	899	777	924	2.89%	5.77%	8.66%	808	893
Be, ppm	2.31	0.196	1.92	2.71	1.73	2.90	8.48%	16.95%	25.43%	2.20	2.43
Bi, ppm	2.26	0.106	2.04	2.47	1.94	2.57	4.69%	9.38%	14.07%	2.14	2.37
Ca, wt.%	2.52	0.112	2.29	2.74	2.18	2.85	4.44%	8.88%	13.32%	2.39	2.64
Ce, ppm	49.8	4.55	40.7	58.9	36.2	63.4	9.13%	18.26%	27.39%	47.3	52.3
Co, ppm	16.2	0.94	14.3	18.1	13.4	19.0	5.81%	11.61%	17.42%	15.4	17.0
Cr, ppm	58	5.1	48	68	43	73	8.79%	17.58%	26.37%	55	61
Cs, ppm	8.16	0.351	7.46	8.87	7.11	9.22	4.30%	8.61%	12.91%	7.75	8.57
Cu, wt.%	1.11	0.030	1.05	1.17	1.02	1.20	2.68%	5.36%	8.03%	1.06	1.17
Dy, ppm	3.76	0.146	3.47	4.05	3.32	4.20	3.88%	7.76%	11.64%	3.57	3.95
Er, ppm	2.11	0.144	1.82	2.40	1.68	2.54	6.84%	13.69%	20.53%	2.00	2.21
Eu, ppm	1.03	0.13	0.77	1.29	0.64	1.42	12.68%	25.36%	38.04%	0.98	1.08
Fe, wt.%	6.08	0.191	5.70	6.47	5.51	6.66	3.15%	6.29%	9.44%	5.78	6.39
Ga, ppm	17.2	0.88	15.4	19.0	14.6	19.8	5.13%	10.26%	15.39%	16.3	18.1
Gd, ppm	4.14	0.200	3.75	4.54	3.55	4.74	4.82%	9.63%	14.45%	3.94	4.35
Hf, ppm	2.21	0.156	1.89	2.52	1.74	2.67	7.05%	14.11%	21.16%	2.10	2.32
Ho, ppm	0.75	0.050	0.65	0.85	0.60	0.90	6.64%	13.28%	19.92%	0.71	0.79
In, ppm	0.24	0.016	0.21	0.27	0.20	0.29	6.50%	13.01%	19.51%	0.23	0.25
K, wt.%	3.16	0.106	2.95	3.37	2.84	3.48	3.35%	6.69%	10.04%	3.00	3.32
La, ppm	25.5	1.39	22.7	28.3	21.3	29.7	5.46%	10.92%	16.38%	24.2	26.8
Li, ppm	25.9	1.42	23.1	28.8	21.7	30.2	5.48%	10.96%	16.44%	24.6	27.2
Lu, ppm	0.30	0.016	0.27	0.33	0.25	0.34	5.22%	10.44%	15.66%	0.28	0.31
Mg, wt.%	1.43	0.054	1.32	1.54	1.26	1.59	3.80%	7.60%	11.40%	1.36	1.50
Mn, wt.%	0.051	0.002	0.047	0.054	0.045	0.056	3.63%	7.25%	10.88%	0.048	0.053
Mo, ppm	512	13	485	539	472	552	2.62%	5.24%	7.87%	486	538
Na, wt.%	2.04	0.053	1.94	2.15	1.88	2.20	2.59%	5.18%	7.77%	1.94	2.14
Nb, ppm	14.2	0.60	13.0	15.4	12.4	16.0	4.23%	8.46%	12.68%	13.5	14.9
Nd, ppm	22.4	1.19	20.0	24.7	18.8	25.9	5.34%	10.67%	16.01%	21.2	23.5
Ni, ppm	43.2	2.40	38.4	48.0	36.0	50.4	5.54%	11.09%	16.63%	41.1	45.4
P, wt.%	0.094	0.003	0.088	0.101	0.084	0.105	3.65%	7.30%	10.95%	0.090	0.099
Pb, ppm	60	3.1	54	66	51	69	5.15%	10.30%	15.45%	57	63
Pr, ppm	5.96	0.487	4.99	6.93	4.50	7.42	8.17%	16.34%	24.50%	5.66	6.26
Rb, ppm	142	5	132	152	127	157	3.54%	7.08%	10.61%	135	149
Re, ppb	353	25	303	402	279	427	7.01%	14.02%	21.03%	335	371
S, wt.%	1.11	0.036	1.04	1.19	1.01	1.22	3.21%	6.42%	9.63%	1.06	1.17
Sb, ppm	1.62	0.088	1.44	1.79	1.35	1.88	5.43%	10.86%	16.29%	1.53	1.70
Sc, ppm	12.6	0.67	11.3	14.0	10.6	14.6	5.29%	10.59%	15.88%	12.0	13.3

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 5 continued.

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
4-Acid Digestion continued											
Se, ppm	7.39	0.99	5.42	9.36	4.44	10.35	13.33%	26.66%	39.98%	7.02	7.76
Sm, ppm	4.50	0.259	3.99	5.02	3.73	5.28	5.75%	11.49%	17.24%	4.28	4.73
Sn, ppm	5.42	0.215	4.99	5.85	4.78	6.07	3.96%	7.92%	11.87%	5.15	5.69
Sr, ppm	360	16	328	392	312	408	4.47%	8.94%	13.41%	342	378
Ta, ppm	1.06	0.066	0.93	1.20	0.87	1.26	6.19%	12.39%	18.58%	1.01	1.12
Tb, ppm	0.64	0.013	0.62	0.67	0.60	0.68	2.05%	4.10%	6.16%	0.61	0.68
Te, ppm	0.47	0.05	0.37	0.57	0.32	0.62	10.47%	20.94%	31.41%	0.45	0.50
Th, ppm	12.6	0.67	11.3	14.0	10.6	14.6	5.33%	10.65%	15.98%	12.0	13.3
Ti, wt.%	0.403	0.015	0.374	0.432	0.359	0.447	3.61%	7.23%	10.84%	0.383	0.423
Tl, ppm	0.70	0.028	0.65	0.76	0.62	0.78	3.93%	7.87%	11.80%	0.67	0.74
Tm, ppm	0.31	0.020	0.27	0.35	0.25	0.37	6.58%	13.16%	19.74%	0.29	0.32
U, ppm	3.64	0.173	3.29	3.98	3.12	4.16	4.76%	9.53%	14.29%	3.46	3.82
V, ppm	122	6	111	133	106	139	4.50%	9.01%	13.51%	116	128
W, ppm	2.95	0.219	2.51	3.39	2.29	3.61	7.43%	14.86%	22.30%	2.80	3.10
Y, ppm	20.3	0.77	18.8	21.9	18.0	22.6	3.80%	7.59%	11.39%	19.3	21.3
Yb, ppm	2.00	0.170	1.66	2.34	1.49	2.51	8.49%	16.98%	25.47%	1.90	2.10
Zn, ppm	106	4	97	115	93	119	4.07%	8.14%	12.20%	101	111
Zr, ppm	72	5.5	61	83	55	88	7.60%	15.19%	22.79%	68	75
Aqua Regia Digestion											
Ag, ppm	4.19	0.306	3.58	4.80	3.27	5.11	7.31%	14.62%	21.93%	3.98	4.40
Al, wt.%	1.86	0.053	1.76	1.97	1.71	2.02	2.83%	5.65%	8.48%	1.77	1.96
As, ppm	34.5	2.57	29.4	39.6	26.8	42.2	7.45%	14.91%	22.36%	32.8	36.2
Ba, ppm	271	21	229	312	209	332	7.63%	15.27%	22.90%	257	284
Be, ppm	0.53	0.07	0.39	0.67	0.32	0.74	13.29%	26.58%	39.87%	0.51	0.56
Bi, ppm	2.28	0.148	1.98	2.58	1.83	2.72	6.51%	13.02%	19.53%	2.17	2.39
Ca, wt.%	1.31	0.075	1.16	1.46	1.08	1.53	5.72%	11.44%	17.16%	1.24	1.37
Ce, ppm	44.1	3.75	36.6	51.6	32.8	55.4	8.51%	17.01%	25.52%	41.9	46.3
Co, ppm	14.9	0.87	13.2	16.7	12.3	17.5	5.83%	11.66%	17.48%	14.2	15.7
Cr, ppm	56	4.0	48	64	44	68	7.06%	14.13%	21.19%	53	59
Cs, ppm	6.93	0.392	6.15	7.71	5.75	8.11	5.66%	11.31%	16.97%	6.58	7.28
Cu, wt.%	1.10	0.019	1.06	1.14	1.04	1.16	1.75%	3.50%	5.25%	1.05	1.16
Dy, ppm	2.67	0.133	2.40	2.93	2.27	3.06	4.99%	9.97%	14.96%	2.53	2.80
Er, ppm	1.48	0.043	1.39	1.57	1.35	1.61	2.93%	5.87%	8.80%	1.41	1.55
Eu, ppm	0.41	0.07	0.28	0.55	0.21	0.61	16.13%	32.25%	48.38%	0.39	0.43
Fe, wt.%	5.75	0.261	5.22	6.27	4.96	6.53	4.55%	9.10%	13.65%	5.46	6.03
Ga, ppm	8.42	0.579	7.26	9.58	6.68	10.16	6.88%	13.76%	20.65%	8.00	8.84
Gd, ppm	3.10	0.301	2.50	3.70	2.20	4.01	9.69%	19.37%	29.06%	2.95	3.26
Ge, ppm	0.16	0.03	0.10	0.23	0.07	0.26	18.48%	36.95%	55.43%	0.16	0.17
Hf, ppm	0.47	0.031	0.40	0.53	0.37	0.56	6.61%	13.22%	19.83%	0.44	0.49
Hg, ppm	0.064	0.011	0.042	0.086	0.030	0.097	17.41%	34.82%	52.22%	0.061	0.067

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

Note 1: intervals may appear asymmetric due to rounding.

Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

Table 5 continued.

Constituent	Certified Value	Absolute Standard Deviations					Relative Standard Deviations			5% window	
		1SD	2SD Low	2SD High	3SD Low	3SD High	1RSD	2RSD	3RSD	Low	High
Aqua Regia Digestion continued											
Ho, ppm	0.48	0.043	0.40	0.57	0.35	0.61	8.98%	17.97%	26.95%	0.46	0.51
In, ppm	0.22	0.009	0.20	0.24	0.19	0.25	3.98%	7.96%	11.94%	0.21	0.23
K, wt.%	0.809	0.032	0.745	0.874	0.712	0.906	4.00%	7.99%	11.99%	0.769	0.850
La, ppm	22.0	1.83	18.4	25.7	16.5	27.5	8.31%	16.61%	24.92%	20.9	23.1
Li, ppm	23.6	2.8	18.0	29.3	15.2	32.1	11.90%	23.80%	35.70%	22.5	24.8
Lu, ppm	0.18	0.013	0.16	0.21	0.15	0.22	6.99%	13.98%	20.97%	0.17	0.19
Mg, wt.%	1.15	0.034	1.08	1.22	1.04	1.25	3.00%	6.01%	9.01%	1.09	1.21
Mn, wt.%	0.038	0.001	0.035	0.041	0.034	0.042	3.90%	7.79%	11.69%	0.036	0.040
Mo, ppm	505	18	470	540	452	558	3.48%	6.96%	10.45%	480	530
Na, wt.%	0.184	0.020	0.143	0.224	0.123	0.245	11.07%	22.13%	33.20%	0.174	0.193
Nb, ppm	1.07	0.20	0.67	1.47	0.48	1.67	18.57%	37.14%	55.71%	1.02	1.13
Nd, ppm	19.0	0.57	17.8	20.1	17.3	20.7	3.01%	6.03%	9.04%	18.0	19.9
Ni, ppm	41.3	1.55	38.2	44.4	36.7	46.0	3.75%	7.50%	11.25%	39.3	43.4
P, wt.%	0.091	0.004	0.082	0.100	0.078	0.105	4.89%	9.77%	14.66%	0.087	0.096
Pb, ppm	51	1.7	47	54	46	56	3.34%	6.67%	10.01%	48	53
Pr, ppm	5.06	0.155	4.75	5.37	4.60	5.52	3.06%	6.12%	9.18%	4.81	5.31
Rb, ppm	87	4.1	79	95	75	99	4.67%	9.34%	14.01%	82	91
Re, ppb	351	27	296	405	269	433	7.78%	15.55%	23.33%	333	368
S, wt.%	1.10	0.059	0.98	1.22	0.92	1.28	5.36%	10.72%	16.08%	1.04	1.15
Sb, ppm	1.02	0.12	0.77	1.27	0.65	1.40	12.23%	24.46%	36.69%	0.97	1.07
Sc, ppm	7.12	0.559	6.00	8.24	5.44	8.79	7.85%	15.69%	23.54%	6.76	7.48
Se, ppm	7.00	0.91	5.18	8.83	4.26	9.74	13.04%	26.08%	39.13%	6.65	7.35
Sm, ppm	3.49	0.200	3.09	3.89	2.89	4.09	5.74%	11.47%	17.21%	3.31	3.66
Sn, ppm	4.54	0.257	4.03	5.05	3.77	5.31	5.65%	11.31%	16.96%	4.31	4.77
Sr, ppm	92	10	72	113	62	123	11.10%	22.20%	33.30%	88	97
Tb, ppm	0.46	0.038	0.38	0.53	0.35	0.57	8.23%	16.46%	24.69%	0.44	0.48
Te, ppm	0.45	0.033	0.38	0.51	0.35	0.54	7.35%	14.71%	22.06%	0.42	0.47
Th, ppm	12.3	0.65	11.0	13.6	10.4	14.3	5.24%	10.49%	15.73%	11.7	12.9
Ti, wt.%	0.267	0.014	0.240	0.295	0.226	0.309	5.22%	10.44%	15.66%	0.254	0.281
Tl, ppm	0.47	0.05	0.38	0.57	0.33	0.62	10.08%	20.16%	30.23%	0.45	0.50
Tm, ppm	0.20	0.007	0.18	0.21	0.18	0.22	3.38%	6.75%	10.13%	0.19	0.21
U, ppm	3.32	0.242	2.84	3.80	2.60	4.05	7.29%	14.57%	21.86%	3.15	3.49
V, ppm	108	5	97	118	92	124	4.95%	9.90%	14.85%	102	113
W, ppm	1.70	0.23	1.24	2.17	1.00	2.40	13.69%	27.38%	41.08%	1.62	1.79
Y, ppm	14.2	0.93	12.3	16.0	11.4	17.0	6.60%	13.19%	19.79%	13.5	14.9
Yb, ppm	1.26	0.060	1.14	1.38	1.08	1.44	4.77%	9.54%	14.31%	1.20	1.32
Zn, ppm	95	6.3	83	108	76	114	6.62%	13.25%	19.87%	91	100
Zr, ppm	12.1	1.10	9.9	14.3	8.8	15.4	9.09%	18.18%	27.26%	11.5	12.7

SI unit equivalents: ppm, parts per million ≡ mg/kg ≡ µg/g ≡ 0.0001 wt.% ≡ 1000 ppb, parts per billion.

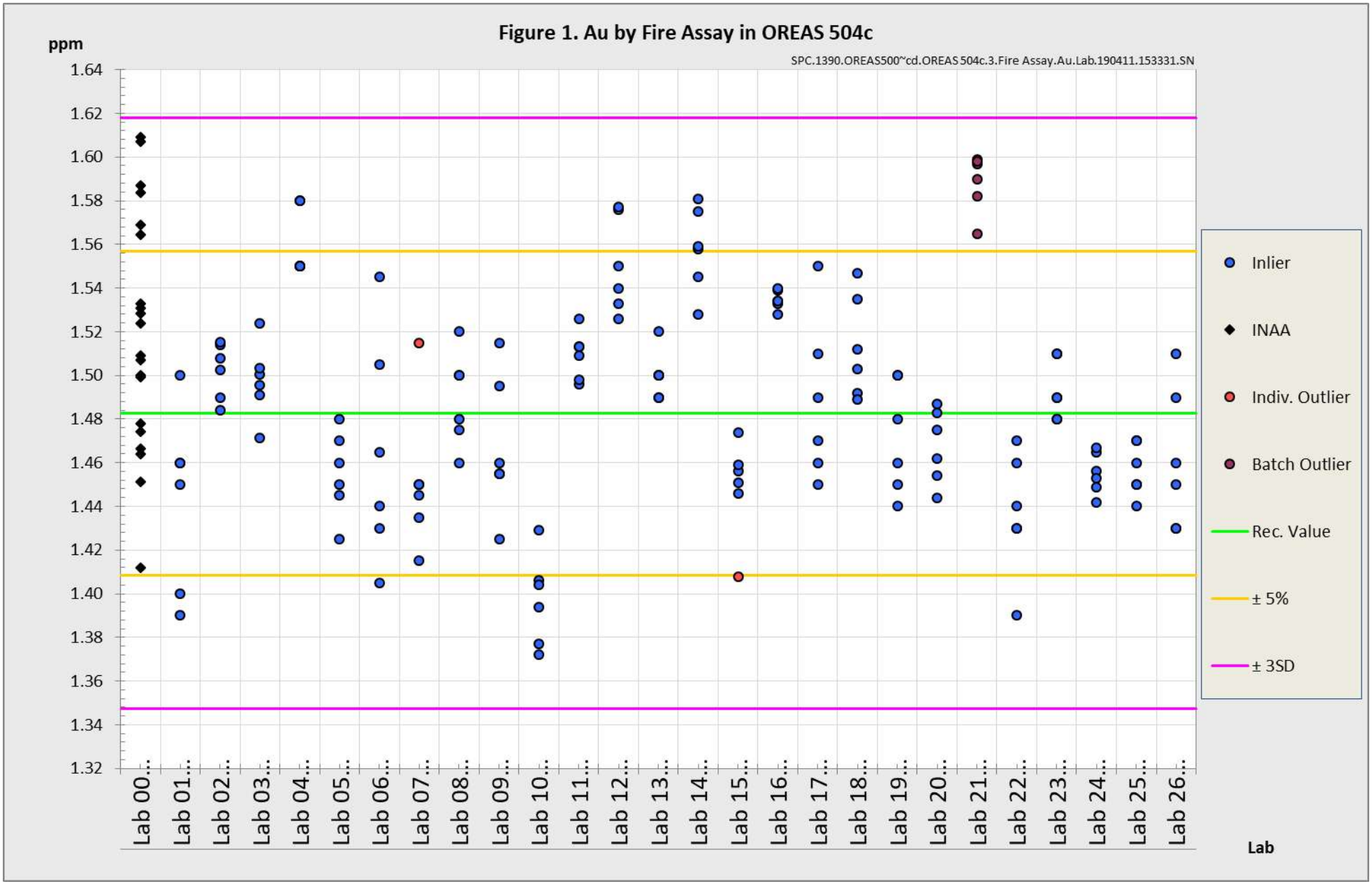
Note 1: intervals may appear asymmetric due to rounding.

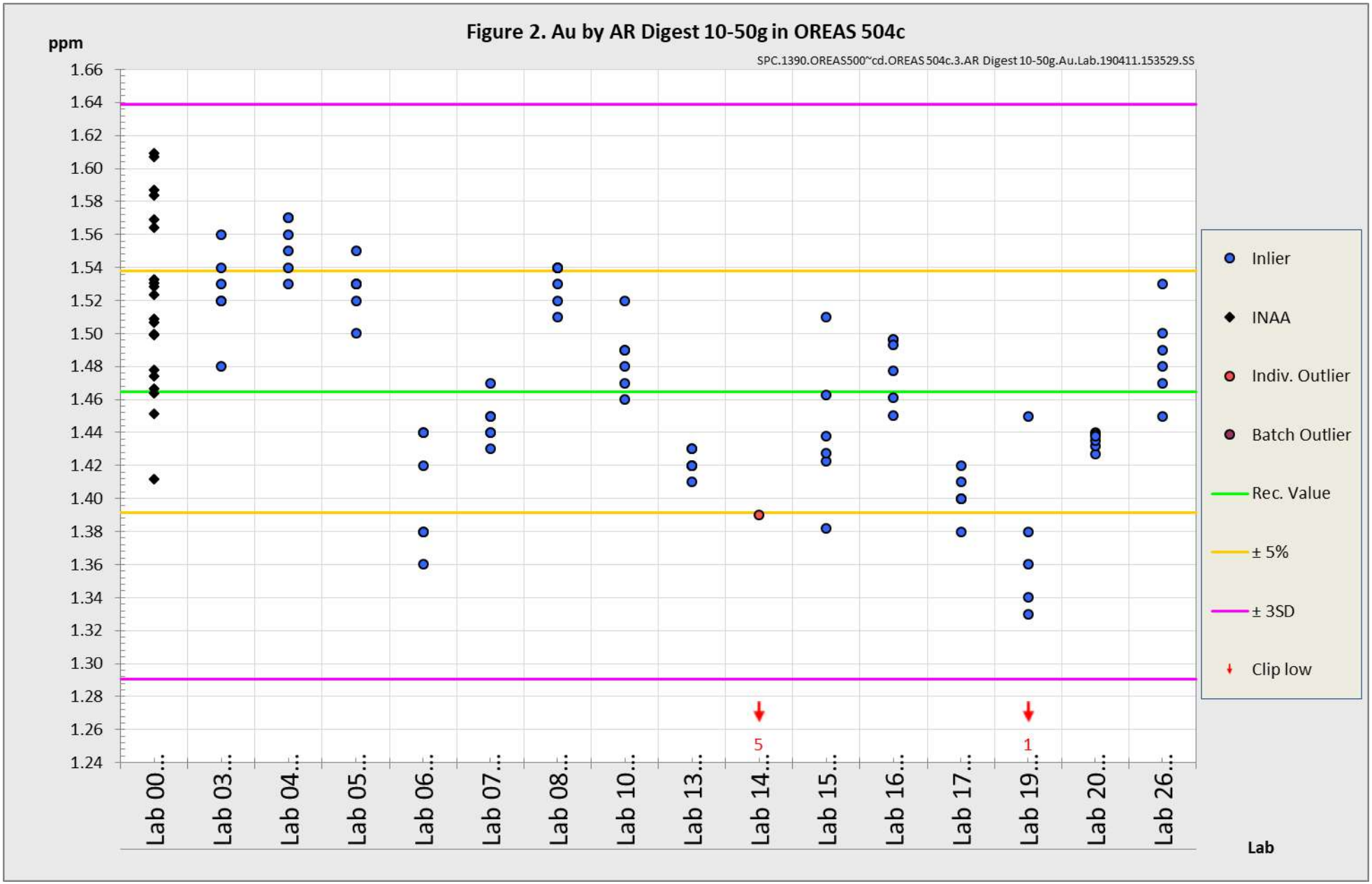
Note 2: the number of decimal places quoted does not imply accuracy of the certified value to this level but are given to minimise rounding errors when calculating 2SD and 3SD windows.

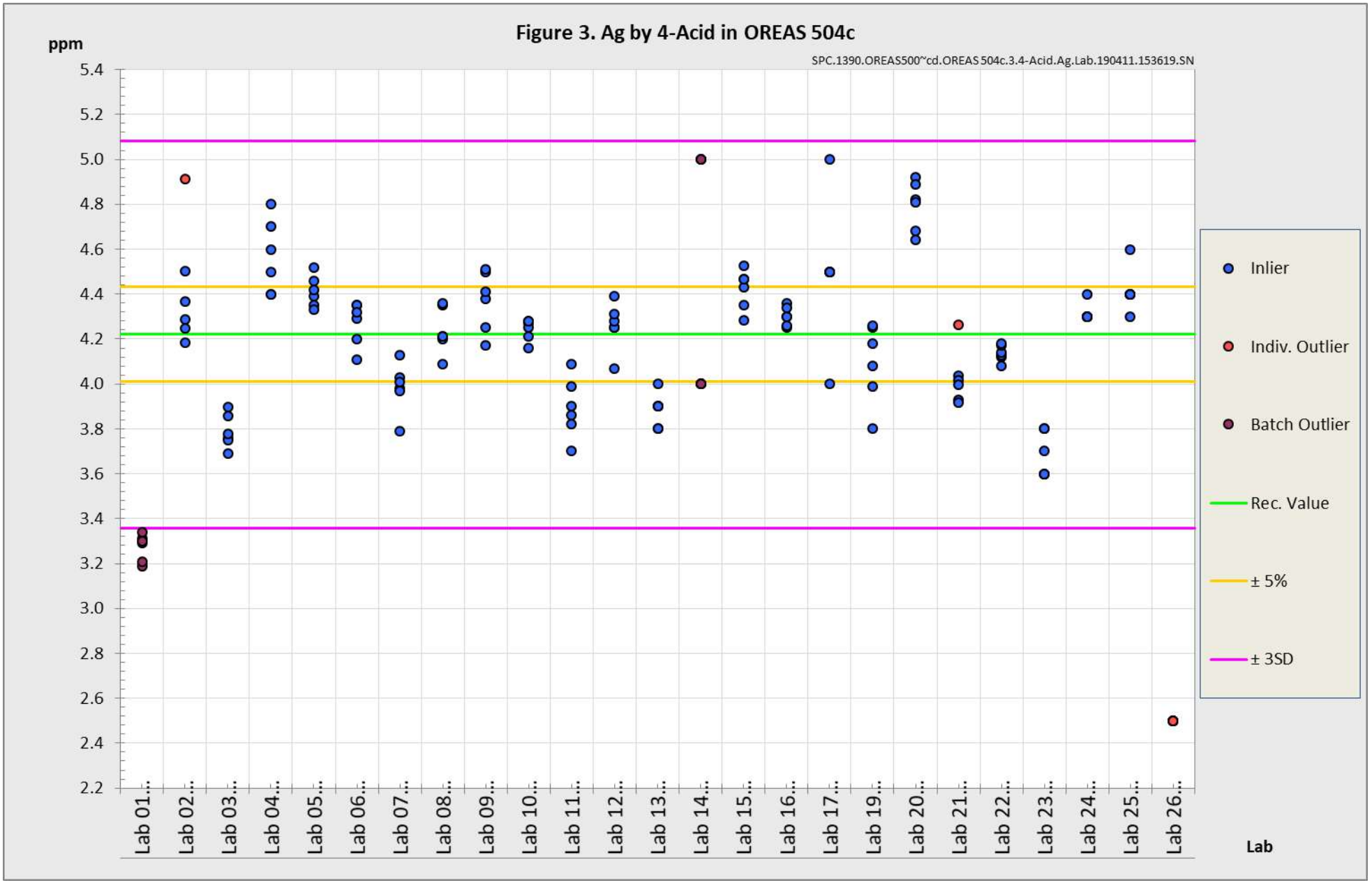
PARTICIPATING LABORATORIES

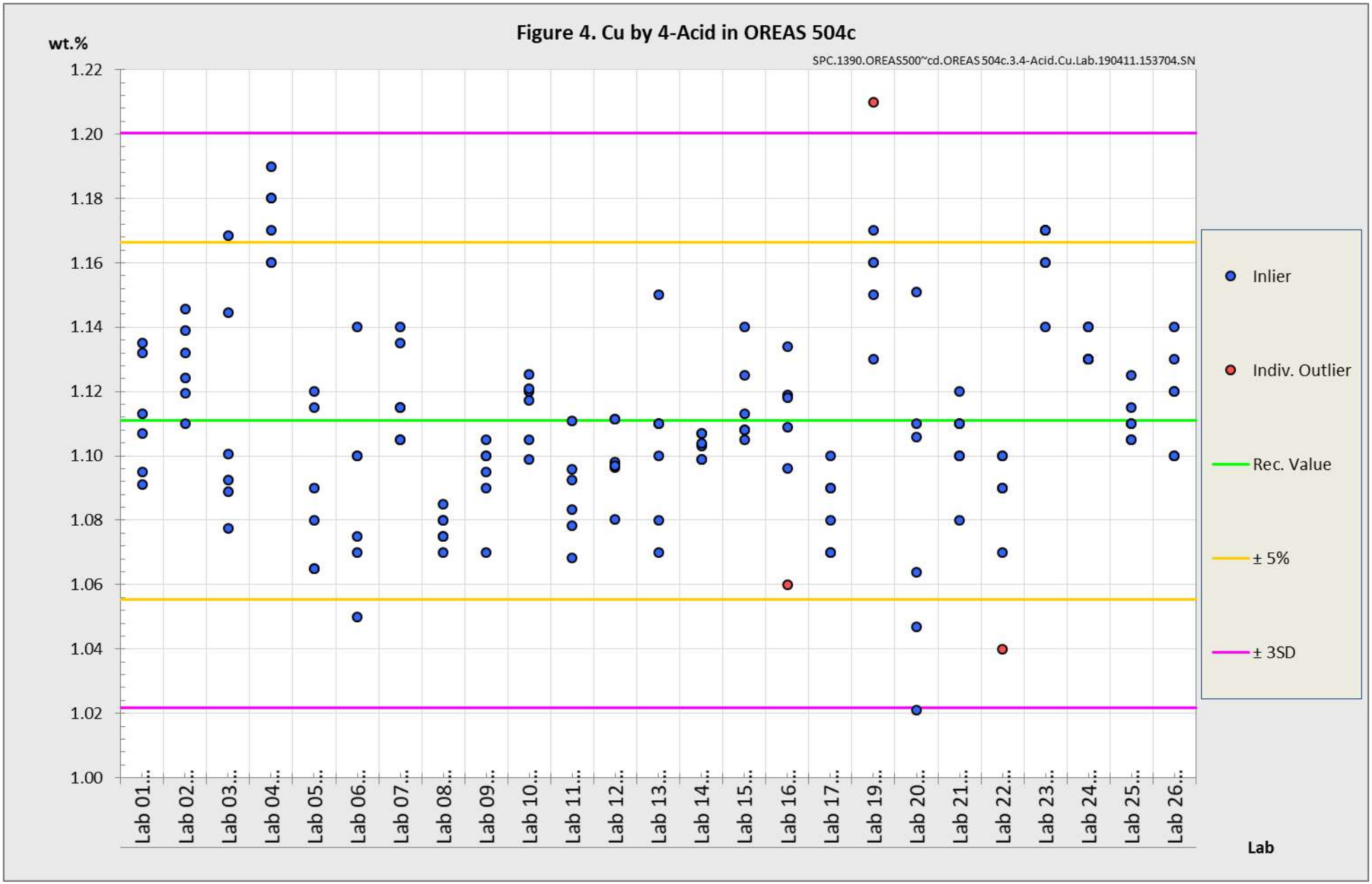
1. Alex Stewart International, Mendoza, Argentina
2. ALS, Johannesburg, South Africa
3. ALS, Lima, Peru
4. ALS, Loughrea, Galway, Ireland
5. ALS, Perth, WA, Australia
6. ALS, Ulaanbaatar, Khan-Uul District, Mongolia
7. ALS, Vancouver, BC, Canada
8. ANSTO, Lucas Heights, NSW, Australia
9. Bureau Veritas Commodities Canada Ltd, Vancouver, BC, Canada
10. Bureau Veritas Geoanalytical, Perth, WA, Australia
11. CERTIMIN, Lima, Peru
12. ESAN Istanbul, Istanbul, Turkey
13. Inspectorate (BV), Lima, Peru
14. Inspectorate America Corporation (BV), Sparks, Nevada, USA
15. Intertek Genalysis, Adelaide, SA, Australia
16. Intertek Genalysis, Perth, WA, Australia
17. Intertek Testing Services, Townsville, QLD, Australia
18. Nagrom, Perth, WA, Australia
19. Newcrest Laboratory Services, Orange, NSW, Australia
20. PT Geoservices Ltd, Cikarang, Jakarta Raya, Indonesia
21. PT Intertek Utama Services, Jakarta Timur, DKI Jakarta, Indonesia
22. PT SGS Indo Assay Laboratories, Jakarta, Indonesia
23. SGS, Ankara, Anatolia, Turkey
24. SGS Canada Inc., Vancouver, BC, Canada
25. SGS del Peru, Lima, Peru
26. SGS Mongolia, Ulan Bator, Mongolia
27. Shiva Analyticals Ltd, Bangalore North, Karnataka, India

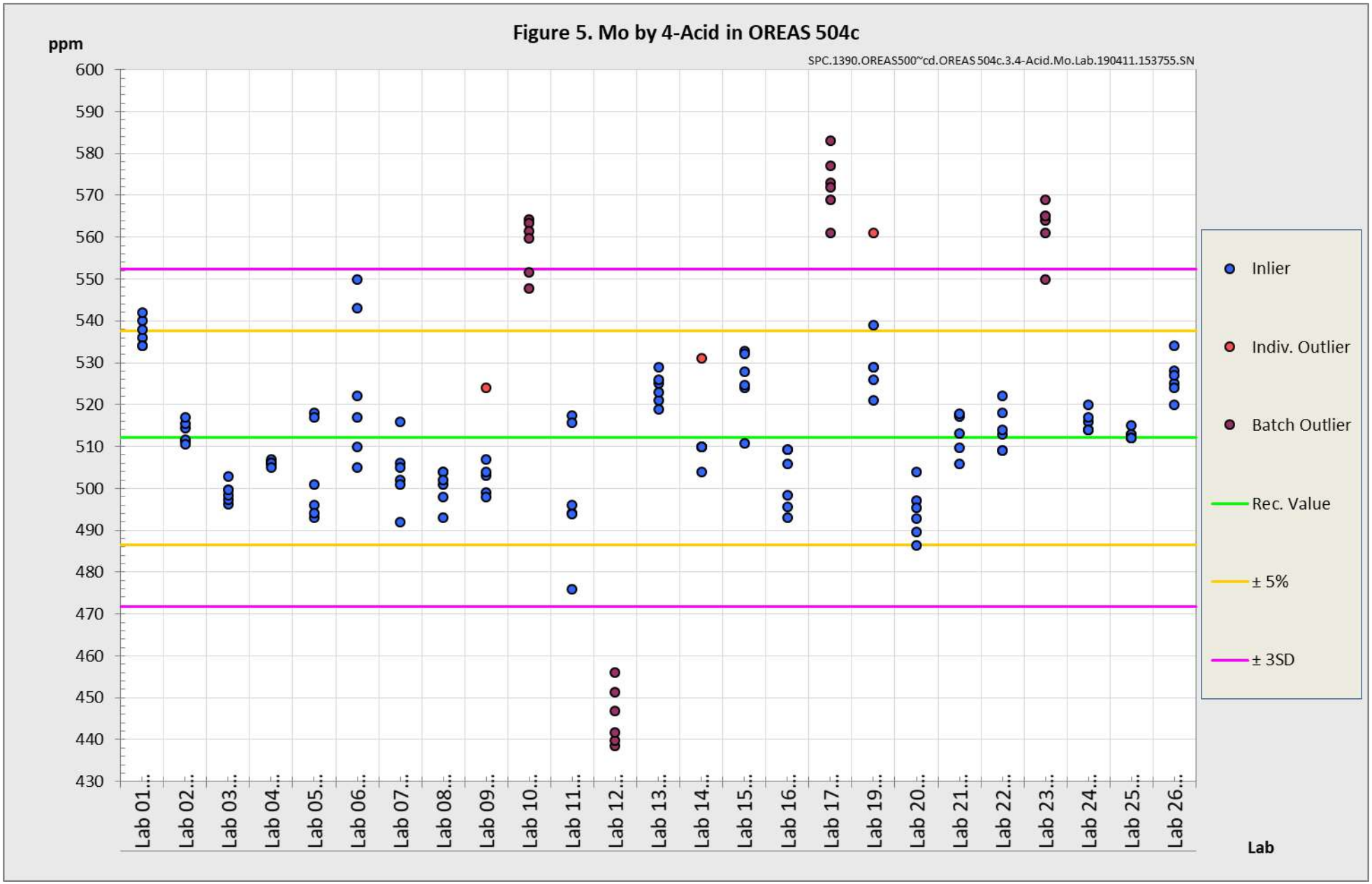
Please note: Above numbered alphabetical list of participating laboratories <u>does not</u> reflect the Lab ID numbering on the scatter plots below.


Figure 1. Au by Fire Assay in OREAS 504c
ppm
SPC.1390.OREAS500~cd.OREAS 504c.3.Fire Assay.Au.Lab.190411.153331.SN
1.64
1.62
1.60
1.58
1.56
1.54
1.52
1.50
1.48
1.46
1.44
1.42
1.40
1.38
1.36
1.34
1.32
Lab 00...
Lab 01...
Lab 02...
Lab 03...
Lab 04...
Lab 05...
Lab 06...
Lab 07...
Lab 08...
Lab 09...
Lab 10...
Lab 11...
Lab 12...
Lab 13...
Lab 14...
Lab 15...
Lab 16...
Lab 17...
Lab 18...
Lab 19...
Lab 20...
Lab 21...
Lab 22...
Lab 23...
Lab 24...
Lab 25...
Lab 26...
Lab
Inlier
INAA
Indiv. Outlier
Batch Outlier
Rec. Value
± 5%
± 3SD


Figure 2. Au by AR Digest 10-50g in OREAS 504c
ppm
SPC.1390.OREAS500~cd.OREAS 504c.3.AR Digest 10-50g.Au.Lab.190411.153529.SS
1.66
1.64
1.62
1.60
1.58
1.56
1.54
1.52
1.50
1.48
1.46
1.44
1.42
1.40
1.38
1.36
1.34
1.32
1.30
1.28
1.26
1.24
5
1
Lab 00...
Lab 03...
Lab 04...
Lab 05...
Lab 06...
Lab 07...
Lab 08...
Lab 10...
Lab 13...
Lab 14...
Lab 15...
Lab 16...
Lab 17...
Lab 19...
Lab 20...
Lab 26...
Lab
Inlier
INAA
Indiv. Outlier
Batch Outlier
Rec. Value
± 5%
± 3SD
Clip low


Figure 3. Ag by 4-Acid in OREAS 504c
ppm
SPC.1390.OREAS500~cd.OREAS 504c.3.4-Acid.Ag.Lab.190411.153619.SN
5.4
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
3.6
3.4
3.2
3.0
2.8
2.6
2.4
2.2
Lab 01...
Lab 02...
Lab 03...
Lab 04...
Lab 05...
Lab 06...
Lab 07...
Lab 08...
Lab 09...
Lab 10...
Lab 11...
Lab 12...
Lab 13...
Lab 14...
Lab 15...
Lab 16...
Lab 17...
Lab 19...
Lab 20...
Lab 21...
Lab 22...
Lab 23...
Lab 24...
Lab 25...
Lab 26...
Lab
Inlier
Indiv. Outlier
Batch Outlier
Rec. Value
± 5%
± 3SD


Figure 4. Cu by 4-Acid in OREAS 504c
wt.%
SPC.1390.OREAS500~cd.OREAS 504c.3.4-Acid.Cu.Lab.190411.153704.SN
1.22
1.20
1.18
1.16
1.14
1.12
1.10
1.08
1.06
1.04
1.02
1.00
Lab 01...
Lab 02...
Lab 03...
Lab 04...
Lab 05...
Lab 06...
Lab 07...
Lab 08...
Lab 09...
Lab 10...
Lab 11...
Lab 12...
Lab 13...
Lab 14...
Lab 15...
Lab 16...
Lab 17...
Lab 19...
Lab 20...
Lab 21...
Lab 22...
Lab 23...
Lab 24...
Lab 25...
Lab 26...
Lab
Inlier
Indiv. Outlier
Rec. Value
± 5%
± 3SD


Figure 5. Mo by 4-Acid in OREAS 504c
ppm
SPC.1390.OREAS500~cd.OREAS 504c.3.4-Acid.Mo.Lab.190411.153755.SN
600
590
580
570
560
550
540
530
520
510
500
490
480
470
460
450
440
430
Lab 01...
Lab 02...
Lab 03...
Lab 04...
Lab 05...
Lab 06...
Lab 07...
Lab 08...
Lab 09...
Lab 10...
Lab 11...
Lab 12...
Lab 13...
Lab 14...
Lab 15...
Lab 16...
Lab 17...
Lab 19...
Lab 20...
Lab 21...
Lab 22...
Lab 23...
Lab 24...
Lab 25...
Lab 26...
Lab
Inlier
Indiv. Outlier
Batch Outlier
Rec. Value
± 5%
± 3SD

PREPARER AND SUPPLIER

Certified reference material OREAS 504c was prepared, certified and supplied by:

ORE RESEARCH & EXPLORATION

ORE Research & Exploration Pty Ltd
37A Hosie Street
Bayswater North VIC 3153
AUSTRALIA

Tel: +613-9729 0333
Fax: +613-9729 8338
Web: www.ore.com.au
Email: info@ore.com.au

It is available in unit sizes of 10g and 60g (single-use laminated foil pouches) and 500g (plastic jars).

METROLOGICAL TRACEABILITY

The analytical samples were selected in a manner to represent the entire batch of prepared CRM. This 'representivity' was maintained in each submitted laboratory sample batch and ensures the user that the data is traceable from sample selection through to the analytical results that underlie the consensus values. Each analytical data set has been validated by its assayer through the inclusion of internal reference materials and QC checks during analysis.

The laboratories were chosen on the basis of their competence (from past performance in inter-laboratory programs undertaken by ORE Pty Ltd) for a particular analytical method, analyte or analyte suite, and sample matrix. Most of these laboratories have and maintain ISO 17025 accreditation. The certified values presented in this report are calculated from the means of accepted data following robust statistical treatment as detailed in this report.

Guide ISO/TR 16476:2016, section 5.3.1 describes metrological traceability in reference materials as it pertains to the transformation of the measurand. In this section it states, *"Although the determination of the property value itself can be made traceable to appropriate units through, for example, calibration of the measurement equipment used, steps like the transformation of the sample from one physical (chemical) state to another cannot. Such transformations may only be compared with a reference (when available), or among themselves. For some transformations, reference methods have been defined and may be used in certification projects to evaluate the uncertainty associated with such a transformation. In other cases,* ***only a comparison among different laboratories using the same method is possible. In this case, certification takes place on the basis of agreement among independent measurement results*** *(see ISO Guide 35:2006, Clause 10)."*

COMMUTABILITY

The measurements of the results that underlie the certified values contained in this report were undertaken by methods involving pre-treatment (digestion/fusion) of the sample. This served to reduce the sample to a simple and well understood form permitting calibration using simple solutions of the CRM. Due to these methods being well understood and highly effective, commutability is not an issue for this CRM. All OREAS CRMs are sourced from natural ore minerals meaning they will display similar behaviour as routine 'field' samples in the relevant measurement process. Care should be taken to ensure 'matrix matching' as close as practically achievable. The matrix and mineralisation style of the CRM is described in the 'Source Material' section and users should select appropriate CRMs matching these attributes to their field samples.

INTENDED USE

OREAS 504c is intended to cover all activities needed to produce a measurement result. This includes extraction, possible separation steps and the actual measurement process (the signal producing step). OREAS 504c may be used to calibrate the entire procedure by producing a pure substance CRM transformed into a calibration solution.

OREAS 504c is intended for the following uses:

- For the monitoring of laboratory performance in the analysis of analytes reported in Table 1 in geological samples;
- For the verification of analytical methods for analytes reported in Table 1;
- For the calibration of instruments used in the determination of the concentration of analytes reported in Table 1.

STABILITY AND STORAGE INSTRUCTIONS

OREAS 504c has been prepared from a blend of porphyry copper-gold ore, barren granodiorite and a minor quantity of Cu-Mo concentrate. It is low in reactive sulphide (~1.1% S). In its unopened state and under normal conditions of storage it has a shelf life beyond ten years. Its stability will be monitored at regular intervals and purchasers notified if any changes are observed.

INSTRUCTIONS FOR CORRECT USE

The certified values for OREAS 504c refer to the concentration level in its packaged state. It should not be dried prior to weighing and analysis.

HANDLING INSTRUCTIONS

Fine powders pose a risk to eyes and lungs and therefore standard precautions such as the use of safety glasses and dust masks are advised.

LEGAL NOTICE

Ore Research & Exploration Pty Ltd has prepared and statistically evaluated the property values of this reference material to the best of its ability. The Purchaser by receipt hereof releases and indemnifies Ore Research & Exploration Pty Ltd from and against all liability and costs arising from the use of this material and information.

DOCUMENT HISTORY

Revision No.	Date	Changes applied
0	11th April 2019	First publication.

QMS ACCREDITED

ORE Pty Ltd is accredited to ISO 9001:2015 by Lloyd's Register Quality Assurance Ltd for its quality management system including development, manufacturing, certification and supply of CRMs.

CERTIFYING OFFICER



11th April, 2019

Craig Hamlyn (B.Sc. Hons - Geology), Technical Manager - ORE P/L

REFERENCES

Govett, G.J.S. (1983), ed. Handbook of Exploration Geochemistry, Volume 2: Statistics and Data Analysis in Geochemical Prospecting (Variations of accuracy and precision), P.O. Box 330, 1000 AH Amsterdam, The Netherlands.

Ingamells, C. O. and Switzer, P. (1973), Talanta 20, 547-568.

ISO Guide 30:2015, Terms and definitions used in connection with reference materials.

ISO Guide 31:2015, Reference materials – Contents of certificates and labels.

ISO Guide 35:2017, Certification of reference materials - General and statistical principals.

ISO 16269:2014, Statistical interpretation of data – Part 6: Determination of statistical tolerance intervals.

Munsell Rock Color Book (2014), Rock-Color Chart Committee, Geological Society of America (GSA), 4300 44th Street SE, Grand Rapids, MI 49512.

APPENDIX II - BLANK CERTIFICATES

ITAK

Certificate of Analysis 0924

Date: 03-01-2022
Version: 01

BLANK ITAK QF-15
QUARTZ

	Au (ppm)	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)
Reference Value[1]	< 0.005 [a]	<0.02 [b]	0.099 [b, c]	< 1.0 [b]	52 [b]	0.38 [b]	< 2.0 [b]	0.015 [b, c]	< 0.02 [b]

	Ce (ppm)	Co (ppm)	Cr (ppm)	Cs (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Ge (ppm)	Hf (ppm)
Reference Value[1]	0.73 [b]	< 3.0 [b]	2.3 [b]	< 5.0 [b]	7.0 [b]	0.039 [b, c]	0.43 [b]	0.52 [b]	0.034 [b]

	In (ppm)	K (%)	La (ppm)	Li (ppm)	Lu (ppm)	Mg (%)	Mn (%)	Mo (ppm)	Na (%)
Reference Value[1]	< 0.02 [b]	0.042 [b, c]	0.65 [b]	18.7 [b]	< 0.01 [b]	< 0.01 [b, c]	< 0.01 [b, c]	< 1.0 [b]	0.017 [b]

	Nb (ppm)	Ni (ppm)	P (ppm)	Pb (ppm)	Rb (ppm)	S (%)	Sb (ppm)	Sc (ppm)	Se (ppm)
Reference Value[1]	0.53 [b]	5.0 [b]	< 50 [b, c]	7.0 [b]	3.6 [b]	< 0.01 [b]	< 0.05 [b]	< 0.5 [b]	< 2.0 [b]

	SiO_2 (%)	Sn (ppm)	Sr (ppm)	Ta (ppm)	Tb (ppm)	Te (ppm)	Th (ppm)	Ti (%)	Tl (ppm)
Reference Value[1]	> 99 [b, c]	< 0.3 [b]	2 [b]	0.068 [b]	< 0.05 [b]	< 0.05 [b]	< 0.2 [b]	< 0.01 [b, c]	< 0.02 [b]

	U (ppm)	V (ppm)	W (ppm)	Y (ppm)	Yb (ppm)	Zn (ppm)	Zr (ppm)
Reference Value[1]	< 0.1 [b]	< 1.0 [b]	< 0.1 [b]	0.18 [b]	< 0.1 [b]	< 1 [b]	< 1 [b]

[1] The Reference Value is informative about the chemical composition.

DESCRIPTION

This Blank was produced from a White Quartz - Brazil in 2022 and it is presented as a fine powder with particle size <200#.

This Blank can also be used in QA/QC programs for drilling and mineral prospecting.

Natural Quartz has been used in the preparation of this Blank. This Blank was dried at 105°C, crushed and pulverized.

INTENDED USE AND INSTRUCTIONS

The Blank ITAK-QF-15 provides an important control in analytical data from exploration and can be used as a tool for contamination control in routine mining and laboratory operations.

The Blank ITAK-QF-15 can be used for assessment and traceability of chemical analytical methods and instrumental analysis.

The bottles/sachets content should be thoroughly mixed before taking samples of Blank ITAK-QF-15.

The Blank ITAK-QF-15 should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Blank ITAK-QF-15 should be stored in a dry place and without contact with excessive heat or moisture.

STATISTICAL EVALUATION OF ANALYTICAL DATA

The values on the table represent the average of up to six samples of Blank ITAK-QF-15 analyzed by one specialized laboratory.

The Technical Report: RT-020/2022 STD contains full details of all phases of manufacturing, results, participating laboratory, and the statistical evaluation.
Note: This report is available on the ITAK database for the users.

ANALYTICAL METHODS

The methods used on the analyses of Blank ITAK-QF-15 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Acid Digestion method and determination by ICP-OES / ICP-MS.
- **c**: Fusion method and determination by X-Ray Fluorescence.

PERIOD OF VALIDITY

This CRM certification is valid until: **March 01, 2032**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

CTRS
Centro
Tecnológico
de Referência
SulAmericano

Certificado de Análise Nº 140448

Material de Referência Certificado

CTRS-0448

(Branco Mineral)

	Au	SiO_2	Al_2O_3	Fe	Na_2O	TiO_2
	g/t	%	%	%	%	%
Valor Certificado [1]	< 0,01	99,21	0,43	0,014	0,02	0,024
Desvio Padrão [2]	-	0,72	0,02	0,005	0,02	0,005
Incerteza Expandida [3]	-	1,44	0,04	0,011	0,04	0,011
Limite Superior [4]	-	100,65	0,46	0,025	0,06	0,035
Limite Inferior [4]	-	97,77	0,39	0,004	0,00	0,013

	Mn	K_2O	CaO	MgO	Cr_2O_3	PPC
	%	%	%	%	%	%
Valor Certificado [1]	0,009	0,134	0,018	0,04	0,003	0,29
Desvio Padrão [2]	0,009	0,005	0,004	0,02	0,002	0,17
Incerteza Expandida [3]	0,019	0,010	0,009	0,03	0,004	0,35
Limite Superior [4]	0,028	0,144	0,027	0,07	0,007	0,64
Limite Inferior [4]	0,000	0,125	0,009	0,00	0,000	0,00

[1] O Valor Certificado para o constituinte é a melhor estimativa do valor verdadeiro, baseado nos resultados dos 6 (seis) laboratórios comerciais especialistas nesta área, participantes do Programa Interlaboratorial para certificação, coordenado pelo **Centro Tecnológico de Referência SulAmericano**. Resultados expressos em massa-massa (m/m).
[2] Desvio-Padrão estimado.
[3] Incerteza Expandida, calculada com 95% de Intervalo de Confiança (*Confidence Interval*).
[4] Os Limites Superiores e os Limites Inferiores de cada parâmetro foram calculados com 95% de Intervalo de Confiança conforme *ISO Guide* 35: 2012– *Reference materials – General and statistical principles for certification*. Os Limites Superiores e Inferiores deste certificado foram estimados para utilização em controle estatístico para análises individuais (n = 1).

Métodos de análise utilizados

O parâmetro Au foi determinado por fire assay/espectrometria de emissão óptica. Os parâmetros SiO_2; Al_2O_3; Fe; Na_2O; TiO_2; Mn; K_2O; CaO; MgO e Cr_2O_3 foram determinados por fusão/espectrometria de fluorescência de raios-x. E o parâmetro PPC (Perda Por Calcinação ou Lost Of Ignition/LOI) foi determinado por gravimetria.

Laboratórios Participantes:

- ACME *Analytical Laboratories*, Canadá.
- ALS *Minerals*, Austrália.
- ALS *Minerals*, Peru.
- INTERTEK *Genalysis Laboratory Service*, Austrália.
- SGS *Minerals*, Canadá
- Super Laboratory Minerals, Africa do Sul.

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CTRS
Centro
Tecnológico
de Referência
SulAmericano

Origem do MRC

O material Branco Mineral teve origem a partir de uma amostra de minério de quartzo proveniente do Estado de Minas Gerais, Brasil.

Uso do MRC

O MRC CTRS-0448 é adequado ao uso no desenvolvimento, validação e controle de qualidade de métodos analíticos e na calibração de equipamentos. O MRC CTRS-0448 também é indicado para Controle de Qualidade e Qualidade Assegurada (QA/QC) em programas de pesquisa e exploração mineral.

Preparação Física e Embalagem

O material foi seco a 100ºC, pulverizado, com granulometria controlada abaixo de 75µm, homogeneizado e quarteado em alíquotas representativas de 50 gramas. As alíquotas são disponibilizadas em envelope de papel lacrado envolto em plástico selado.

Homogeneidade e Estabilidade

O MRC CTRS-0448 foi avaliado quanto à homogeneidade e estabilidade. Os ensaios de homogeneidade e estabilidade foram realizados em um laboratório comercial especializado acreditado na norma ISO/IEC 17025. Os testes de estabilidade possuem uma programação no **CTRS** para verificação periódica dos valores certificados e garantir a qualidade de seu uso.

Processo de Certificação

O Branco Mineral foi preparado com base nas orientações do ABNT NBR ISO GUIA 34: 2012. A certificação do MRC CTRS-0448 foi efetuada com base no ISO GUIDE 35:2012 e através do processo de comparação interlaboratorial desenvolvido pelo **Centro Tecnológico de Referência SulAmericano-CTRS**. O processo de certificação ocorreu em 2015. A certificação do MRC contou com a participação de 06 Laboratórios comerciais especialistas com acreditação com base na Norma ABNT ISO/IEC 17025:2005.

Rastreabilidade Metrológica Internacional

A rastreabilidade do MRC CTRS-0448 é garantida pelo uso de técnicas e métodos analíticos validados com base em Materiais de Referência primários. Os valores certificados são rastreados metrologicamente as unidades de massa e teores dos parâmetros ao SI (Sistema Internacional).

Condições de Armazenamento do MRC: Local seco a temperatura ambiente.

Validade do MRC: Abril de 2021.

Poços de Caldas / MG, 12 de Abril de 2015.

F. Magalhães, *M.Sc.*
Diretora Técnica e Qualidade
CRQ II 02.101.324

Eduardo Lyse, *M.Sc.*
Diretor Operacional
CRQ IV 04.125.181

Centro Tecnológico de Referência SulAmericano

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ITAK

Certificate of Analysis 1058

Date: 04-03-2025
Version: 01

BLANK ITAK QF-21
QUARTZ

	Au (ppm)	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)
Reference Value[1]	<0.005 [a]	<0.2 [b]	<0.1 [b, c]	<1.0 [b]	54,8 [b]	0.23 [b]	<2.0 [b]	0.007 [b, c]	<0.02 [b]

	Ce (ppm)	Co (ppm)	Cr (ppm)	Cs (ppm)	Cu (ppm)	Fe (%)	Ga (ppm)	Ge (ppm)	Hf (ppm)
Reference Value[1]	0.35 [b]	<3.0 [b]	1.3 [b]	<5.0 [b]	<1.0 [b]	0.28 [b, c]	0.1 [b]	0.73 [b]	0.025 [b]

	In (ppm)	K (%)	La (ppm)	Li (ppm)	Lu (ppm)	Mg (%)	Mn (%)	Mo (ppm)	Na (%)
Reference Value[1]	<0.02 [b]	0.024 [b, c]	0.22 [b]	25 [b]	<0.01 [b]	<0.1 [b, c]	<0.01 [b, c]	<1.0 [b]	0.012 [b]

	Nb (ppm)	Ni (ppm)	P (ppm)	Pb (ppm)	Rb (ppm)	Sb (ppm)	Sc (ppm)	Se (ppm)	SiO_2 (%)
Reference Value[1]	0.68 [b]	<1.0 [b]	3.0 [b]	<1.0 [b]	6.0 [b]	0.13 [b]	<0.5 [b]	<2.0 [b]	99,5 [b, c]

	Sn (ppm)	Sr (ppm)	Ta (ppm)	Tb (ppm)	Te (ppm)	Th (ppm)	Ti (ppm)	Tl (ppm)	U (ppm)
Reference Value[1]	<0.3 [b]	2,17 [b]	0.13 [b]	<0.05 [b]	<0.05 [b]	<0.2 [b]	7.7 [c]	<0.02 [b]	<0.1 [b]

	V (ppm)	W (ppm)	Y (ppm)	Yb (ppm)	Zn (ppm)	Zr (ppm)
Reference Value[1]	<1.0 [b]	<0.1 [b]	<0.1 [b]	<0.1 [b]	<1.0 [b]	<1.0 [b]

[1] The Reference Value is informative about the chemical composition.

DESCRIPTION

This Blank was produced from a White Quartz - Brazil in 2025 and it is presented as a fine powder with particle size <200#.

This Blank can also be used in QA/QC programs for drilling and mineral prospecting.

Natural Quartz has been used in the preparation of this Blank. This Blank was dried at 105°C ± 5°C, crushed and pulverized.

INTENDED USE AND INSTRUCTIONS

The Blank ITAK-QF-21 provides important control in analytical data from exploration and can be used as a tool for contamination control in routine mining and laboratory operations.

The Blank ITAK-QF-21 can be used for assessment and traceability of chemical analytical methods and instrumental analysis.

The bottles/sachets content should be thoroughly mixed before taking samples of Blank ITAK-QF-21.

The Blank ITAK-QF-21 should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Blank ITAK-QF-21 should be stored in a dry place and without contact with excessive heat or moisture.

STATISTICAL EVALUATION OF ANALYTICAL DATA

The values on the table represent the average of up to six samples of Blank ITAK-QF-21 analyzed by one specialized laboratory.

The Technical Report: RT-006/2025 STD contains full details of all steps of manufacturing, results, participating laboratory, and the statistical evaluation.
Note: This report is available on the ITAK database for the users.

ANALYTICAL METHODS

The methods used on the analysis of Blank ITAK-QF-21 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Acid Digestion method and determination by ICP-OES / ICP-MS.
- **c**: Fusion method and determination by X-Ray Fluorescence.

PERIOD OF VALIDITY

This CRM certification is valid until: **April 03, 2035**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.

Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

Bráulio de Freitas Pessoa

CTRS
Centro Tecnológico de Referência SulAmericano

Certificado de Análise Nº 140448

Material de Referência Certificado

CTRS-0448

(Branco Mineral)

	Au	SiO_2	Al_2O_3	Fe	Na_2O	TiO_2
	g/t	%	%	%	%	%
Valor Certificado [1]	< 0,01	99,21	0,43	0,014	0,02	0,024
Desvio Padrão [2]	-	0,72	0,02	0,005	0,02	0,005
Incerteza Expandida [3]	-	1,44	0,04	0,011	0,04	0,011
Limite Superior [4]	-	100,65	0,46	0,025	0,06	0,035
Limite Inferior [4]	-	97,77	0,39	0,004	0,00	0,013

	Mn	K_2O	CaO	MgO	Cr_2O_3	PPC
	%	%	%	%	%	%
Valor Certificado [1]	0,009	0,134	0,018	0,04	0,003	0,29
Desvio Padrão [2]	0,009	0,005	0,004	0,02	0,002	0,17
Incerteza Expandida [3]	0,019	0,010	0,009	0,03	0,004	0,35
Limite Superior [4]	0,028	0,144	0,027	0,07	0,007	0,64
Limite Inferior [4]	0,000	0,125	0,009	0,00	0,000	0,00

[1] O Valor Certificado para o constituinte é a melhor estimativa do valor verdadeiro, baseado nos resultados dos 6 (seis) laboratórios comerciais especialistas nesta área, participantes do Programa Interlaboratorial para certificação, coordenado pelo **Centro Tecnológico de Referência SulAmericano**. Resultados expressos em massa-massa (m/m).
[2] Desvio-Padrão estimado.
[3] Incerteza Expandida, calculada com 95% de Intervalo de Confiança (*Confidence Interval*).
[4] Os Limites Superiores e os Limites Inferiores de cada parâmetro foram calculados com 95% de Intervalo de Confiança conforme *ISO Guide* 35: 2012– *Reference materials – General and statistical principles for certification*. Os Limites Superiores e Inferiores deste certificado foram estimados para utilização em controle estatístico para análises individuais (n = 1).

Métodos de análise utilizados

O parâmetro Au foi determinado por fire assay/espectrometria de emissão óptica. Os parâmetros SiO_2; Al_2O_3; Fe; Na_2O; TiO_2; Mn; K_2O; CaO; MgO e Cr_2O_3 foram determinados por fusão/espectrometria de fluorescência de raios-x. E o parâmetro PPC (Perda Por Calcinação ou Lost Of Ignition/LOI) foi determinado por gravimetria.

Laboratórios Participantes:

- ACME *Analytical Laboratories*, Canadá.
- ALS *Minerals*, Austrália.
- ALS *Minerals*, Peru.
- INTERTEK *Genalysis Laboratory Service*, Austrália.
- SGS *Minerals*, Canadá.
- Super Laboratory Minerals, Africa do Sul.

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e-mail: contato@ctrsulamericano.com - site: www.ctrsulamericano.com

CTRS
Centro Tecnológico de Referência SulAmericano

Origem do MRC

O material Branco Mineral teve origem a partir de uma amostra de minério de quartzo proveniente do Estado de Minas Gerais, Brasil.

Uso do MRC

O MRC CTRS-0448 é adequado ao uso no desenvolvimento, validação e controle de qualidade de métodos analíticos e na calibração de equipamentos. O MRC CTRS-0448 também é indicado para Controle de Qualidade e Qualidade Assegurada (QA/QC) em programas de pesquisa e exploração mineral.

Preparação Física e Embalagem

O material foi seco a 100ºC, pulverizado, com granulometria controlada abaixo de 75µm, homogeneizado e quarteado em alíquotas representativas de 50 gramas. As alíquotas são disponibilizadas em envelope de papel lacrado envolto em plástico selado.

Homogeneidade e Estabilidade

O MRC CTRS-0448 foi avaliado quanto à homogeneidade e estabilidade. Os ensaios de homogeneidade e estabilidade foram realizados em um laboratório comercial especializado acreditado na norma ISO/IEC 17025. Os testes de estabilidade possuem uma programação no **CTRS** para verificação periódica dos valores certificados e garantir a qualidade de seu uso.

Processo de Certificação

O Branco Mineral foi preparado com base nas orientações do ABNT NBR ISO GUIA 34: 2012. A certificação do MRC CTRS-0448 foi efetuada com base no ISO GUIDE 35:2012 e através do processo de comparação interlaboratorial desenvolvido pelo **Centro Tecnológico de Referência SulAmericano-CTRS**. O processo de certificação ocorreu em 2015. A certificação do MRC contou com a participação de 06 Laboratórios comerciais especialistas com acreditação com base na Norma ABNT ISO/IEC 17025:2005.

Rastreabilidade Metrológica Internacional

A rastreabilidade do MRC CTRS-0448 é garantida pelo uso de técnicas e métodos analíticos validados com base em Materiais de Referência primários. Os valores certificados são rastreados metrologicamente as unidades de massa e teores dos parâmetros ao SI (Sistema Internacional).

Condições de Armazenamento do MRC: Local seco a temperatura ambiente.

Validade do MRC: Abril de 2021.

Poços de Caldas / MG, 12 de Abril de 2015.

F. Magalhães, *M.Sc.*
Diretora Técnica e Qualidade
CRQ II 02.101.324

Eduardo Lyse, *M.Sc.*
Diretor Operacional
CRQ IV 04.125.181

Centro Tecnológico de Referência SulAmericano

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Certificate of Analysis 1089

Date: 11-12-2025
Version: 01

BLANK ITAK QF-22
QUARTZ

	Au (ppb)	Ag (ppm)	Al (%)	As (ppm)	Ba (ppm)	Be (ppm)	Bi (ppm)	Ca (%)	Cd (ppm)
Reference Value[1]	< 5.0 [a]	<0.2 [b]	<0.1 [b, c]	<1.0 [b]	60.1 [b]	0.3 [b]	<2.0 [b]	< 0.01 [b, c]	<0.02 [b]

	Ce (ppm)	Co (ppm)	Cr (ppm)	Cs (ppm)	Cu (ppm)	Dy (ppm)	Er (ppm)	Eu (ppm)	Fe (%)
Reference Value[1]	2.1 [b, d]	<3.0 [b]	2.5 [b]	<5.0 [b]	<1.0 [b]	0.48 [d]	0.25 [d]	< 0.05 [d]	0.18 [b, c]

	Ga (ppm)	Gd (ppm)	Hf (ppm)	Ho (ppm)	In (ppm)	K (%)	La (ppm)	Li (ppm)	Lu (ppm)
Reference Value[1]	0.1 [b]	0.54 [d]	0.02 [b]	0.10 [d]	<0.02 [b]	0.024 [b]	4.4 [d]	25 [b]	<0.01 [d]

	Mg (ppm)	Mn (ppm)	Mo (ppm)	Na (ppm)	Nb (ppm)	Nd (ppm)	Ni (ppm)	P (ppm)	Pb (ppm)
Reference Value[1]	6.0 [b]	28 [b, c]	<1.0 [b]	100 [b]	2.6 [b]	2.6 [d]	1.0 [b]	3.5 [b]	< 1.0 [b]

	Pr (ppm)	Rb (ppm)	Re (ppm)	Sb (ppm)	Sc (ppm)	Se (ppm)	Sm (ppm)	Sn (ppm)	Ta (ppm)
Reference Value[1]	0.70 [d]	3.3 [b]	< 0.1 [b]	0.06 [b]	<0.5 [b]	<2.0 [b]	0.52 [d]	< 0.3 [b]	0.08 [b]

	Tb (ppm)	Te (ppm)	Th (ppm)	Ti (ppm)	Tl (%)	Tm (ppm)	U (ppm)	V (ppm)	W (ppm)
Reference Value[1]	0.1 [d]	<0.05 [b]	6.3 [d]	7.7 [b, c]	<0.02 [b]	0.06 [d]	0.08 [d]	<1.0 [b]	<0.1 [b]

	Y (ppm)	Yb (ppm)	Zn (ppm)	Zr (ppm)	SiO_2 (%)
Reference Value[1]	2.8 [d]	0.28 [d]	<1.0 [b]	<1.0 [b]	>98 [b, c]

[1] The Reference Value is informative about the chemical constitution.

DESCRIPTION

This Blank was produced from a White Quartz - Brazil in 2025 and it is presented as a fine powder with particle size <200#.

This Blank can also be used in QA/QC programs for drilling and mineral prospecting.

Natural Quartz has been used in the preparation of this Blank.

This Blank was dried at 105 ± 5°C and crushed.

INTENDED USE AND INSTRUCTIONS

The Blank ITAK-QF-22 provides an important control in analytical data from exploration and can be used as a tool for contamination control in routine mining and laboratory operations.

The Blank ITAK-QF-22 can be used for assessment and traceability of chemical analytical methods and instrumental analysis.

The bottles/sachets' content should be thoroughly mixed before taking samples of Blank ITAK-QF-22.

The Blank ITAK-QF-22 should be used without pre-treatment. ITAK is not responsible for any changes occurring after opening said bottles/sachets.

The Blank ITAK-QF-22 should be stored in a dry place, away from excessive heat or moisture.

STATISTICAL EVALUATION OF ANALYTICAL DATA

The values in the table represent the average of up to six samples of Blank ITAK-QF-22 analysed by a single specialised laboratory.

The Technical Report: RT-037/2025 STD contains full details of all phases of manufacturing, results, participating laboratory, and the statistical evaluation.
Note: This report is available on the ITAK database for the users.

ANALYTICAL METHODS

The methods used on the analyses of Blank ITAK-QF-22 are mentioned as follows:

- **a**: Fire Assay Method and determination by Atomic Absorption Spectrometry.
- **b**: Acid Digestion method and determination by ICP-OES / ICP-MS.
- **c**: Fusion method and determination by X-Ray Fluorescence.
- **d**: Fusion with Lithium Metaborate and determination by ICP-MS.

PERIOD OF VALIDITY

This BLANK characterization is valid until: **November 12, 2035**.

CERTIFICATE REPRODUCTION

This certificate must not be modified and may only be reproduced in its entirety and without change.



Bráulio de Freitas Pessoa
Chemist – CRQ 02.202.008
Technical Director

APPENDIX III - THE RESOURCES ESTIMATED FOR GOLD WITH THE APPLICATION OF SEVERAL CUT-OFF GRADES

CUT-OFF	CLASS	CATEGORY	VOLUME	TONNES	DENSITY	Au	M_Au	Au_cut	M_Au_cut
Au ppm			m3	t	(t / m3)	ppm	ozt	ppm	ozt
0	Indicated	Saprolite	1.005.137,50	1.688.631,00	1,68	0,59	31.984,03	0,59	31.867,77
		Fresh Rock	13.639.575,00	35.872.082,25	2,63	0,38	438.509,29	0,38	435.743,66
	Inferred	Saprolite	1.979.056,25	3.324.814,50	1,68	0,25	26.542,18	0,25	26.498,74
		Fresh Rock	46.822.843,75	123.144.079,06	2,63	0,30	1.183.812,51	0,29	1.158.675,25
	TOTAL		**63.446.612,50**	**164.029.606,81**	**2,59**	**0,32**	**1.680.848,01**	**0,31**	**1.652.785,43**
0,1	Indicated	Saprolite	996.025,00	1.673.322,00	1,68	0,59	31.940,24	0,59	31.823,98
		Fresh Rock	13.317.706,25	35.025.567,44	2,63	0,39	436.227,23	0,38	433.461,61
	Inferred	Saprolite	1.795.412,50	3.016.293,00	1,68	0,27	25.900,34	0,27	25.856,90
		Fresh Rock	43.890.418,75	115.431.801,31	2,63	0,31	1.166.231,43	0,31	1.141.094,17
	TOTAL		**59.999.562,50**	**155.146.983,75**	**2,59**	**0,33**	**1.660.299,24**	**0,33**	**1.632.236,66**
0,2	Indicated	Saprolite	919.100,00	1.544.088,00	1,68	0,63	31.297,08	0,63	31.180,81
		Fresh Rock	10.516.606,25	27.658.674,44	2,63	0,45	400.054,86	0,45	397.289,24
	Inferred	Saprolite	1.114.468,75	1.872.307,50	1,68	0,34	20.339,48	0,34	20.296,04
		Fresh Rock	32.629.275,00	85.814.993,25	2,63	0,37	1.016.560,64	0,36	991.423,38
	TOTAL		**45.179.450,00**	**116.890.063,19**	**2,59**	**0,39**	**1.468.252,05**	**0,38**	**1.440.189,47**
0,21	Indicated	Saprolite	916.981,25	1.540.528,50	1,68	0,63	31.273,11	0,63	31.156,85
		Fresh Rock	10.233.200,00	26.913.316,00	2,63	0,46	395.145,79	0,45	392.380,17
	Inferred	Saprolite	1.024.581,25	1.721.296,50	1,68	0,35	19.345,17	0,35	19.301,73
		Fresh Rock	30.971.818,75	81.455.883,31	2,63	0,38	987.839,09	0,37	962.701,83
	TOTAL		**43.146.581,25**	**111.631.024,31**	**2,59**	**0,40**	**1.433.603,15**	**0,39**	**1.405.540,57**
0,22	Indicated	Saprolite	915.093,75	1.537.357,50	1,68	0,63	31.250,99	0,63	31.134,73
		Fresh Rock	9.873.712,50	25.967.863,88	2,63	0,47	388.641,15	0,46	385.875,52
	Inferred	Saprolite	971.075,00	1.631.406,00	1,68	0,36	18.725,37	0,36	18.681,94
		Fresh Rock	29.491.181,25	77.561.806,69	2,63	0,39	960.950,06	0,38	935.812,79
	TOTAL		**41.251.062,50**	**106.698.434,06**	**2,59**	**0,41**	**1.399.567,56**	**0,40**	**1.371.504,98**
0,23	Indicated	Saprolite	903.031,25	1.517.092,50	1,68	0,64	31.104,66	0,64	30.988,40
		Fresh Rock	9.454.150,00	24.864.414,50	2,63	0,48	380.648,61	0,47	377.882,99
	Inferred	Saprolite	903.675,00	1.518.174,00	1,68	0,37	17.902,69	0,37	17.859,26
		Fresh Rock	27.641.543,75	72.697.260,06	2,63	0,40	925.805,81	0,39	900.668,55
	TOTAL		**38.902.400,00**	**100.596.941,06**	**2,59**	**0,42**	**1.355.461,78**	**0,41**	**1.327.399,20**
0,24	Indicated	Saprolite	886.756,25	1.489.750,50	1,68	0,65	30.898,45	0,64	30.782,19
		Fresh Rock	9.067.868,75	23.848.494,81	2,63	0,49	372.978,26	0,48	370.212,64
	Inferred	Saprolite	846.475,00	1.422.078,00	1,68	0,38	17.171,45	0,37	17.128,01
		Fresh Rock	25.902.137,50	68.122.621,63	2,63	0,41	891.305,30	0,40	866.168,03
	TOTAL		**36.703.237,50**	**94.882.944,94**	**2,59**	**0,43**	**1.312.353,46**	**0,42**	**1.284.290,88**
0,25	Indicated	Saprolite	868.856,25	1.459.678,50	1,68	0,65	30.662,37	0,65	30.546,11
		Fresh Rock	8.763.518,75	23.048.054,31	2,63	0,49	366.681,28	0,49	363.915,66
	Inferred	Saprolite	809.006,25	1.359.130,50	1,68	0,38	16.675,31	0,38	16.631,88
		Fresh Rock	23.344.087,50	61.394.950,13	2,63	0,42	838.497,43	0,41	813.360,17
	TOTAL		**33.785.468,75**	**87.261.813,44**	**2,58**	**0,45**	**1.252.516,39**	**0,44**	**1.224.453,81**
0,3	Indicated	Saprolite	812.825,00	1.365.546,00	1,68	0,68	29.818,82	0,68	29.702,56
		Fresh Rock	7.099.900,00	18.672.737,00	2,63	0,55	328.174,63	0,54	325.409,00
	Inferred	Saprolite	528.912,50	888.573,00	1,68	0,44	12.528,57	0,44	12.485,13

		Fresh Rock	17.017.981,25	44.757.290,69	2,63	0,48	691.755,41	0,46	666.618,15
	TOTAL		**25.459.618,75**	**65.684.146,69**	**2,58**	**0,50**	**1.062.277,42**	**0,49**	**1.034.214,84**
0,4	Indicated	Saprolite	658.800,00	1.106.784,00	1,68	0,76	26.880,93	0,75	26.764,67
		Fresh Rock	4.660.187,50	12.256.293,13	2,63	0,65	256.833,71	0,64	254.068,09
	Inferred	Saprolite	230.606,25	387.418,50	1,68	0,56	6.919,38	0,55	6.875,95
		Fresh Rock	8.473.062,50	22.284.154,38	2,63	0,62	442.454,15	0,58	417.316,88
	TOTAL		**14.022.656,25**	**36.034.650,00**	**2,57**	**0,63**	**733.088,17**	**0,61**	**705.025,59**
0,5	Indicated	Saprolite	474.675,00	797.454,00	1,68	0,88	22.434,48	0,87	22.318,22
		Fresh Rock	3.232.056,25	8.500.307,94	2,63	0,74	203.195,62	0,73	200.429,99
	Inferred	Saprolite	99.918,75	167.863,50	1,68	0,71	3.806,70	0,70	3.763,26
		Fresh Rock	4.158.912,50	10.937.939,88	2,63	0,80	283.052,75	0,73	257.915,49
	TOTAL		**7.965.562,50**	**20.403.565,31**	**2,56**	**0,78**	**512.489,55**	**0,74**	**484.426,97**
0,6	Indicated	Saprolite	374.306,25	628.834,50	1,68	0,96	19.448,61	0,96	19.332,34
		Fresh Rock	2.184.950,00	5.746.418,50	2,63	0,84	155.136,93	0,82	152.371,31
	Inferred	Saprolite	68.656,25	115.342,50	1,68	0,79	2.917,62	0,78	2.874,19
		Fresh Rock	2.253.850,00	5.927.625,50	2,63	1,03	196.000,32	0,90	170.863,05
	TOTAL		**4.881.762,50**	**12.418.221,00**	**2,54**	**0,94**	**373.503,47**	**0,87**	**345.440,89**
0,7	Indicated	Saprolite	266.587,50	447.867,00	1,68	1,09	15.674,36	1,08	15.558,10
		Fresh Rock	1.402.118,75	3.687.572,31	2,63	0,95	112.182,66	0,92	109.417,04
	Inferred	Saprolite	43.250,00	72.660,00	1,68	0,87	2.036,16	0,85	1.992,72
		Fresh Rock	1.481.987,50	3.897.627,13	2,63	1,23	154.227,43	1,03	129.203,63
	TOTAL		**3.193.943,75**	**8.105.726,44**	**2,54**	**1,09**	**284.120,61**	**0,98**	**256.171,49**
0,8	Indicated	Saprolite	221.162,50	371.553,00	1,68	1,16	13.835,13	1,15	13.718,87
		Fresh Rock	951.418,75	2.502.231,31	2,63	1,04	83.778,83	1,01	81.013,21
	Inferred	Saprolite	27.281,25	45.832,50	1,68	0,95	1.392,60	0,92	1.349,17
		Fresh Rock	1.091.681,25	2.871.121,69	2,63	1,40	129.521,06	1,13	104.758,84
	TOTAL		**2.291.543,75**	**5.790.738,50**	**2,53**	**1,23**	**228.527,62**	**1,08**	**200.840,08**
0,9	Indicated	Saprolite	163.512,50	274.701,00	1,68	1,27	11.181,09	1,25	11.064,83
		Fresh Rock	669.287,50	1.760.226,13	2,63	1,12	63.569,78	1,08	61.058,33
	Inferred	Saprolite	10.187,50	17.115,00	1,68	1,10	604,02	1,02	560,59
		Fresh Rock	902.918,75	2.374.676,31	2,63	1,52	115.948,22	1,20	91.545,98
	TOTAL		**1.745.906,25**	**4.426.718,44**	**2,54**	**1,34**	**191.303,10**	**1,15**	**164.229,72**
1	Indicated	Saprolite	129.781,25	218.032,50	1,68	1,35	9.462,06	1,34	9.380,32
		Fresh Rock	428.106,25	1.125.919,44	2,63	1,22	44.267,60	1,16	42.094,47
	Inferred	Saprolite	5.000,00	8.400,00	1,68	1,26	339,02	1,09	295,58
		Fresh Rock	769.450,00	2.023.653,50	2,63	1,62	105.256,75	1,26	81.862,17
	TOTAL		**1.332.337,50**	**3.376.005,44**	**2,53**	**1,47**	**159.325,43**	**1,23**	**133.632,54**
1,1	Indicated	Saprolite	106.256,25	178.510,50	1,68	1,41	8.117,38	1,40	8.035,64
		Fresh Rock	297.175,00	781.570,25	2,63	1,30	32.621,08	1,22	30.669,09
	Inferred	Saprolite	5.000,00	8.400,00	1,68	1,26	339,02	1,09	295,58
		Fresh Rock	633.200,00	1.665.316,00	2,63	1,74	93.149,00	1,33	71.374,61
	TOTAL		**1.041.631,25**	**2.633.796,75**	**2,53**	**1,59**	**134.226,48**	**1,30**	**110.374,93**
1,2	Indicated	Saprolite	87.993,75	147.829,50	1,68	1,47	6.977,76	1,45	6.896,03
		Fresh Rock	169.568,75	445.965,81	2,63	1,41	20.177,81	1,33	19.102,18
	Inferred	Saprolite	5.000,00	8.400,00	1,68	1,26	339,02	1,09	295,58

		Fresh Rock	532.812,50	1.401.296,88	2,63	1,85	83.417,53	1,41	63.626,94
	TOTAL		**795.375,00**	**2.003.492,19**	**2,52**	**1,72**	**110.912,12**	**1,40**	**89.920,73**
1,3	Indicated	Saprolite	58.406,25	98.122,50	1,68	1,58	4.970,79	1,55	4.892,18
		Fresh Rock	111.075,00	292.127,25	2,63	1,49	13.972,27	1,41	13.203,29
	Inferred	Saprolite	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Fresh Rock	470.525,00	1.237.480,75	2,63	1,93	76.829,93	1,46	58.014,38
	TOTAL		**640.006,25**	**1.627.730,50**	**2,54**	**1,83**	**95.772,99**	**1,45**	**76.109,85**
1,4	Indicated	Saprolite	36.625,00	61.530,00	1,68	1,72	3.393,08	1,68	3.323,59
		Fresh Rock	59.287,50	155.926,13	2,63	1,62	8.119,91	1,54	7.741,69
	Inferred	Saprolite	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Fresh Rock	417.243,75	1.097.351,06	2,63	2,00	70.701,38	1,49	52.528,93
	TOTAL		**513.156,25**	**1.314.807,19**	**2,56**	**1,94**	**82.214,38**	**1,50**	**63.594,21**
1,5	Indicated	Saprolite	29.000,00	48.720,00	1,68	1,78	2.790,68	1,74	2.721,20
		Fresh Rock	42.706,25	112.317,44	2,63	1,68	6.063,76	1,57	5.685,54
	Inferred	Saprolite	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Fresh Rock	369.037,50	970.568,63	2,63	2,08	64.863,18	1,52	47.378,60
	TOTAL		**440.743,75**	**1.131.606,06**	**2,57**	**2,03**	**73.717,62**	**1,53**	**55.785,33**
2	Indicated	Saprolite	8.456,25	14.206,50	1,68	2,17	992,66	2,16	984,72
		Fresh Rock	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	Inferred	Saprolite	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Fresh Rock	131.787,50	346.601,13	2,63	2,87	31.933,25	1,98	22.016,05
	TOTAL		**140.243,75**	**360.807,63**	**2,57**	**2,84**	**32.925,91**	**1,98**	**23.000,76**
3	Indicated	Saprolite	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Fresh Rock	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	Inferred	Saprolite	0,00	0,00	0,00	0,00	0,00	0,00	0,00
		Fresh Rock	66.287,50	174.336,13	2,63	3,17	17.795,40	2,11	11.827,35
	TOTAL		**66.287,50**	**174.336,13**	**2,63**	**3,17**	**17.795,40**	**2,11**	**11.827,35**