NI 43-101 Technical Report
Updated Mineral Resource Estimate
Marmato Project
Colombia

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Report Prepared for

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1 Summary

This report was prepared as a Mineral Resource update Canadian National Instrument 43-101 (NI 43-101) Technical Report (Technical Report) for Gran Colombia Gold Corp. (GCM, Issuer, or Company) by SRK Consulting (U.S.), Inc. (SRK) on the Marmato Gold Project (Marmato or Project).

This Technical Report provides an update on the Mineral Resource at Marmato. In the current gold market, GCM feels it is prudent to change their approach for the Marmato Project, shifting from a large-scale, low-grade open pit operation as previously conceived, to a smaller-scale, higher-grade underground mining operation. The Project currently has a number of small-scale and one commercial-scale operating mine using underground mining methods. This Technical Report describes the current mining and processing methods, but the reader is cautioned that this report should not be considered a preliminary economic assessment (PEA), for the Project, and the previous study, as it considered open pit mining, is not relevant to the proposed changes.

SRK has recommended that GCM commence work on preparing a PEA for the underground option, which has commenced, but will require further investigation and is estimated for completion in 2018. The current options will continue during this time period and are therefore summarized in this Technical Report.

1.1 Property Description and Ownership

The Marmato Concession is located between latitudes and longitudes 5°28’24”N and 5°28’55”N, and 75°35’57”W and 75°38’55”W, respectively; with altitudes ranging from approximately 1,156 to 1,705 m. The Concession is made up of three separate areas, named Zona Alta (upper levels), Zona Baja (lower levels) and Echandia (northern portion of the Project), all of which are 100% owned by GCM.

1.2 Geology and Mineralization

The mineralization occurs in parallel, sheeted and anastomosing veins, all of which follow a regional structural control, which intersect broader zones of intense veinlet mineralization (referred to herein as grade shells), and is hosted by a lower grade mineralized porphyry, a high-grade core of the porphyry intrusion has been identified, termed Marmato “Deeps Zone”. The Marmato Deeps Zone has been observed in drill core as a separate style of mineralization, and the lowest levels of the mine have currently intersected the upper portion of these zones. Underground mining still remains focused on the vein structures located in the central portion (within the Zona Baja concession) via the Company-owned Mineros Nacionales mine, which is currently in operation throughout the concession area.

The mineralization in the mine consists of two distinct phases, a first phase characterized by an epithermal low-sulfidation style, superimposed by an epithermal intermediate-sulfidation phase. Gold-silver mineralization is mainly hosted by a sheeted pyrite±sphalerite vein to veinlet system associated with intermediate argillic alteration within the porphyry. Gold is associated with sulfides and is mostly free. Current mining in the area is via narrow underground stoping of the high-grade vein mineralization.

The Marmato Deeps Zone mineralization, interpreted as mesothermal based on geology evidence, consists of a network of very thin sulfide veinlets (<1 mm – 5 cm), mainly pyrrhotite±chalcopyrite±Bi-sulfides±Bi-tellurides and free gold, hosted by a week argillic alteration style.

The updated drilling database indicates that the veins typically range between 0.5 and 5 m wide and extend for 250 to 1,000 m along strike, and 150 to 750 m downdip. This is supported by underground mining which has confirmed that individual vein structures have geological continuity that extend for 100 to 800 m along strike and 100 to at least 300 m downdip.

1.3 Status of Exploration, Development and Operations

The latest sampling has comprised selective infill drilling from surface to a spacing of 25 to 50 m, deep drilling from underground adits around the 2011 block model, and additional underground channel sampling within the Mineros Nacionales mine.

Drillholes, where regularly spaced, dip -60 and -75 degrees predominantly to the south west, with occasional scissor holes towards the north east. Fan drilling has been utilized both at surface and from underground developments, which are also typically orientated towards the south west, with a small number of less extensive fans orientated towards the north east.

All samples were sent for preparation to ACME Laboratories (ACME) sample preparation facility in Medellin and fire assayed for gold by ACME in Chile. The results of the drilling have validated aspects of the previous interpretation, but also provided additional information which has led to further confirmation of the geological model initially created during the 2012 modelling exercise.

Historic underground channel samples are typically taken across the width of the vein, with limited sampling into the hangingwall and footwall where possible. Drilling at Marmato comprised selective infill drilling from surface to a spacing of 25 to 50 m, deep drilling from underground adits, and additional underground channel sampling within the Mineros Nacionales mine integrated into the Database.

The other significant development in terms of the sampling is the inclusion of channel sampling and underground drilling completed by Mineros Nacionales as part of the routine grade control procedures. The inclusion of the grade control samples has aided in the estimation of the vein domains, but has required some adjustment for the estimation within the porphyry sampling. The main issues relating to the channel sampling at the mine are a lack of detailed survey, as the mine has historically worked using 2D long-sections, where the true spatial location within the mine has less importance. GCM geologist have made great efforts to position the sampling as accurately as possible, but SRK has noted some limitations.

Compared to the previous Mineral Resource estimate, there has been an increase in the channel database of 5,963 channel samples, and over 60 drillholes (mainly grade control).

SRK has been supplied with electronic databases covering the sampling at the Project, all of which have been validated by the Company. The databases comprise of a combination of historical and recent diamond core and underground channel samples. In total, there are 1,165 diamond drillholes for a combined length of 240,855 m; plus 13,489 individual underground channel samples, inclusive of current mine sampling contained in the databases. Isolated historical channel samples in the upper portion of the mines have a degree of uncertainty on spatial location and quality as they have not been independently verified by SRK during site visits. SRK has excluded these samples from estimation of the porphyry units, but has used them to guide the geological interpretation of the veins at higher elevations.

SRK has been working with the GCM geological team since 2016, when data has been captured from the mine to generate a detailed geological model. For the most recent iteration of the database, SRK has undertaken basic validation for all tabulated data, and in order to independently verify the information incorporated within the latest drill program, SRK has:

- Completed a review of selected drill core for selected holes, to confirm both geological and assay values stored in the database show a reasonable representation of the project;
- Verified the digital database against the original issued assay certificates;
- Visited underground workings via Mineros Nacionales to check the continuity of vein and veinlet mineralization at depth, including a site inspection to levels 19 to 21 to understand changes in the mineralization styles;
- Verified the quality of geological and sampling information and developed an interpretation of gold grade distributions appropriate to use in the resource model; and
- Reviewed the QA/QC database for the recent drilling and channel sampling programs.

SRK is satisfied with the quality of assays returned from the laboratory for the latest drilling program and that there is no evidence of bias within the current database which would materially impact on the estimate or Mineral Resources.

1.4 Mineral Processing and Metallurgical Testing

Marmato facilities include an operating processing plant and metallurgical laboratory at site at the Mineros Nacionales Operation. Sampling and testing of samples are executed on an as-needed basis. No new detailed test work results were available at this time for the areas being mined currently or for the new prospects being explored, but SRK has been supplied with production data from the past four years for review, which indicates average recoveries in the order of 85% to 90%.

1.5 Mineral Resource Estimate

The Mineral Resource model presented herein represents an updated resource evaluation prepared for the Marmato Project. The resource estimation methodology involved the following procedures:

- Database compilation and verification;
- Construction of wireframe models for the fault networks and centerlines of mining development per vein;
- Definition of resource domains;
- Data conditioning (compositing and capping) for statistical and geostatistical analysis;
- Variography;
- Block modelling and grade interpolation;
- Resource classification and validation;
- Assessment of “reasonable prospects for economic extraction” and selection of appropriate reporting cut-off grades; and
- Preparation of the Mineral Resource Statement.

The resource evaluation work was completed by Mr. Benjamin Parsons, MAusIMM (CP#222568). The effective date of the Mineral Resource Statement is June 16, 2017, which is the last date assays were provided to SRK.

The Mineral Resource estimation process was a collaborative effort between SRK and GCM staff. GCM provided to SRK an exploration database with flags of the main veins as interpreted by GCM. In addition to the database GCM has also supplied a geological interpretation comprising preliminary 3D digital files (DXF) through the areas investigated by core drilling for each of the main veins.

SRK imported the geological information into ARANZ Leapfrog® Geo (Leapfrog®) to complete the geological model. Leapfrog® has been selected due to the ability to create rapid accurate geological interpretations, which interact with a series of geological conditions. The following process has been performed to complete the geological models:

As part of the updated Mineral Resource, GCM and SRK initially focused on the creation of a more complete geological model (i.e., one encompassing the major geological features inclusive of the current veins being mined). The main geological units and entities modelled for the resource were:

- Vein;
- Porphyry (P1 – P4);
- Major Fault Network; and
- Meta Schist.

Drilling during 2011/2012, with confirmation drilling in 2016/2017, along with check logging of the drill core by SRK and the Company, SRK has confirmed the presence of a high-grade core or feeder zone to the main mineralization (termed the “Deeps Zone”), which SRK initially modelled based on interpretations provided by the GCM geologists. SRK notes that there is still limited understanding of the differences between the typical veinlet style mineralization seen in the upper portions of the deposit and the increased grades at depth. Recent drilling included in the revised database supports the presence of the Deeps Zone and will be incorporated in the updated model.

SRK has produced block models using Datamine™ Studio RM Software (Datamine™). The procedure involved construction of wireframe models for the fault networks, veins, definition of resource domains (high-grade sub-domains), data conditioning (compositing and capping) for statistical analysis, geostatistical analysis, variography, block modelling and grade interpolation followed by validation. Grade estimation for the veins has been based on block dimensions of 5 m x 5 m x 5 m, and 5 m x 10 m x 5 m for the porphyry and Deeps units. The lower grade areas have been estimated at the parent block size of 10 m x 20 m x 10 m. The block size reflects that the relatively close spaced underground channel sampling and spacing within veins compared to the wider drilling spacing.

SRK reviewed and updated the capping/composite strategy at Marmato as part of the 2017 Mineral Resource update. In 2017 the selected capping limits are as follows:

- VEINS: A 50 g/t Au in the major veins with large numbers of samples, dropping to 20 g/t Au in veins with lower sampling density. A cap of 150 g/t Ag has been selected for all veins;
- HALO: Mineralization around the main veins a cap of 12 g/t Au (vein 3400), and 10 g/t Au (all other veins). A standard cap of 80 g/t Ag has been selected;
- SPLAY: A 40 g/t Au and 80 g/t Ag for all splays has been used;
- GRADE SHELL: A 20 g/t Au cap has been used for all material, but the silver capping has been split based on the assumption of higher silver grades within the east (Echandia area), compared to the Zona Baja and Zona Alta areas of 500 g/t Ag and 120 g/t respectively; and;
- DEEPS: A 20 g/t Au and 30 g/t Ag cap has been used.

SRK reviewed the geostatistical properties of the domains. Gold grades have been interpolated using three pass approaches within Datamine™, using an Ordinary Kriging (OK) routine for the main veins.

SRK has also calculated Inverse Distance Squared (IDW) and Nearest Neighbor (NN) estimates for validation purposes.

The search ellipses follow the typical orientation of the mineralized structures, and where appropriate, were aligned along the mineralized veins, using dynamic searches for the vein and halo mineralization domains.

SRK has generated a depletion model based on polylines of the outline of mining provided by GCM, which have been Projected through the vein and halo domains.

Block model quantities and grade estimates for the Project were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014).

Data quality, drillhole spacing and the interpreted continuity of grades controlled by the veins have allowed SRK to classify portions of the veins in the Measured, Indicated and Inferred Mineral Resource categories.

SRK's classification system differs from the previous estimate which used very broad classification as it was based on the assumption of mining adjustments based on increased knowledge of the deposit from on-going mine planning support.

Measured: Measured Resources are limited to vein material within the current levels being mined by Mineros Nacionales. These areas are considered to have strong geological knowledge as they have been traced both downdip and along strike via mapping, plus underground channel samplings provide sufficient data populations to define internal grade variability.

Indicated: For the 2017 Mineral Resource estimate, SRK has delineated Indicated Mineral Resources at Marmato primarily between Level 16 to 21 currently in operation at Mineros Nacionales. Indicated Mineral Resources have been given at the following approximate data spacing, as a function of the confidence in the grade estimates and modelled variogram ranges. SRK has expanded the limits of the Indicated to also cover areas within Echandia where:

- 50 x 50 m (XY) from the nearest drillhole;
- Enabled multiple holes to be used during the estimation process; and
- Support from both diamond drilling and channel sampling present.

Inferred: In general, Inferred Mineral Resources have been limited to within areas of reasonable grade estimate quality and sufficient geological confidence, and are extended no further than 150 m from peripheral drilling on the basis of modelled variogram ranges.

SRK has defined the proportions of Mineral Resource to have potential for economic extraction for the Mineral Resource based on different cut-off grades relating to the mineralization (vein versus porphyry) style and potential differences in mining methods (both underground methods). The estimation domains have therefore been grouped for the Mineral Resource statement into veins, porphyry and Deeps Zone mineralization. The veins account for the veins, halos and splay material and have used a 1.9 g/t Au cut-off, while all other domains (grade-shell, Deeps, porphyry) have used a lower cut-off of 1.2 g/t to account for the larger bulk mining methods involved. The Mineral Resource statement for the Project is shown in Table 1-1.

Table 1-1: SRK Mineral Resource Statement for the Marmato Project, dated June 16, 2017 (1)

Category	Quantity	Grade		Metal	
	(Mt)	Au (g/t)	Ag (g/t)	Au (000's oz)	Ag (000's oz)
Underground Vein (2)					
Measured	2.6	4.7	21.3	396	1,774
Indicated	10.7	4.6	22.3	1,583	7,660
Measured and Indicated	13.3	4.6	22.1	1,979	9,434
Inferred	9.4	4.2	18.9	1,275	5,722
Underground Porphyry (3)					
Measured					
Indicated	27.0	2.1	14.9	1,858	12,892
Measured and Indicated	27.0	2.1	14.9	1,858	12,892
Inferred	13.3	1.8	15.4	777	6,655
Underground Deeps (3)					
Measured					
Indicated	0.9	2.0	8.0	60	235
Measured and Indicated	0.9	2.0	8.0	60	235
Inferred	29.3	2.3	2.8	2,142	2,628
Underground Combined					
Measured	2.6	4.7	21.3	396	1,774
Indicated	38.6	2.8	16.7	3,501	20,787
Measured and Indicated	41.2	2.9	17.0	3,897	22,561
Inferred	52.0	2.5	9.0	4,194	15,005

(1) Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.
(2) Vein mineral resources are reported at a cut-off grade of 1.9 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal.
(3) Porphyry and Deeps mineral resources are reported at a cut-off grade of 1.2 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal within a limiting pit shell.

1.6 Mineral Reserve Estimate

There are currently no Mineral Resource defined to a CIM level at Marmato, but the Project has been in operation since GCM took ownership of the Project (Table 1-2).

Table 1-2: Summary of Production from Mineros Nacionales 2012 to 2016

Parameter	2012	2013	2014	2015	2016
Mill Cost/t (US$/t)	$15.95	$16.34	$14.32	$11.70	$12.18
Mill Cost/oz Au (US$/oz)	$197	$199	$175	$148	$177
Tonnes (t)	268,137	274,190	295,023	303,279	341,308
Grade (g/t)	2.85	2.90	2.85	2.79	2.56
Recovery (%)	88.36%	88.58%	89.05%	87.99%	83.67%
Ounces (oz)	21,717	22,566	24,113	23,954	23,447

Source: GCM, 2017

1.7 Infrastructure

The infrastructure at the Marmato mine is mature and operating. It includes adequate access with all-season roads, power supply, water supply, and an active permitted tailings storage facility (TSF). No substantial issues exist with the infrastructure on site.

1.8 Conclusions and Recommendations

1.8.1 Mineral Resources

SRK is of the opinion that the Mineral Resource estimations are suitable for public reporting and are a fair representation of the in situ contained metal for the Marmato Project. In comparison to the "NI 43-101 Mineral Resource Estimate on the Marmato Project, Colombia" dated June 21, 2012 (referred to herein as the 2012 MRE), the Project demonstrates a significant adjustment in the Mineral Resource statement. SRK urges caution that it will be important that these changes are clearly explained in any future press release to avoid potential issues of investor confidence.

The changes in the Mineral Resources are a direct function of the change in the focus of the mining style from Open Pit to Underground Mining, and can be attributed to the following factors:

- No open pit Mineral Resources declared;
- Increase in the cut-off grades used from 0.3 g/t to 1.2 g/t and 1.9 g/t for the different mineralization styles;
- Change in the classification strategy which previously assumed large bulk mining where local variability in the grades would be more smoothed over annual production periods, compared to the requirement to have sufficient geological and grade confidence within the veins for the definition of stope design;
- Major focus on modelling of the geological continuity in the veins has resulted in reduced tonnages, but higher grades;
- Increase in the cut-off grade used to define the mineralized porphyry units, which has resulted in more discrete zones (increasing the average grades from the range from 0.9 to 1.0 g/t, to 1.2 to 1.3 g/t); and
- Additional Marmato Deeps Mineralization included in the 2017 model at depth within the Inferred category.

To provide GCM with a clear summary of the impact of these changes, SRK has completed a comparison between the 2012 and 2017 Mineral Resource statements. The 2012 MRE had a combined **495.8 Mt at a grade of 0.94 g/t Au for 14.96 Moz**, which has been reduced to **371.1 Mt at 1.1 g/t Au for 13.14 Moz,** when reviewing the updated 2017 at the same 0.3 g/t Au cut-off grade. This represents a reduction of approximately 12% in the contained metal. SRK assumes this change is due to the more discrete definition of the "grade-shells" between 2012 and 2017. In the 2012 models, the grade shell was manually created using broad zones at a 0.3 g/t Au cut-off grade. Additional detail captured from the channel database and the underground mine drilling suggest these zones are more variable and therefore SRK increased the cut-off to 0.5 g/t using an Indicator interpolation within Leapfrog®, using the veins orientation to guide in interpretation.

The other major impact relates to the increase in the cut-off grade. Increasing the cut-off grade from 0.3 g/t to 1.2 g/t Au, results in a drop in the Mineral Resource from **371.1 Mt at 1.1 g/t Au for 13.14 Moz**, to **93.2 Mt at 2.7 g/t for 8.09 Moz.** This is a reduction in the contained metal of approximately 38%. This represents the largest change between the models.

The final difference of significance relates to change in the classification strategy between 2012 and 2017. In order to consider this, it is important to consider the criteria for the declaration of the Mineral Resource which states that there is sufficient confidence that the "*form and quantity and of such a* *grade or quality that it has reasonable prospects for economic extraction".* The previous work completed on the 2012 model indicated that an open pit mine for the Project has sufficient issues that it might not meet the criteria for reasonable prospects for economic extraction, and therefore the 2017 has only considered underground potential to have reasonable prospect for extraction. The philosophy in defining underground Mineral Resources differs from an open pit, as with open pit material it is assumed all material will be mined, and that the key decision or economic criteria is that it has sufficient grade to cover processing and G&A costs. For underground mining one must also consider cost of mining, plus the cost of development if areas are isolated. To test this criteria SRK has filtered the block model to ensure all the areas of the Mineral Resource form reasonable mining targets. Using this and the applicable cut-off grade, SRK has defined the mining targets with reasonable prospect for extraction.

1.8.2 Other Factors and Risks

There are no other factors that SRK is aware of that can affect these estimations.

There are no legal restrictions that affect access, title or right or ability to perform work on the property. Social issues may cause issues from time to time within the Zona Alta region of the Project. It is SRKs understanding that GCM intends to implement SRK's recommended contract mining model to incorporate production from the ancestral and artisanal miners working within GCM titles. This incorporation could potentially improve the current environmental conditions and reduce potential social issues, which were opposed to in the previous plan for open pit mining.

1.8.3 Recommendations

SRK recommends the following for required data quality improvements:

- Infill drilling using underground drill rigs on the Marmato Deeps Zone to, at minimum, a 100 m x 100 m sample spacing, with suggested infill to 50 m x 50 m in the upper portions, near the current mining levels. The Deeps material is all Inferred in the current estimate;
- GCM developed an exploration drilling plan of approximately 80 holes for approximately 19,500 m of drilling. All drilling will be completed using underground diamond drillholes from drilling stations on Level 20 and Level 21 of the current operation. GCM sub-divided the program into three main sub-categories which include:
  - Upper Levels: Infill to tight drill spacing in the upper levels (designed to test grade continuity over a shorter range and potentially define Indicated Mineral Resources);
  - Transitional Levels: Infill within the current defined Inferred Mineral Resource to increase the knowledge in the geological and grade continuity, plus test for strike extension to the known mineralization;
  - Deep Levels: Drilling design to test the base of the current Inferred Mineral Resource and potentially increase the limit of the Inferred downdip.
- SRK comments that the current proposed drilling budget is reasonable and that testing the depth extensions may be difficult from the current drilling locations, and that revisions within the current drilling program, as the program advances, may be required. The current drilling budget and proposed program are shown in Table 1-3.
- SRK recommends that further geologic drilling should also include density measurements, and geotechnical logging to aid any future studies, and to further develop the geologic

knowledge of the Deeps Zone area and to further develop the resource, as there are only four drillholes in the zone currently;

- SRK suggests that additional metallurgical studies for the Deeps area material begin immediately, and prior to the PEA, to provide the basis for flowsheet development/confirmation and to provide recoveries for use in the study;
- Continual updates by GCM geologist of the 3D interpretation of all mining development and stoped areas;
- Continuation of the data capture and verification channel sampling at the Mineros Nacionales Operations to further increase the geological confidence in the associated block estimates;
- SRK recommends minor adjustments to the way channel samples are recorded in the database to avoid some of the limitations in the current geological model processing to ensure the process is optimized as new data comes available; and
- SRK recommends that the Company consider the use of localized short-term planning models to improve the understanding of the short scale variation in grade, and improve the potential to monitor the current estimates. These short-term models should include results from the infill underground drilling areas and adjustments to the high-grade domain boundaries;

SRK recommends the following additional considerations in relation to the required technical work required to increase the confidence in other technical areas:

- Produce an updated underground mining and geotechnical study;
- Complete a hydrogeology and hydrology review for the Deeps Zone to a PEA level; and
- Review environmental/social status for impact on declaration of future Mineral Reserves.

Table 1-3 summarizes the costs for recommended work programs to advance the knowledge of the deposit and increase the confidence in the grade estimates of the Deeps Zone.

Table 1-3: Summary of GCM Proposed Drilling Budget

Deeps Zone Target	Count	Sum (m)
Deeps Zone (Upper)	38	2,630
Deeps Zone (Transition)	16	4,540
Deeps Zone (Deep)	26	12,385
Subtotal	**80**	**19,555**

Source: GCM 2017

Table 1-4: Summary of Costs for Recommended Work

Discipline	Program Description	Cost (US$)	No Further Work is Recommended Reason:
Property Description and Ownership	Completion of documentation to confirm extension to life of mine	0	In Progress
Geology and Mineralization	Infill Drilling on Deeps Zone to convert portion from Inferred to Indicated, and to increase the confidence in the estimates at depth to at minimum Inferred levels 80 holes designed for 19,500 m	3,500,000	
Mineral Processing and Metallurgical Testing	Additional test work on the Marmato Deeps Zone to confirm recovery assumptions	150,000	
Complete a Preliminary Economic Assessment on the Project	Complete an engineer study to a PEA level to confirm potential for economic extraction inclusive of the Marmato Deeps Zone	350,000	
Total US$		**$4,000,000**	

2 Introduction

2.1 Terms of Reference and Purpose of the Report

This report was prepared as a Mineral Resource update Canadian National Instrument 43-101 (NI 43-101) Technical Report (Technical Report) for Gran Colombia Gold Corp. (GCM, Issuer or Company) by SRK Consulting (U.S.), Inc. (SRK) on the Marmato Gold Project (Marmato).

The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in SRK's services, based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by GCM subject to the terms and conditions of its contract with SRK and relevant securities legislation. The contract permits GCM to file this report as a Technical Report with Canadian securities regulatory authorities pursuant to NI 43-101, Standards of Disclosure for Mineral Projects. Except for the purposes legislated under provincial securities law, any other uses of this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with GCM. The user of this document should ensure that this is the most recent Technical Report for the property as it is not valid if a new Technical Report has been issued.

The current report provides an update on the Mineral Resource at Marmato. In the current gold market, GCM feels it is prudent to change their approach for the Marmato Project, shifting from a large-scale, low-grade open pit operation as previously conceived to a smaller scale, higher grade underground mining operation. The Project currently has a number of small scale and one commercial scale mine operating using underground mining methods. This report provides guidance as to the current mining and processing methods, but the reader is cautioned that this report should not be considered a preliminary economic assessment (PEA), for the Project, and the previous Mineral Resource Estimate, as it considered Open Pit Mining, is not relevant to the proposed changes.

SRK has recommended that GCM commence work on preparing a PEA for the underground option, which has commenced, but will require further investigation with view of release during 2018. The current options will continue during this time period and are therefore summarized in this report.

The current Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. This report provides Mineral Resource and Mineral Reserve estimates, and a classification of resources and reserves prepared in accordance with the Canadian Institute of Mining, Metallurgy and Petroleum Standards on Mineral Resources and Reserves: Definitions and Guidelines, May 10, 2014 (CIM, 2014).

2.2 Qualifications of Consultants (SRK)

The Consultants preparing this Technical Report are specialists in the fields of geology, exploration, Mineral Resource and Mineral Reserve estimation and classification, underground mining, geotechnical, environmental, permitting, metallurgical testing, mineral processing, processing design, capital and operating cost estimation, and mineral economics.

None of the Consultants or any associates employed in the preparation of this report has any beneficial interest in GCM. The Consultants are not insiders, associates, or affiliates of GCM. The results of this Technical Report are not dependent upon any prior agreements concerning the conclusions to be reached, nor are there any undisclosed understandings concerning any future business dealings between GCM and the Consultants. The Consultants are being paid a fee for their work in accordance with normal professional consulting practice.

The following individuals, by virtue of their education, experience and professional association, are considered Qualified Persons (QP) as defined in the NI 43-101 standard, for this report, and are members in good standing of appropriate professional institutions. QP certificates of authors are provided in Appendix A. The QP's are responsible for specific sections as follows:

- Ben Parsons, MSc, MAusIMM (CP), Principal Consultant (Resource Geologist) is the QP responsible for geological model and associated mineral resource estimate, environmental and permitting Sections 2 through 12, 14, 20, 23, 24, 27, 28 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
- Eric J. Olin, MSc Metallurgy, MBA, SME-RM, MAusIMM Principal Consultant (Metallurgy) is the QP responsible for metallurgical, process and recovery Sections 13, 17 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
- Jeff Osborn, BEng Mining, MMSAQP, Principal Consultant (Mining Engineer) is the QP responsible for project infrastructure Section 18 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
- Fernando Rodrigues, BS Mining, MBA, MAusIMM, MMSAQP, Practice Leader/Principal Consultant (Mining Engineer) is the QP responsible for mining, mineral reserve estimate, capital and operating costs, economic and Sections 15, 16, 19, 21, 22, and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.

2.3 Details of Inspection

SRK QP's have undertaken a number of site inspections as detailed in Table 2-1.

Table 2-1: Site Visit Participants

Personnel	Company	Expertise	Date(s) of Visit	Details of Inspection
Jeff Osborn	SRK	Mining/Infrastructure	August 22 and 23, 2017	Underground and Surface Facilities including TSF as well as core shack area
Fernando Rodrigues	SRK	Mining/Reserves	August 22 and 23, 2017	Underground and Surface Facilities including TSF as well as core shack area
John Tinucci	SRK	Geotechnical	August 22 and 23, 2017	Underground and Surface Facilities including TSF as well as core shack area
Ben Parsons	SRK	Mineral Resources	August 17, 2017	Underground Site visit levels 17 – 20, review latest drilling intersections
Ben Parsons	SRK	Mineral Resources	March 12 to 14, 2012	Underground Site visit, review latest drilling intersections

Source: SRK, 2017

2.4 Sources of Information

This report is based in part on internal Company technical reports, previous feasibility studies, maps, published government reports, Company letters and memoranda, and public information as cited throughout this report and listed in the References Section 27.

SRK has been supplied with numerous technical reports and historical technical files. SRK's report is based upon:

- Numerous technical review meetings held at GCM's offices in Medellin;
- Discussions with directors, employees and consultants of the Company;
- Data collected by the Company from historical exploration on the project;
- Access to key personnel within the Company, for discussion and enquiry;
- A review of data collection procedures and protocols, including the methodologies applied in determining assays and measurements;
- Existing reports provided to SRK, as follows:
    - NI 43-101 Mineral Resource Estimate on the Marmato Project, Colombia, June 21, 2012;
    - Geochronology, Geochemistry and Magmatic-Hydrothermal Oxide Characterization of the Marmato Gold Deposit, Colombia; and
    - Lead isotopic compositions of the gold mineralization of Marmato, Colombia: Characterization of the transition domain in epithermal - porphyry systems.
- Data files provided by the Company to SRK as follows:
    - Topographic grid data in digital format;
    - Drillhole database, including collar, survey, geology, and assay;
    - QA/QC data including details on duplicates, blanks and certified reference material (CRM); and
    - DXF files, including geological interpretation, vein domain digitized 2D section interpretations, stope outlines and mined depletions.

2.5 Effective Date

The effective date of this report is June 16, 2017.

2.6 Units of Measure

The metric system has been used throughout this report. Tonnes are metric of 1,000 kg, or 2,204.6 lb. All currency is in US Dollars (US$) unless otherwise stated.

3 Reliance on Other Experts

The Consultant's opinion contained herein is based on information provided to the Consultants by GCM throughout the course of the investigations. SRK was reliant upon information and data provided by the Company. SRK has, however, where possible, verified data provided independently, and completed site visits to review physical evidence for the deposit.

SRK has not completed a detailed update on the environmental and social conditions as part of the current report and has therefore relied upon the work of other consultants (SRK UK) in the project areas in support of this Technical Report, which were detailed in the previous NI 43-101 disclosure for the Project.

The Consultants used their experience to determine if the information from previous reports was suitable for inclusion in this Technical Report and adjusted information that required amending. This report includes technical information, which required subsequent calculations to derive subtotals, totals and weighted averages. Such calculations inherently involve a degree of rounding and consequently introduce a margin of error. Where these occur, the Consultants do not consider them to be material.

SRK has not performed an independent verification of land title and tenure as summarized in Section 3 of this report. SRK did not verify the legality of any underlying agreement(s) that may exist concerning the permits or other agreement(s) between third parties, but have relied on the Company and its legal advisor for land title issues.

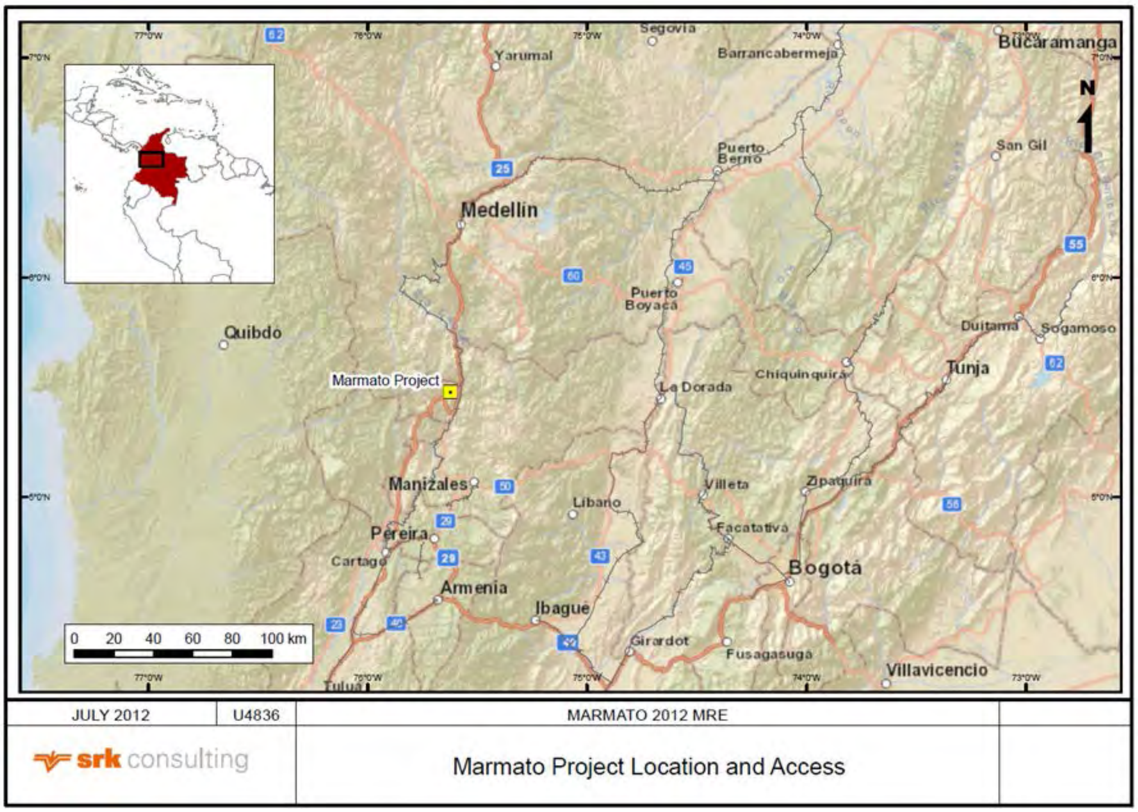
SRK was informed by the Company that there are no known litigations potentially affecting the Marmato Project.

4 Property Description and Location

4.1 Property Location

The Marmato project is located in the Municipality of Marmato, Department of Caldas, Republic of Colombia and is approximately 80 km due south of the city of Medellin, the capital of the Department of Antioquia (Figure 4-1).

The property sits between latitudes and longitudes 5º28'24"N and 5º28'55"N, and 75º35'57"W and 75º38'55"W respectively. The Project can be accessed from Medellin via paved roads on the Medellin to Cali highway which forms part of the Pan America Highway.

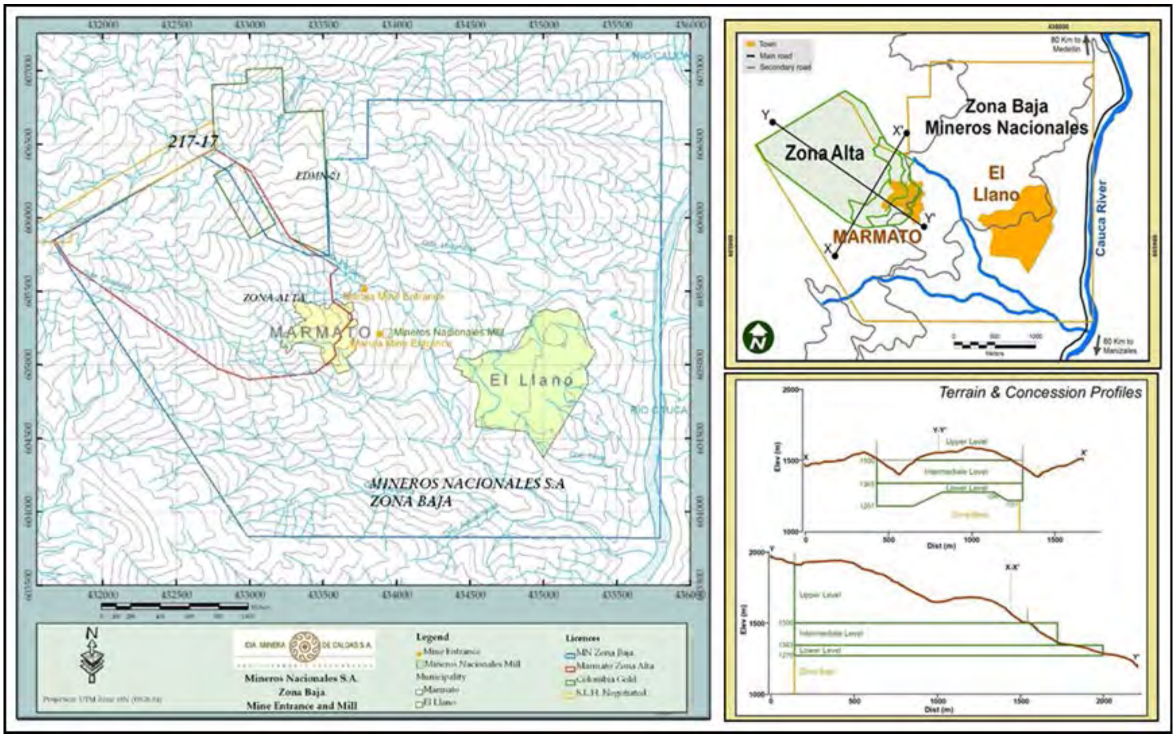


Source: SRK, 2012

Figure 4-1: Location Map

4.2 Mineral Titles

The current Marmato Project area has historically been divided into three main zones with numerous license boundaries defined within. The project is made up of three separate concessions (Figure 4-2), named Zona Alta, Zona Baja and Echandia. Prior to ownership by GCM each of these licenses have changed owners a number of times. The following section briefly describes the three license areas.



Source: Mineros Nacionales, 2010

Figure 4-2: Land Tenure Map(s)

The horizontal division (Zona Alta and Zona Baja) of mining rights at Marmato is unique in Colombia and was created in 1954 by Decree 2223 to enable concession contracts to be defined by horizontal mine levels. This is defined as an Aporte Minero Mine (Mining Contribution 1017 for precious metals), which was granted in 1981. The Zona Alta concession is further subdivided into three levels. The Upper Level (Nivel Superior) is located above the 1,500 meter (m) contour to the hilltop at about 1,705 m; the Intermediate Level (Nivel Intermedio) is between the 1,500 m and 1,363 m contours; and the Lower Level (Nivel Inferior) is between the 1,363 m contour and the top of the Zona Baja (Lower Zone). The top of the Zona Baja is defined in Contract 014-89 with Mineros Nacionales and coincides with the road and varies from 1,207 m to 1,298.3 m in elevation.

The Zona Alta portion of the Marmato project hosted a large number of individual small mines. During 2009 to 2010 the Company focused work on consolidating the various licenses (including surface rights) to create a single project area for the entire Marmato deposit, which has now been completed. SRK has not reviewed all the legal documents to confirm the completion of this process at this given time, however GCM senior management confirmed that any outstanding consolidation would not impact on the three main licenses. Some minor licenses have lapsed but this will not materially impact the current Mineral Resource or the ability to continue the current mining process.

The Zona Baja license lies below the Marmato Zona Alta property and is adjacent to Echandia. Zona Baja extends east to the River Cauca. The license is bounded vertically by the Zona Alta and Cerro El Burro in Marmato, but in the other parts it continues to surface. The license continues vertically to depth in all parts.

The Zona Baja contract was owned by Mineros Nacionales S.A. (Mineros Nacionales), a private Colombian corporation which was owned 94.5% by Mineros S.A. (Mineros), a Colombian corporation whose shares are traded on the Colombian stock exchange (BVG – Bolsa de Valores de Colombia). The remaining 5.5% of Mineros Nacionales was owned by a number of private and juridical persons. The contract registration number is 014-89M and the mining title registration number is GAFL-11. It covers a surface area of 952.5830 hectares (ha). The Zona Baja contract was awarded to Mineros Nacionales in October 1991 and is valid for 30 years until October 2021. In October 2017, GCM commenced the process to renew the contract for another 30-year term.

On February 15, 2010 Medoro Resources Ltd. (Medoro) acquired all of the issued and outstanding ordinary shares of Mineros Nacionales S.A. from its parent company, Mineros S.A., for total cash consideration of US$35 million. With this acquisition, Medoro acquired 100% of Mineros Nacionales' interests in the Zona Baja concession (the "Zona Baja property").

The Echandia property lies to the north east of the Zona Alta limit, and extends to depth (Figure 4-2). The Echandia has contract number RPP 357 and registry number EDMN-01. The Reconocimiento de Propiedad Privada ("RPP") type of contract translates as Recognition of Private Property. RPPs were created by Law 20 of 1969. The law respected prior mining and land rights and required that proof be submitted of mining. Echandia is an old freehold property dating from the nineteenth century. The RPP titles grant surface and subsurface rights in perpetuity.

Exploitation is required in order to maintain the validity of an RPP license. In Echandia five mines are kept open – La Palma, La Negra, La Felicia, La Agudelo and Plata Fria and mining on a relatively small scale is being maintained. An environmental management plan (PMA in Spanish) for the exploitation was submitted to CORPOCALDAS in 2008, and is currently being evaluated.

There is an overlap of mining license applications in a triangular area at Cien Pesos in the south-east part of the Echandia license. This was the result of a surveying error in the Mining Registry which erroneously excluded the triangular area from Echandia, and is understood to have been later corrected. Twenty-five mining license applications have been made in this area by small miners. Some of these have were granted contracts by Minercol and its predecessors (described below), but they have not been signed and cannot be registered due to the overlap with the Echandia license. Medoro, though Minera de Caldas, has bought 10 of these licenses. SRK has not viewed the legal documents in line with these licenses but in discussions with senior management it was confirmed that this would not impact on the consolidation of the three main licenses.

On February 8, 2010, Medoro (previous owners), announced that it has acquired all of the issued and outstanding ordinary shares of Colombia Gold plc (Colombia Gold). A total of 33,333,238 common shares of Medoro were issued to former shareholders of Colombia Gold pursuant to the offer. With this acquisition, Medoro acquired 100% of Colombia Gold interests in the Echandia concession (the "Echandia property") which adjoins the Zona Alta property.

Effective June 10, 2011, GCM completed a merger with Medoro and the combined company continued under the name Gran Colombia Gold Corp. As a result, GCM acquired 100% of Medoro's interest in the Marmato Project.

4.2.1 Nature and Extent of Issuer's Interest

In regard to surface rights within Zona Alta, GCM compiled a GIS database of surface rights ownership within a 6-km radius of Marmato. Each of the properties was reviewed to determine discrepancies between legal descriptions and actual ownership. The Mining Law allows for expropriation of land if negotiations subsurface and surface owners are unsuccessful.

SRK is not aware of any other restrictions which impact the current mining operations within the Zona Baja (Mineros Nacionales) and Echandia areas of the Project.

4.3 Royalties, Agreements and Encumbrances

In 1991, Mineros Nacionales entered into an agreement with *Ecominas* (a State Industrial and Commercial Organization) for the exploration and exploitation of Mining Title No.014-89M. The mentioned title was previously granted by the Colombian State to *Ecominas*. It was agreed by the parties that Mineros Nacionales would pay *Ecominas* 6% of the gold production and 8% of the silver production as economic compensation.

Besides that, Mineros Nacionales is bound by law to pay the Colombian State a 4% royalty.

4.4 Environmental Liabilities and Permitting

The main environmental issues for the project are covered in Section 20 of this report.

4.4.1 Required Permits and Status

<u>Colombian Mining Law</u>

Mining in Colombia is governed by the Mining Law 685 of 2001. Some of the contracts in the Marmato district are, in addition, governed by the Mining Law 2655 of 1988 and the terms of the contracts awarded under the Mining Contribution (Aporte Minero) scheme, as explained below, and the RPP law. The 2001 Mining Law allows applications made under the 1988 Mining Law to continue the application process under the terms of the old law, and titles granted under the 1988 law continue to be governed by it.

The mining authorities in Colombia are as follows:

- Ministry of Mines and Energy (Ministerio de Minas y Energia, MME): The highest mining authority in the country.
- INGEOMINAS (Instituto Colombiano de Geología y Minería): The MME has delegated the administration of mineral resources to INGEOMINAS and some Department Mining Delegations. INGEOMINAS has two departments, the Geological Survey (Servicio Geológico), and the Mines Department (Servicio Minero) responsible for all mining contracts except where responsibility for the administration has been passed to the Departmental Mining Delegations.

However, Decree 4134 dated November 3, 2011 created the Mining National Agency (Agencia Nacional de Minería), as the entity under to the MME which in charge of administering the mineral resources and promoting the optimal and sustainable use and extraction of these resources. This Agency became operational on May 3, 2012.

Additionally, INGEOMINAS was transformed into the Colombian Geological Service (Servicio Geológico Colombiano) which is in charge, among others, of investigating the potential of the mineral resources of the subsoil and administers the information of the subsoil.

Departmental Mining Delegations (Gobernaciones Delegadas): It administers mining contracts in the Departments with the most mining activity, including Caldas.

Mining Energy Planning Unit (Unidad de Planeación Minero Energética, UPME): Provides technical advice to the MME regarding planning for the development of the mining and energy sector and maintains the System of Colombian Mining Information (Sistema de Información Minero Colombiano, SIMCO).

All mineral resources belong to the state and can be explored and exploited by means of concession contracts granted by the state. Under the Mining Law of 2001, there is a single type of concession contract covering exploration, construction and mining which is valid for 30 years and can be extended for another 30 years.

Concession contract areas are defined on a map with reference to a starting point (punto arcifinio) and distances and bearings, or map coordinates. There is no limit on concession size.

A surface tax (canon superficial) has to be paid annually in advance during the exploration and construction phases of the concession contract. This is defined as 1 minimum daily wage per hectare per year for years 1 to 5 (about US$8.65), 1.25 minimum daily wages per hectare per year for years 6 and 7 (about US$10.81), and 1.5 minimum daily wages per hectare per year for year 8 (about US$12.97). The 2010 Mining Law does not define the surface tax for years 9 to 11. A reasonable interpretation could be that the surface tax for year 9 should be 1.5 minimum daily wages per hectare and per year (the same as for year 8), and for years 10 and 11 should be 1.75 minimum daily wages per hectare and per year, on the basis that this provision appears to understand that the surface tax should be increased every two years by 0.25 minimum daily wages per hectare and per year. This issue requires clarification from the Ministry of Mines and Energy. The minimum daily wage in 2010 is COP 17,166.67 which, at the present exchange rate of COP 1,915 = US$ 1.00 (April 1, 2010), is about US$8.96. The minimum daily wage is adjusted annually. The properties owned by FGM are in exploitation and so no surface taxes are payable.

The concession contract has three phases:

- Exploration Phase:
    - Starts once the contract is inscribed in the National Mining Registry (Registro Minero Nacional, RMN);
    - Valid for 3 years, plus a 2-year extension;
    - Annual property tax;
    - Requires an annual Environmental Mining Insurance Policy for 5% of the value of the planned exploration expenditure for the year; and
    - Present a mine plan ("PTO") and an Environmental Impact Assessment (EIA) for the next phase.
- Construction Phase:
    - Valid for 3 years plus a 1-year extension;
    - Annual property tax payments continue as in Exploration Phase;

  - Requires an annual Environmental Mining Insurance Policy for 5% of the value of the planned investment as defined in the PTO for the year; and
  - Environmental License issued on approval of Environmental Impact Study.
- Exploitation Phase:
  - Valid for 30 years minus the time taken in the exploration and construction phases, and is renewable for 30 years;
  - Annual Environmental Mining Insurance Policy required;
  - No annual property tax;
  - Pay royalty based on regulations at time of granting of the Contract; and
  - Royalties payable to the state are 4% of gross value at the mine mouth for gold and silver and 5% for copper (Law 141 of 1994, modified by Law 756 of 2002). For the purposes of royalties, the gold and silver price is 80% of the average of the London afternoon fix price for the previous month.

Once an application or contract is dropped or expires for whatever reason, the area does not become free for staking again for a period of 30 days.

The Mining Law of 2001 allows for mining titles granted under previous laws to continue to be governed by the terms of the previous laws, including Decree-Law 2655 of 1988.

In addition, applications made under the 1988 Mining Law can continue the application process under the terms of the old law and be granted a license under the 1988 law. Under the 1988 law, an exploration license is issued for 2 years and is renewable for 1 year. This is followed by an exploitation license which is valid for 10 years, and may be renewed for another 10 years.

Mining Law of 2010 was declared unconstitutional by the Constitutional Court through judgment C-366 of 2011, as such, Mining Law 685 of 2001 currently regulates the foregoing matters.

4.5 Other Significant Factors and Risks

There are no legal restrictions that affect access, title or right or ability to perform work on the property, but social issues may cause issues from time to time within the Zona Alta region of the Project. It is SRKs understanding that GCM intends to implement SRK's contract mining model to incorporate production from the ancestral and artisanal miners working within GCM titles. This mining model could potentially improve the current environmental conditions and reduce potential social issues, which were opposed in the previous plan for open pit mining.

5 Accessibility, Climate, Local Resources, Infrastructure and Physiography

5.1 Topography, Elevation and Vegetation

The Marmato Project is located in an area of steep mountainous terrain with a relief of approximately 1,600 m (Figure 5-1). The project is bound to the east by the Cauca River at 600 m elevation, and otherwise surrounded by the peaks of the nearby mountains that reach up to 2,200 m elevation and are commonly incised through landslide activity. Despite the abrupt relief, the landscape is in general well vegetated and supports crop cultivation and livestock. The dominant land use in the area of Marmato is cattle grazing, coffee, sugar cane, citrus fruit, bananas, and mining. The Middle Cauca region, where Marmato is located, was occupied for two thousand years before the Spanish conquest by farmers, potters, gold miners and goldsmiths of the Quimbaya culture (500 BC to 1600 AD).

The ecological zones defined on the Holdridge Life Zone climatic classification system are zoned by elevation (Municipio de Marmato, 2004; Correa, 2006; Cia Minera de Caldas, 2008):

- Premontane (subtropical) wet forest transitional to tropical moist forest and dry forest; defined as temperatures >24°C, annual rainfall of 1,500 to 2,800 mm, and elevation of 700 to 1,000 m. This area includes the Cauca River valley and the lower part of El Llano town.
- Premontane (subtropical) wet forest defined as temperatures of 18°C to 24°C, rainfall of 2,000 mm to 4,000 mm, and elevation of 1,000 to 1,900 m. The main areas of mining and exploration are in this zone.
- Lower montane (warm temperate) wet forest defined as temperatures of 12°C to 18°C, rainfall of 2,000 to 4,000 mm, and elevation of 1,900 m to 2,900 m.

Much of the original forest cover has been cleared for agriculture and grazing, especially at lower elevations. Land is used for cattle grazing, coffee, sugar cane, citrus fruit, bananas, and mining in Marmato.

5.2 Accessibility and Transportation to the Property

The project is in the Municipality of Marmato in Caldas. The concessions of the Marmato Project are located on the eastern side of the Western Cordillera (Cordillera Occidental) of Colombia on the west side of the Cauca River.

Marmato is 200 km west of the Pacific Ocean and 300 km south of the Caribbean Sea and Atlantic Ocean. The nearest port is Buenaventura on the Pacific Ocean (320 km by the Pan American Highway).

The property is a three-hour drive from Medellin, via the Medellin to Cali highway which is part of the Pan American Highway. The route from Medellin is via Itaguí (7 km), Caldas (12 km), Alto de Minas (13 km), Santa Barbara (27 km), La Pintada (26 km), La Guaracha del Rayo (32 km), and then a turn onto a secondary road to a 8km long partially asphalted road to Marmato. There is an international airport located in Medellin with flights to the USA, Panamá, Venezuela and Peru, and a national airport in Manizales with flights to Medellin and Bogotá.

Source: SRK, 2012

Figure 5-1: Marmato Project, looking northwest towards Cerro El Burro

5.3 Climate and Length of Operating Season

Different climates can be found within the region and vary with elevation. These climates can be defined as:

- Hot (>24°C) below 1,000 m in the Cauca River valley;
- Temperate (18°C to 24°C) between 1,000 and 2,000 m; and
- Cold above 2,000 m (12°C to 18°C).

Marmato is situated mostly within the temperate zone and the climate is consequently warm and humid with an annual rainfall of approximately 2,000 mm. Rainfall has a bimodal distribution with the wettest months in from March to May and again from September to December. A weather station recorded an annual rainfall for 2007 of 2,010 mm, with a peak record of 126 mm in five hours. The average temperature is 24°C, with a maximum of 36°C and a minimum of 16°C. Winds are light with a velocity of 2 km/hour and a maximum of 20 km/hour with the predominant wind direction is from the south to southeast (150° to 210°).

5.4 Sufficiency of Surface Rights

Refer to Section 4.2.1.

5.5 Infrastructure Availability and Sources

5.5.1 Power

Three high tension power lines (230 kV each) belonging to the Colombian national power grid run along the Cauca River valley on the east side of Marmato. A 132 kV substation is located at Marmato which supplies power to the community, mines and surrounding area. A ten-inch diameter oil and gas pipeline with a capacity of 12,000 barrels of oil per day runs along the Cauca River valley and is part of the national network. This portion of the pipeline connects Buenaventura with Medellin and the hydrocarbon fields in the north and east of Colombia.

5.5.2 Water

The property is bounded by the south east flowing Pantano creek on the south side, and the north east flowing Chaburquia creek in the north. These streams are separated a steep ridge which slopes to the east with the village of Echandia built upon it. The streams drain into the Cauca River which is a major, north-flowing river in a deep valley that separates the Western and Central Cordilleras. The river has an average flow rate from 500 to 600 m^3/s. The Cauca River is navigable in the lower (Cáceres to Atlantic) and upper parts (Pereira to Cali), and had steamer services in the past, but the middle part around Marmato and Medellin has many rapids and is therefore less navigable.

5.5.3 Mining Personnel

Field personnel for the exploration program have been employed from the towns of Marmato and El Llano and neighboring districts. In the long term, personnel current working on the large number of small scale mines and from the surrounding region would be able to supply the basic workforce for any future mining operation.

6 History

In preparing these sections of this report relating to background and historical information, exploration and geological setting, SRK has relied upon previous technical reports by SEWC and Dr. Stewart Redwood.

Colombian gold production between 1514 and 1934 has been estimated at 49 Moz which makes Colombia number one in South America with 38% of the total production (Emmons, 1937). Two-thirds of the gold production was from placer deposits. Subsequent Colombian production is estimated at 30 Moz by the Banco de la Republica (Shaw, 2000), which gives Colombia a total recorded historical gold production of approximately 80 Moz. Seventy-five percent of this production came from the Departments of Antioquia and Caldas, with the Marmato project located near the border between the two.

Gold production between 2000 and 2011 ranged from 15.5 t to 53.6 t (0.50 Moz to 1.72 Moz) of gold per year. Gold production in 2011 was 40.4 t (1.30 Moz).

6.1 Prior Ownership and Ownership Changes

Marmato is one of the most important historical gold properties in Colombia and lies in the heart of the main historical gold producing region (dating back to 500 BC). The name is derived from “marmato” or “marmaja”, an old Spanish term for pyrite. The property has a long and complex ownership history, summarized in Table 6-1.

Table 6-1: Ownership History of Marmato

Date	Ownership History
1525	Colonization of Colombia and first references to Marmato
1634	First larger scale workings begin; and first gold mill
1798	Silver mines located at Echandia, with two near surface veins exploited
1819 to 1925	Various English companies mine gold at Marmato
1925 to 1938	Mines were expropriated and initially remained closed, then later leased to contractors
1954	Marmato was divided into two zones (Decree 2223), Alta (Upper) and Baja (Lower)
1981 to 2004	Marmato becomes part of the Aporte Minero scheme and was managed by a succession of state mining companies
1984 to 1985	Minera Phelps Dodge de Colombia S.A. (Minera Phelps Dodge) explores the Zone Baja of Marmato
1991	Contract for the Zona Baja is awarded to Mineros Nacionales in October 1991 for a period of 30 years by the state entity Empresa Colombiana de Minas (Ecominas); the contract is now administered by the Instituto Colombiano de Geología y Minería (Colombian Institute of Geology and Mining or INGEOMINAS)
1996 to 2000	Conquistador Mines Ltd. (Conquistador), a Vancouver listed junior company (now called Orsa Ventures Corp), explored the project through its Colombian subsidiary Corona Goldfields S.A. (Corona Goldfields). Conquistador had an option to explore the Zona Baja over 4 years and to acquire 50.1% of Mineros Nacionales (it bought 13.15% which it later sold in 2001), and acquired several mines in the Zona Alta.
1995 to 1997	Gran Colombia Resource Inc. (now Wave Telecommunications Inc.) carried out exploration at Echandia and Chaburquia properties on the northern portion of the Marmato System
2005 - 2008	Minera de Caldas began exploration of Marmato and surrounding areas with the aim of identifying bulk mineable targets of low grade gold and silver. Colombia Goldfields Limited (CGL), began acquisition of property within Zona Alta, plus completed 46,000 m of drilling
2010	Medoro purchased CGL and Mineros Nacionales interests in the Zona Baja concession, which consolidated the three primary gold properties at Marmato
2011 - Date	GCM and Medoro Resource Ltd merged to create the largest underground gold and silver producer in Colombia, under the name of GCM.

Source: SRK, 2017

6.2 Exploration and Development Results of Previous Owners

Modern exploration at Marmato began in the mid-1980s and has continued into the present day under various entities. The exploration and development results of prior owners are listed below:

1984 to 1985: Minera Phelps Dodge explored the Zone Baja of Marmato, with the objective of defining a 300 t/d underground operation. It completed surface and underground sampling and drilled 7 underground core holes, and defined a proven reserve of 102,900 t at 7.83 g/t gold and 24 g/t silver, and a total reserve (proven, probable and possible) of 754,600 t at the same grade.

1993: Mineros Nacionales began mining the Maruja mine via a 300 t/d underground operation under contract (No. 041-89M). Mineros S.A. acquired 51.75% of Mineros Nacionales and upgraded the mine and mill. Mineros subsequently increased ownership of Mineros Nacionales to 94.5%. Further exploration was completed through the 1990s with 24 underground core holes drilled and three reverse circulation (RC) holes drilled. The plant was expanded to a capacity of 800 t/d.

1996 to 2000: Conquistador drilled 44 holes (14,873 m) 30 from surface (11,496 m) and 14 underground diamond holes (3,377 m), plus 1,147 channel samples totaling 2,847 m from surface trenches and underground cross-cuts. Conquistador also commissioned MRDI to complete a resource estimate and scoping study in 1998, but carried out no further work on the project due to the expiration of the option contract.

1995 to 1997: Gran Colombia Resource Inc. conducted soil surveys; surface magnetic, and geophysical surveys; channel samples (La Negra, La Felicia and La Palma adits); and completes 75 diamond drillholes (surface and underground) totaling 15,000 m. A scoping study was made by Geosystems International, Denver, in 1997 which concluded that there was not sufficient grade continuity for a bulk-tonnage resource and mining operation, and no further work was carried out.

2005: Minera de Caldas began exploration of Marmato and surrounding areas with the aim of identifying bulk mineable targets of low grade gold and silver. CGL carried out underground sampling, surveying and mapping, preliminary metallurgical test work and diamond drilling to define a mineral resource. CGL carried out 46,000 m of drilling in 2007-08.

2010: Medoro commenced infill drilling of the project via surface and underground diamond drilling with view of producing a prefeasibility study in 2011.

2011 to 2017: GCM completed further infill drilling from surface and underground locations, plus channel sampling of existing cross-cuts.

6.3 Historic Mineral Resource and Reserve Estimates

A number of different Mineral Resource Estimates have been completed on the three different properties that comprise the Project. Due to the historical nature of the project not all of these estimates can be considered to be compliant with the current Canadian Institute of Mining, Metallurgy and Petroleum (CIM) standards. Full details of these estimates for the different zones have been reviewed in the previous NI 43-101 technical report completed by SRK and titled “A NI 43-101 Mineral Resource Estimate on the Marmato Project, Colombia” dated June 21, 2012. The following section provides a brief summary of the CIM compliant Mineral Resources produced before the projects were combined in 2010.

Minera Phelps Dodge in 1985 defined a Proven Reserve of 102,900 t grading 7.83 g/t gold and 24 g/t silver, with a total Reserve Estimate (proven, probable and possible) of 754,600 t at the same grades.

In 1993, Mineros Nacionales developed a 300 t/d underground operation within Zona Baja. Buenaventura Ingenieros S.A. of Peru revised the estimate for the Project to proven plus probable reserve was 99,787 t at 8.58 g/t gold and the possible reserve was 70,432 t at 6.95 g/t gold. Mineros Nacionales has not published any mineral reserves updates for the property.

In 1998 an Inferred Mineral Resource estimate was defined for the Marmato project by MRDI (San Mateo, California) and contained in a report entitled “Marmato Gold/Silver Project Scoping Study” which was commissioned by Conquistador (MRDI, 1998). The study covered the Zona Alta and Zona Baja, but excluded Echandia. The combined estimate stated an Inferred Mineral Resource of 150 Mt grading 1.07 g/t gold for a total of 5.2 Moz gold, plus a “mineral potential” of 200 Mt grading 1.16 g/t gold for a total of 7.5 Moz gold. It was reported that the estimate conformed to the CIM definition of Inferred Resource at the time, and that some of this could meet the criteria for Measured and Indicated Resources, but that this material had not been separately identified. MRDI acknowledged that “mineral potential” is not a recognized CIM resource category, but MRDI stated in its report that “the mineral potential category was presented to provide an assessment of the potential of the property.”

MRDI also conducted a mining scoping study using a base case resource of 233.7 Mt at 1.10 g/t gold and 5.54 g/t silver (8.2 Moz gold) for the whole deposit including the Zona Alta and the Zona Baja. The base case had a waste to ore ratio of 1.3:1 and was calculated by pit optimization to maximize the net present value (NPV) and internal rate of return (IRR) at a 6% discount rate. At a production rate of 30,000 t/d, the annual production would total 10.8 Mt/y over a 22-year mine life and produce 352,000 oz of gold and 929,000 oz of silver per year. With an initial capital cost of US$283 million, metal prices of US$300/oz gold and US$5.50/oz silver, recoveries of 92.6% for gold and 49.3% for silver using a milling and agitation leaching process, the base case gave an IRR of 10.3% before tax, cumulative pre-tax cash flow of US$659 million, and payback in 9.6 years with direct operating costs of US$169/oz of gold. The project economics were considerably improved by increasing production to 60,000 t/d, steepening pit slopes from 45° to 50° and using US$325/oz gold, to give 21.6% IRR, US$960 million NPV and a 3.9-year payback.

A CIM compliant Mineral Resource estimate for the Zona Alta was made by Scott E. Wilson Consulting, Inc. in October 2009 (Wilson, 2009). The Measured and Indicated Resource reported at a 0.30 g/t (Au) cut-off grade was 88.2 Mt at 0.82 g/t Au and 4.65 g/t Ag containing 2.3 Moz Au and 13.2 Moz Ag. The reported Inferred Mineral Resource at a 0.30 g/t (Au) cut-off grade was 27.6 Mt grading 1.21 g/t Au and 6.74 g/t Ag containing 1.1 Moz Au and 6.0 Moz Ag.

In November 2010, SRK was requested by Medoro to produce a Mineral Resource Estimate for the combined three concessions for the Marmato Gold Project, based on some 127,500 m of diamond drilling and cross-cut samples (majority diamond drilling). The report was prepared under the guidelines of NI 43-101 and accompanying documents NI43-101.F1 and NI43-101.CP.

On January 6, 2011, SRK defined a Measured, Indicated and Inferred Resource for GCM for the Project. SRK elected to report resources from within a US$1,200 pit, above a cut-off grade of 0.3 g/t gold. The SRK Measured, Indicated and Inferred Gold Resources for Marmato are shown in Table 6-2.

Table 6-2: SRK Mineral Resources Estimate Dated January 6, 2011

(at 0.3 g/t cut-off)	Tonnes (Mt)	Gold Grade (g/t)	Gold Ounces (Moz)	Silver Grade (g/t)	Silver Ounces (Moz)
Measured Mineral Resource	34	1.0	1.1	8.2	9
Indicated Mineral Resource	192	0.9	5.6	4.6	28
Measured and Indicated Mineral Resource	**226**	**0.9**	**6.6**	**5.1**	**37**
Inferred Mineral Resource	116	0.9	3.2	5.9	22

Source: SRK, 2011

On September 4, 2011, based on some 180,000 m of diamond drilling (inclusive of historical drilling) SRK defined a Measured, Indicated and Inferred Resource. SRK reported Mineral Resources from within a US$1,200 pit, above a cut-off grade of 0.3 g/t gold. The SRK Measured, Indicated and Inferred Gold Resources for Marmato are shown in Table 6-3.

Table 6-3: SRK Mineral Resources Estimate Dated September 4, 2011

(at 0.3 g/t cut-off)	Tonnes (Mt)	Gold Grade (g/t)	Gold Ounces (Moz)	Silver Grade (g/t)	Silver Ounces (Moz)
Measured Mineral Resource	53	1.1	1.9	9.7	16
Indicated Mineral Resource	254	1.0	8.1	5.8	48
Measured and Indicated Mineral Resource	**307**	**1.0**	**10.0**	**6.5**	**64**
Inferred Mineral Resource	68	1.1	2.4	5.1	11

Source: SRK, 2011

The previous Mineral Resource estimate for the project following CIM guidelines was completed with an effective date of June 21, 2012, by SRK using the assumption that the potential for economic extraction would be via open-pit, with some additional potential for underground mining on the remaining mineralized material. A breakdown of the Mineral Resource is shown in Table 6-4.

Table 6-4: SRK Marmato Mineral Resource (1) Statement as of June 21, 2012 @ 0.3 g/t Au Open Pit (2) and 1.5 g/t Au Underground Cut-off (3)

Category	Quantity	Grade		Metal	
		Au	Ag	Au	Ag
	Mt	g/t	g/t	000's oz	000's oz
Open Pit Vein (2)					
Measured	8.1	2.29	8.93	597	2,322
Indicated	44.7	2.06	12.62	2,967	18,140
Measured and Indicated	52.8	2.10	12.05	3,564	20,462
Inferred	7.4	1.76	8.70	417	2,062
Open Pit Porphyry (2)					
Measured	43.1	0.81	4.11	1,128	5,689
Indicated	313.8	0.70	5.37	7,097	54,179
Measured and Indicated	356.9	0.72	5.22	8,225	59,868
Inferred	71.8	0.94	3.19	2,171	7,367
Open Pit Combined					
Measured	51.1	1.05	4.87	1,725	8,011
Indicated	358.5	0.87	6.27	10,064	72,319
Measured and Indicated	409.7	0.90	6.10	11,789	80,330
Inferred	79.1	1.02	3.71	2,588	9,429
Underground Vein (3)					
Measured	-	-	-	-	-
Indicated	0.2	1.96	15.42	15	114
Measured and Indicated	0.2	1.96	15.42	15	114
Inferred	1.1	2.26	13.42	82	486
Underground Porphyry (3)					
Measured	-	-	-	-	-
Indicated	0.0	2.86	4.31	2	4
Measured and Indicated	0.0	2.86	4.31	2	4
Inferred	5.6	2.69	2.58	481	461
Underground Combined					
Measured	-	-	-	-	-
Indicated	0.3	2.05	14.26	17	118
Measured and Indicated	0.3	2.05	14.26	17	118
Inferred	6.7	2.62	4.41	563	947

(1) Mineral resources are constrained by a conceptual pit shell. Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.
(2) Open pit mineral resources are reported at a cut-off grade of 0.3 g/t. Cut-off grades based on a price of US$1400/oz of gold and gold recoveries of 88% for open pit and underground resources, without considering revenues from other metal within a limiting pit shell.
(3) Underground mineral resources are reported at a cut-off grade of 1.5 g/t and below the material considered potentially mineable via open pit methods. Cut-off grades are based on a price of US$1,400/oz of gold and gold recoveries of 88% for underground resources, without considering revenues from other metals.
Source: SRK, 2012

6.4 Historic Production

Production has occurred from the Marmato property since pre-colonial times but there are no published historical records of the actual gold and silver production for all periods since mining commenced, however sporadic records for different periods have been noted.

To give an indication of the current mining activity at the deposit SRK has reproduced a summary (Table 6-5) of the total produced gold and silver at Marmato on an annual basis between 2004 and 2011. The figures also represent only the official declared gold recovered and does not include illegal mining which persists at Marmato even to present times.

Table 6-5: Gold Production from the Municipality of Marmato 2004 to September 2017

Year	Ore Tonnes (t)	Grade Au (g/t)	Au Produced (oz)
2004	186,330	3.60	21,583
2005	231,540	3.30	24,541
2006	262,517	3.10	26,171
2007	300,756	3.22	31,127
2008	254,474	2.95	24,138
2009	250,638	3.51	24,372
2010	252,136	3.39	23,318
2011	250,553	3.19	22,715
2012	268,137	2.85	21,717
2013	274,190	2.90	22,566
2014	295,023	2.85	24,116
2015	303,279	2.79	23,954
2016	341,308	2.55	23,447
9M 2017	275,733	2.47	19,051

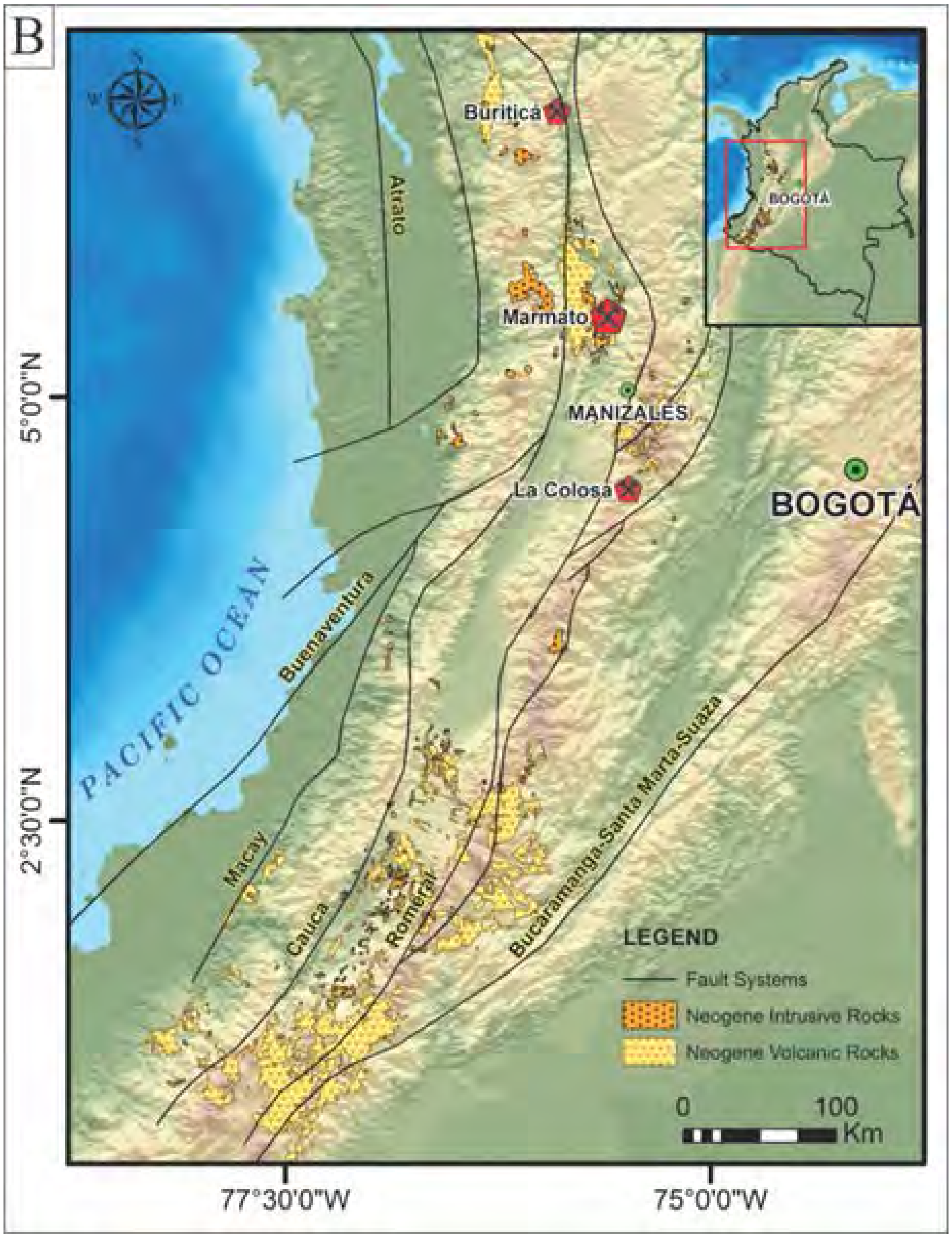
Source: GCM, 2017

7 Geological Setting and Mineralization

The following sections have been summarized from the 2012 MRE (SRK, 2012). SRK has completed a site visit to verify the geological interpretation and is satisfied that the following section represent a true representation of the geological conditions of the Marmato deposit.

7.1 Regional Geology

Figure 7-1 shows the distribution of Neogene magmatic rocks of the western Colombian Andes.



Source: Modified from the Geological Map of Colombia, 1:1 million scale, Colombian Geological Survey, 2015

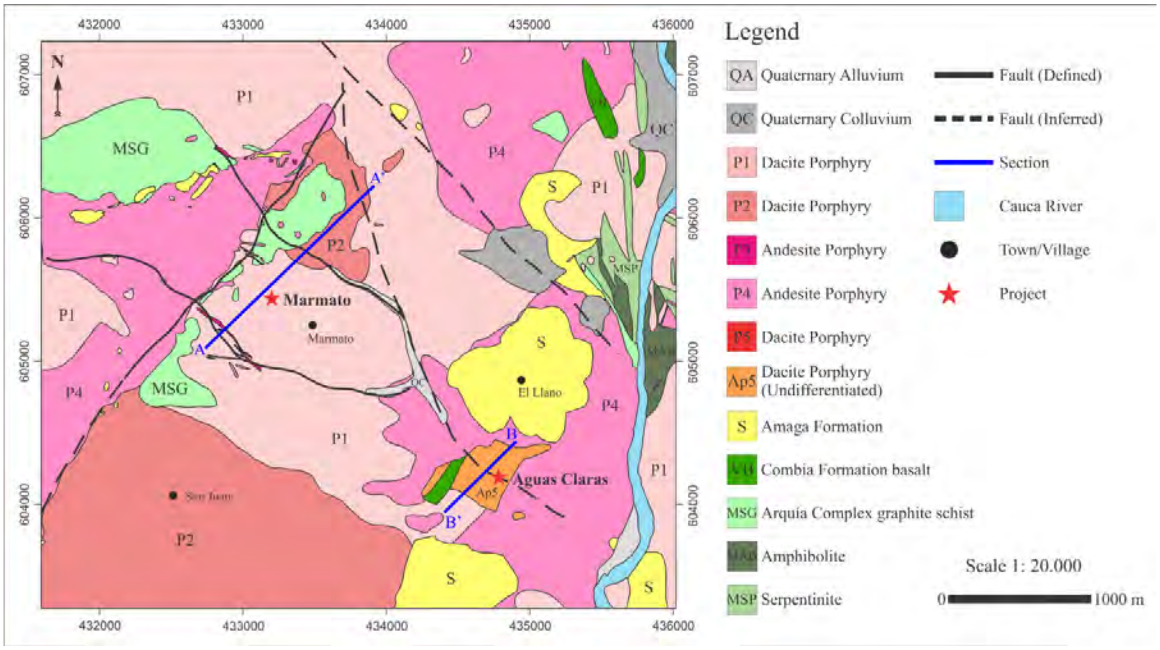
Figure 7-1: Regional Geology Map

The Colombian Andes are part of the Northern Andean Block which includes the Northern Volcanic Zone of the Andes (Gansser, 1973; Shagam, 1975). They are formed of three N to NNE trending mountain ranges, the Western, Central and Eastern Cordilleras, separated by two major intermontane basins, the Cauca-Patía Depression and the Magdalena Depression, which represent terrane boundaries. The Colombian Andes have a complex history of volcanism, subduction, accretion and faulting, represented by the juxtaposition of metamorphic, igneous and sedimentary rocks of various ages from the Precambrian to the present (Aspden et al., 1987; Restrepo and Toussaint, 1988). Cediel et al. (2011) have defined nine principal tectonic terranes in Colombia which are: 1) the Guyana shield; 2) the Maracaibo sub-plate; 3) the Central continental sub-plate; 4) the Pacific terranes; 5) the Caribbean terranes; 6) the Choco-Panama arc; 7) the Guajira terrane; 8) the Caribbean Plate; and 9) the Nazca Plate.

Marmato is located on the eastern side of the Western Cordillera which is separated from the Central Cordillera by the River Cauca. It lies within the Romeral terrane which is bounded by the Cauca Fault on the west side and the Romeral Fault to the east, and is part of the Pacific terranes realm. The recent tectonic setting of the Colombian Andes is characterized by the subduction of young (<20 Ma) oceanic crust beneath relatively thin continental crust (<40 km; Cediel and Caceres, 2000; Cediel et al., 2003). The Benniof zone is located at around 140 to 200 km depth below the volcanic belt of the Colombian Andes which has slightly migrated to the east during the last 10 Ma (Pennington, 1981; Vargas & Mann, 2013). The Marmato stock is part of the Miocene magmatism characterized by calc-alkalic subvolcanic intrusions and volcanic rocks of the Combia Formation. The Miocene magmatism cross-cuts the units of the Romeral terrain, the plutonic units of the Albian and early Cenozoic, and the siliciclastic sequences of the Amagá Formation (Cáceres et al. 2003; Tassinari et al, 2008). Miocene gold related magmatism in Colombia has been well-recognized in the Western and Central cordilleras associated with stocks (Sillitoe et al., 1982; Toussaint and Restrepo, 1988; Lodder et. al, 2010; Lesage et al., 2013). In addition, late Miocene-Pliocene magmatism with gold mineralization has also been recognized in the Santander Massif in the northern part of the Eastern Cordillera (Mantilla et al., 2009).

7.2 Local Geology

The Marmato gold deposit is hosted by the porphyritic andesitic to dacitic Marmato stock which is 18 km long and 3 to 6 km wide and is elongated north to south (Calle et al., 1984). It intrudes the Arquía Complex and Amagá Formation on the east side in the Cauca Valley, and the Combia Formation on the west side. The Marmato gold deposit is hosted in a multiphase porphyry suite, the Marmato Porphyry Suite, which is about 3.0 km long by 1.6 to 2.5 km wide and is located near the southern end of the larger Marmato Stock. Five main porphyry pulses have been identified in the Marmato Porphyry Suite by cross-cutting relationships in core logging and named P1 to P5 from oldest to youngest. The ages of the intrusions have been reported recently between 6.58 ± 0.07 Ma to 5.74 ± 0.14 Ma by U-Pb LA-ICP-MS of zircon (GCM, 2016, dating carried out by the Brasilia University Isotope Geochronology Laboratory, Brasil). The Aguas Claras Porphyry Suite is located 3 km southwest of the Marmato Porphyry Suite and also has five porphyry pulses identified from cross-cutting relationships in core logging named AP1 to AP5 from oldest to youngest. Two intrusions of the Marmato Porphyry Suite, P3 and P5, cross-cut the Aguas Claras Porphyry Suite as dikes. There is no previous dating of the Aguas Claras Porphyry Suite. The local geology map is presented in Figure 7-2.



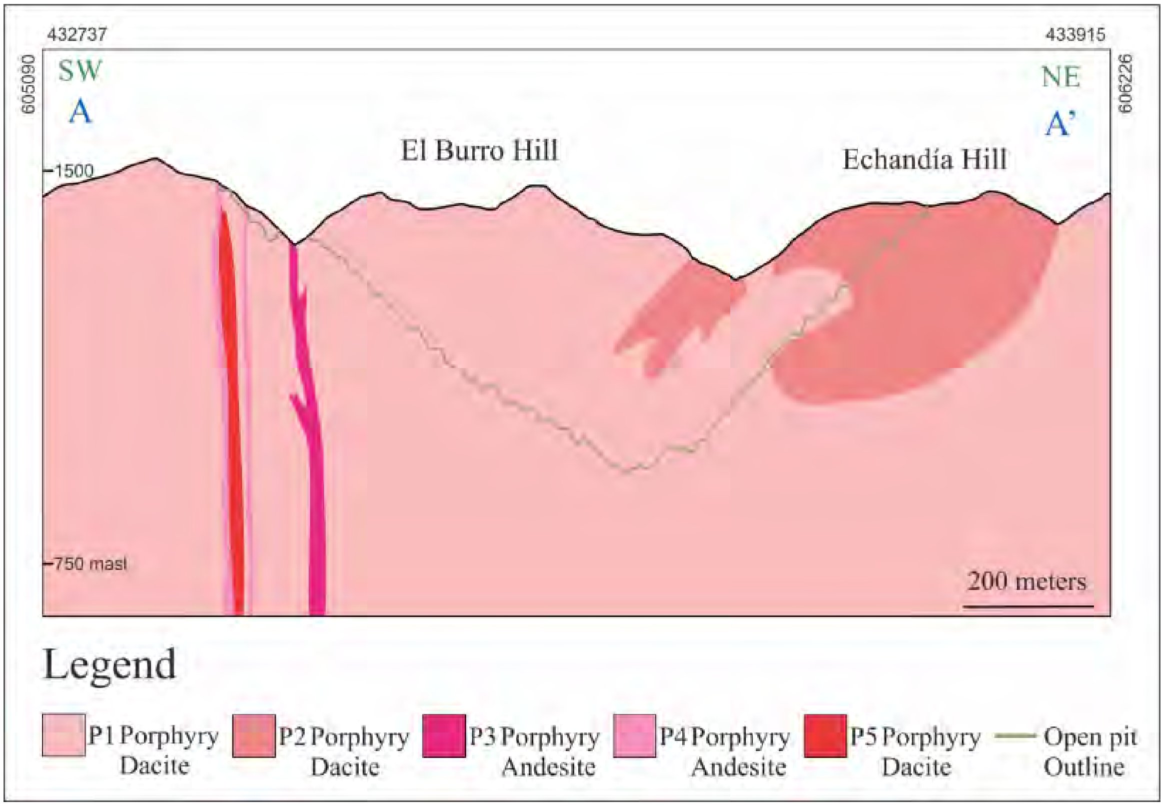
Source: GCM, 2017

Figure 7-2: Local Geology Map

7.3 Property Geology

The Marmato gold deposit consists of a structurally controlled epithermal vein system with a mineral assemblage dominated by pyrite, arsenopyrite, black Fe-rich sphalerite (the type locality for "marmatite", Boussingault, 1830), pyrrhotite, chalcopyrite and electrum in the upper zone, and a mesothermal veinlet system with a mineral assemblage dominated by pyrrhotite, chalcopyrite, bismuth minerals and free gold in the lower zone.

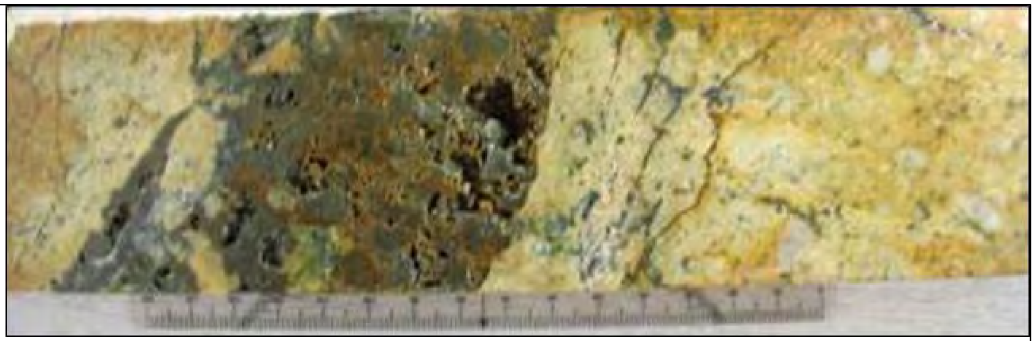
Dacitic intrusions at Marmato are characterized by quartz, hornblende, biotite and zoned plagioclase phenocrysts in a finely crystalline quartz-plagioclase groundmass, with variations in phenocryst proportion and sizes between intrusions. Intrusion P1 is a main dacitic porphyry stock in the Marmato Porphyry Suite and is characterized by large β quartz phenocrysts >7 mm. It is cross-cut by intrusion P2 which corresponds to a porphyry dacite intrusion with fewer and smaller phenocrysts. Intrusion P3 forms dikes of andesitic porphyry with plagioclase megacrysts >10 mm, and cross-cuts intrusions P1 and P2 (Figure 7-3). Intrusion P4 is an andesitic porphyry stock which cross-cuts P1, P2 and P3, and is characterized by smaller plagioclase phenocrysts. The youngest porphyry P5 is dacitic and forms dikes cross-cutting P1. It is characterized by large quartz phenocrysts and elongate plagioclase phenocrysts. Mineralization is hosted mainly by stocks P1 to P4, while is absent in P5.



Source: GCM, 2017
The deposit outcrops on El Burro Hill and Echandía Hill

Figure 7-3: Cross-section of the Marmato gold deposit looking NW showing the intrusions P1 to P5

Gold mineralization occurs in veins and veinlets with dominant NW and WNW trends. The deposit mainly comprises sulfide-rich veinlets and veins composed of quartz, carbonate, pyrite, arsenopyrite, Fe-rich sphalerite (marmatite), pyrrhotite, chalcopyrite and electrum in the epithermal upper zone, and quartz, pyrrhotite, chalcopyrite, bismuth sulfide and telluride minerals and free gold in the mesothermal lower zone. Pervasive early propylitic alteration is over-printed principally by phyllic and intermediate argillic alteration related to the gold mineralized veins of low to intermediate sulfidation epithermal type, with weak and patchy potassic (biotite) alteration at depth.



MT-1210, 0.25m @ 17.5 g/t Au, 19 g/t Ag

(a) Low to intermediate sulfidation epithermal style mineralization

P1 dacite porphyry with stockwork of veinlets of quartz-pyrrhotite-minor chalcopyrite with narrow illite halo, overprinting biotite alteration.
MT-1498 at 854.0 m. Sample 2.0 m at 17.3 g/t Au, 3.5 g/t Ag and 330 ppm Cu.

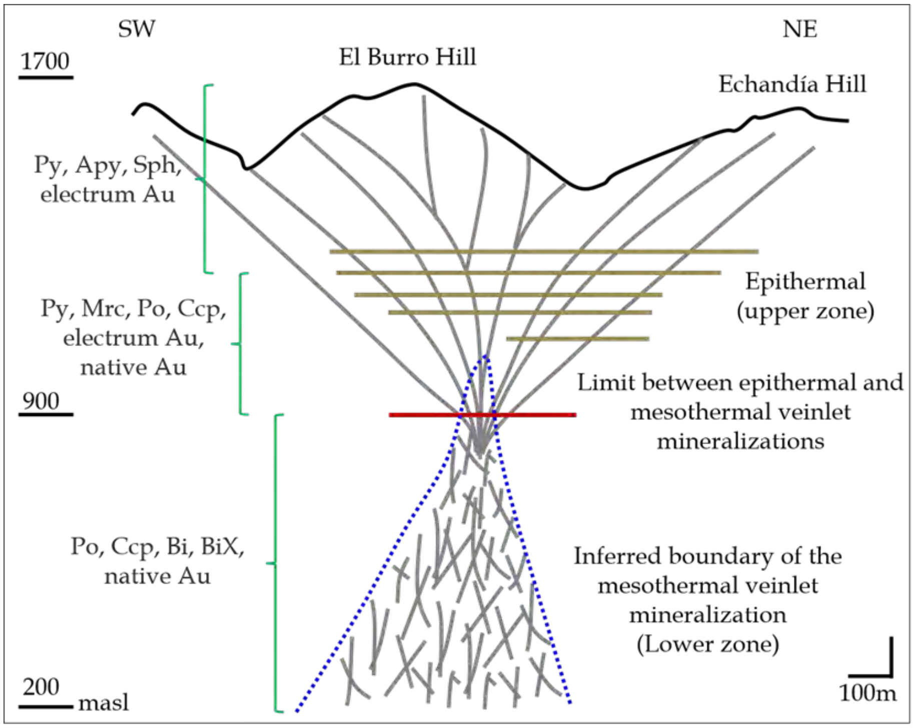
Veinlet of quartz-pyrrhotite-chalcopyrite with halo of green sericite-smectite in P1 dacite porphyry with weak biotite alteration.
MT-1498 at 847.3 m. Sample 2.0 m at 2.88 g/t Au, 0.7 g/t Ag, and 225 ppm Cu.

(b) Mesothermal style mineralization

Source: GCM, 2017

Figure 7-4: Examples from Drill Core of the Different Mineralization Styles (a) Epithermal (b) Mesothermal

SRK considers the change in the mineralization style between the higher epithermal (Gold-silver mineralization is mainly hosted by a sheeted pyrite±sphalerite) style of mineralization to the deeper mesothermal veinlet (pyrrhotite±chalcopyrite) style mineralization to be important (Figure 7-5). Further drilling and study of the changes will be required to increase the understanding and confidence in the mesothermal geological model to aid estimation to higher levels of confidence (Indicated and Measured).



Source: GCM, 2017

Figure 7-5: Schematic Cross-section of the Marmato Gold Deposit, showing the two principal zones and the vertical zonation of mineralization

7.3.1 Structure

The dominant northwest and east-west trends of the veins are interpreted to be due to regional tectonic forces and may have formed as tension fractures related to northwest-southeast compression and sinistral strike-slip movement on the north-south trending Cauca and Romeral Faults which lie on either side of the deposit.

In April 2010 the Company commissioned Telluris Consulting Ltd (TCL) to complete a review of the local and regional geology to define a structural-hydrothermal model for the Marmato deposit. TCL defined the Marmato deposit as a series of NNW to E-W-trending steep to moderately dipping, gold-bearing, sulfide-rich veins hosted in an N-S-trending late Miocene porphyry complex. TCL noted that the porphyry complex was emplaced in folded and thrusted Palaeozoic and Mesozoic metamorphic and sedimentary sequences adjacent to the eastern margin of the broadly N-S trending Cauca-Romeral terrane accompanied by ENE to NW-SE compression. This resulted in N-S-trending thrust and transpressional structures along with steep NW and NE conjugate fault zones.

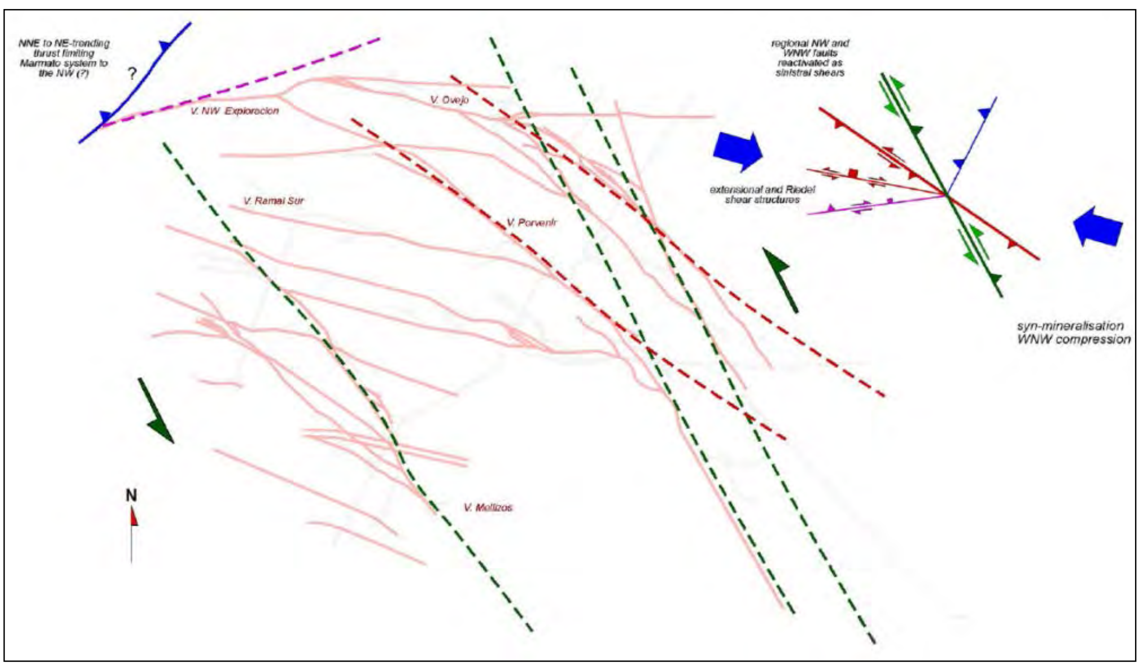
Within the relatively young intrusive rocks of the Marmato deposit there are principally two deformation stages recognized from this study:

- Syn-mineralization WNW-ESE compression that reactivated some of the basement structures as well as generating a range of second order shear and extensional structures along NNW to E-W trends as well as NNE-trending thrusts; and
- Continued post-mineralization compression into the late-Pliocene, (~2 Ma) that resulted in uplift due to renewed thrusting along the main terrane boundaries forming thrust-bounded intermontane basins such as the Cauca-Patia depression.

Within the Marmato area, there four principal trends of mineralized structures:

- NW-trending steep to sub-vertical faults/fractures (140° to 150°N),
- WNW-trending steep to moderately inclined structures (110° to 120°N),
- E-W-trending structures (100° to 090°N) that tend to have moderate to relatively low-angle dips, and
- ENE to NE-trending structures (065° to 080°N) that show a range of dips.

In addition to these ore-bearing structures, there is a set of NNE-trending structures of varying dips that appear to represent different components of a reverse/thrust fault system. Both the WNW and E-W veins tend to splay from the main NW structures which is consistent with extensional and Riedel shear components to a sinistral shear system. TCL report that Kinematic indicators indicate that mineralization accompanied a phase of WNW-ESE orientated compression (Figure 7-6). The NNE-trending reverse faults and conjugate fractures reflect the compression component under WNW-ESE compression.



Source: TCL, 2010

Figure 7-6: Telluris Consulting interpretation of vein orientations at Mineros Nacionales (2010)

The TCL report suggests the presence of NNE-trending thrust structure at the NW limit of the Mineros Nacionales workings which needs further work to be confirmed where possible via underground access to the structure or considered when interpreting drilling data.

Post-mineral faulting is observed on the margins of some veins and veinlets with alteration to soft, white clay gouge with ground pyrite (logged as fault gouge, FLG). In some places there is later, coarse euhedral pyrite in the clay gouge. Brittle fault breccias with no clay gouge are also observed (BXF). In the Mineros Nacionales mine workings of the Zona Baja it is observed that the northwest trending veins have competent wall rocks and require no mine support, whereas the east-west trending veins have faulted wall rock with soft clay fault gouge and require support.

Supergene white clay (intermediate argillic) alteration occurs in the superficial parts of the deposit as a result of the weathering of propylitic alteration.

Unconsolidated Quaternary sedimentary deposits have been noted from drill data but not modelled in the current update. These comprise rock scree and landslides, and coarse alluvial gravel in creeks which include waste rock from artisanal mining. Landslides and alluvial flows are a geological hazard, especially on the steep southeast face of Cerro El Burro above the town of Marmato. There is saprolitic weathering and little rock exposure on the higher ground to the north west of Cerro El Burro.

7.3.2 Alteration

Two stages of pervasive alteration have been recognized: early propylitic and later intermediate argillic. These affect all types of porphyry, although alteration is weak in P5. The propylitic alteration is characterized by epidote replacement of plagioclase cores, albite replacement of plagioclase rims and matrix, chlorite replacement of mafics, with disseminated pyrite and pyrrhotite, and varies in intensity from veinlet-halo to pervasive. Calcite partially replaces plagioclase where propylitic alteration is weakly developed. Cross-cutting relationships show evidence for multiple events of propylitic alteration related to each phase of intrusion.

Intermediate argillic alteration overprints the propylitic alteration and varies in intensity from vein-/veinlet-halo to pervasive, associated to the intermediate sulfidation mineralization style and replaces epidote, chlorite and albite. There is a strong but generally narrow halo of white to green illite or sericite alteration related to veins and veinlets of the mesothermal mineralization event which grades outwards to pervasive illite, with smectite in distal parts. The main disseminated sulfide is pyrite, although pyrrhotite and iron-rich sphalerite also occur, which to some extent formed the basis for the previous model domains.

7.3.3 Significant Mineralized Zones

Gold and silver mineralization at Marmato is hosted primarily by a steeply-dipping sheeted and anastomosing system of sulfide veins and veinlets with dominant northwest to west-northwest trend. Veinlet mineralization occurs throughout the host porphyry, but is noted to vary in intensity.

Within the Marmato area there are four principal trends of mineralized structures:

- NW-trending steep to sub-vertical faults/fractures (140° to 150°N);
- WNW-trending steep to moderately inclined structures (110° to 120°N);
- E-W-trending structures (100° to 090°N) that tend to have moderate to relatively low-angle dips, and
- ENE to NE-trending structures (065° to 080°N) that show a range of dips.

The mapped distribution of veins is within a north-south elongated zone about 1,600 m long (of which about 900 m is in Zona Alta and 700 m in Echandia) and 900 m wide. The dominant vein trend within this zone is northwest and the veins have a strike length of up to 700 m in the Zona Alta. Drilling has closed off the mineralization to the northwest in the Zona Alta.

The September 2011 SRK NI 43-101 technical report documented a number of significant intersections at depth at Marmato that indicated the existence of continuous zones of mineralization within the porphyry zones, with limited veinlet mineralization. Subsequent drilling during 2011 / 2012 along with check logging of the drill core by the Company and SRK has confirmed the presence of a high-grade core or feeder zone to the main mineralization (termed “Deeps Zone”), which SRK has modelled based on the initial interpretation provided by the GCM geologists.

SRK notes that there is limited understanding of the transitional zone between the proposed epithermal and mesothermal portions of the deposit and the increased grades at depth.

It is unclear if the change in mineralization is marked by a hard-geological boundary, possibly structurally controlled by a dilational jog generated by the sinistral transpressional shearing, or a more gradual increase in grade at depth and certainly the domaining of the grade shell Deeps Zone would benefit from a greater geological understanding. SRK recommends further work is undertaken by the Company to investigate the correlation between this zone and attributes stored within the digital database, in addition to better defining the depth extent and strike continuity. This could include, but not be limited to, reviewing changes in copper grades or changes in the style of the sulfide mineralization (SRK noted increased presence of pyrrhotite and chalcopyrite within the higher-grade Deeps Zone as previously reported by Dr. Stewart Redwood).

8 Deposit Type

8.1 Mineral Deposit

The alteration and mineralization at Marmato evolved through early stage, higher-temperature propylitic alteration to later, lower-temperature intermediate argillic alteration, with most of the gold and silver being deposited in the later stage.

The gold-silver and base metal association at Marmato is typical of the intermediate sulfidation epithermal type. The veins lack typical epithermal textures and the mineralization has a relatively high depth and temperature of formation, and straddles the deep epithermal to mesothermal transition as defined by the original classification of Lindgren (1922) and by a temperature of 300°C (Heald et al., 1987). The Marmato deposit lacks known shallow and surface epithermal features such as lithocaps, sinters and crustiform banded veins.

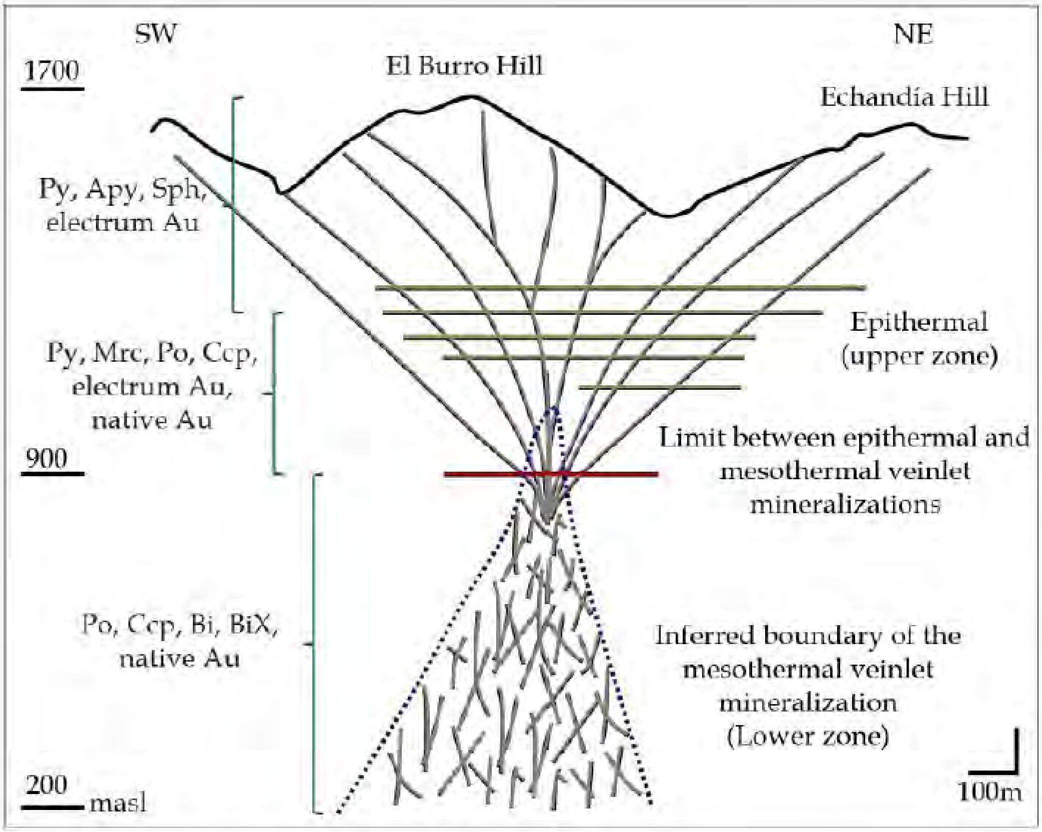
Mineralization is interpreted to be genetically related to the host porphyries, as shown by the inter-mineral timing of the porphyry phases cross-cutting earlier stages of propylitic alteration, the late-mineral timing of the final dacite P5, and miarolitic cavities lined with propylitic-stage minerals. The veins and veinlets are structurally controlled and did not form a multi-directional porphyry stockwork or breccia related to hydro-brecciation. In this model, the host stocks might be considered as late-mineral intrusions with respect to a postulated porphyry gold-copper-molybdenum centers.

8.2 Geological Model

As part of the updated Mineral Resource, GCM and SRK initially focused on the creation of a more complete geological model (i.e., one encompassing the major geological features inclusive of the current veins being mined). The main geological units and entities identified are:

- Vein;
- Porphyry intrusions (P1 to P4);
- Major fault network; and
- Schist country rock.

Drilling during 2011/2012, along with check logging of the drill core by the Company and SRK, has confirmed the presence of a high-grade core or feeder zone to the main mineralization (termed the “Deeps Zone”). Recent drilling supports the presence of the Deeps and this zone was also incorporated in the updated model; a schematic diagram of the conceptual model is shown in Figure 8-1.



Source: GCG, 2017

Figure 8-1: Conceptual Model for the Marmato Deposit, showing two principal mineralization zones

SRK notes that there is further work required to increase the understanding of the differences between the typical veinlet style mineralization seen in the upper epithermal portions of the deposit and the increased grades in the proposed mesothermal system at depth.

9 Exploration

This section summarizes the exploration work completed at Marmato to date which varies for the different zones of the project due to the different ownership prior to being amalgamated by the Company. No major regional exploration has been completed since the previous NI 43-101 and therefore this section provides a summary of the historical work completed.

9.1 Relevant Exploration Work

9.1.1 Imagery and Topography

A high-resolution Ikonos satellite image and detailed topographic map with 2 m contour intervals was produced in early 2007. This map provided a detailed base map for improved accuracy when plotting the results of the exploration programs. An extension to the Ikonos image and topographic map was commissioned in 2008 and received in late 2008, and was stitched to the original image and map to provide seamless products. The extensions were to cover areas for evaluation for possible mining infrastructure for the Marmato project, such as waste rock and tailing storage areas, and exploration drill targets in the Caramanta project.

9.1.2 Surface Geochemistry

GCM collected 1,880 rock chip samples and 700 soil samples on surface in Echandia, for a total of 2,580 samples. The geochemical samples identified anomalies coincident with low magnetic anomalies covering an area of about 800 m by 1,100 m in size.

9.1.3 Geophysics

During 2007 and 2008 a helicopter survey which included both magnetic and radiometrics were completed.

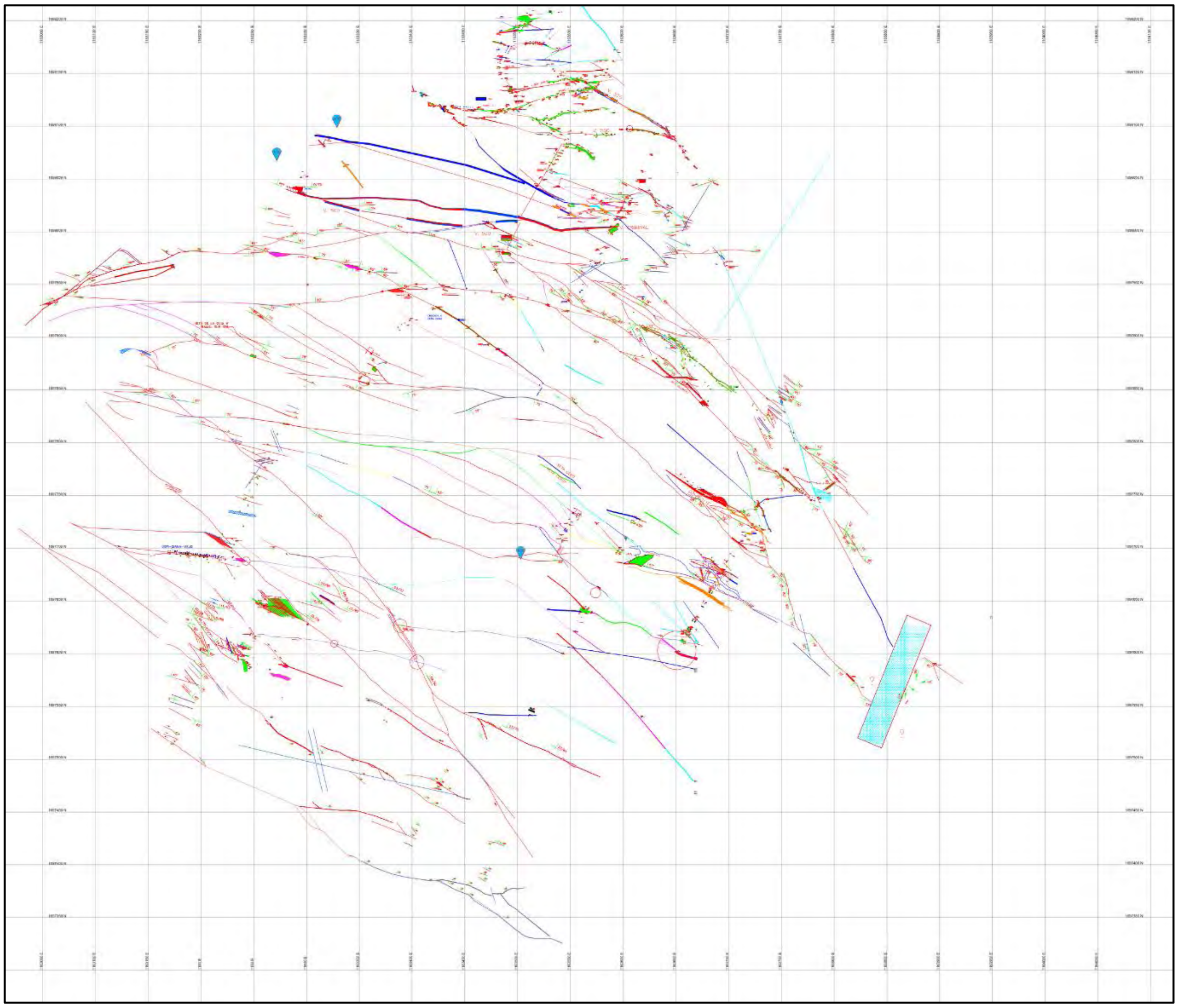
9.1.4 Geological Mapping

Geological mapping at 1:1,000 scale has been carried out on surface, although outcrop exposures are limited away from the steep face of Cerro El Burro above Marmato.

9.1.5 Underground Mapping

Detailed surveying (total station or theodolite) and geological mapping of the accessible underground workings within the Zona Alta has been completed where access was available.

Mineros Nacionales who are currently working within the Zona Baja area supplied AutoCAD drawings of mine level plans and sections for all veins currently being mined. SRK has been supplied with this information for the current update and utilized the information during the construction of the geological model. The level plans and information have a degree of time lag as they are not updated on a routine basis (6 monthly) but based on the current production levels at Mineros Nacionales. It is not anticipated that any changes will have a significant impact on the Mineral Resource Estimate. SRK has used these underground level maps (Level 16 – Level 20) as the basis for the current interpretation of the veins, which has been supplemented with information from mining where available. An example of a Level plan is shown in Figure 9-1.



Source: SRK, 2017

Figure 9-1: Example of Level Plan from Mineros Nacionales (Level 17)

9.1.6 Underground Sampling

Two stages of exploration have been completed at Zona Alta. The initial phase used basic hammer and chisel techniques to cut channels 2.0 m long and 5 cm wide by 1 cm deep. Due to the relatively poor quality of sampling, many of these samples were repeated during a second stage of exploration using a hand-held core saw. Where access was not possible due to poor ground conditions, the original hand-cut samples have been retained in the database. The Zona Alta area is currently mined by small multiple small-scale mining operations, and the Company does not have input into the sampling processes user by the miners.

9.2 Sampling Methods and Sample Quality

The Company has carried out detailed mapping and sampling of a number of crosscuts within the Mineros Nacionales operations. Continuous channel samples were taken where possible. Samples were initially marked up on the face using paint into 0.5 to 2.0 m sample intervals. A rock-saw was then used to create two horizontal parallel cuts across the length of the sample about 6 to 8 cm apart and 2 cm deep. Then a series of vertical cuts 10 cm apart were made to facilitate breaking the rock. After these cuts were completed the rock sample was broken using a hammer and chisel, and collected in a sample bag. The sample width and depth was designed to give a sample weight similar to a split HQ drill core sample. All samples were logged using the same logging codes as utilized in the diamond drilling procedures.

SRK reviewed the sampling locations of large continuous cross-cut during an underground site visit and is satisfied that the sampling procedures used are in line with industry best practice and no evidence of selective sampling of higher grade vein material was evident. SRK has therefore accepted the results from the channel sampling program as acceptable for the definition of Mineral Resources at Marmato. In the updated database SRK notes some channel samples from the mine have been limited to the vein only and are not supported by other channels. It is SRK's view these could impact on the geological model and estimation and therefore should be considered as having lower confidence. In any underground operation routine sampling, compared to selective sampling will provide the best confidence for the geological models, as it is just as important to know where low grade exists for mine planning requirements.

All GCM verification sample points were surveyed using either total station of theodolite. A total of 4,285 samples (over 6,699 m) have been taken over 1,431 channels. SRK has integrated these channels into the database and treated them as horizontal drillholes, with samples cut to sufficient size to relate to that of a diamond drillhole. SRK considers this approach to be acceptable and has used this data in producing the resource estimates presented here.

9.3 Significant Results and Interpretation

SRK has reviewed the sampling methods and sample quality for the Marmato project and is satisfied that the results are representative of the geological units seen and that acceptable minimal biases have been identified. SRK has reviewed the methods employed by the Company during the underground sampling of Zona Baja which showed clearly marked sampling intervals and associated check sampling. It is SRK's view that the sampling intervals and density of samples are adequate for the definition of a compliant Mineral Resource Estimate. SRK recommends the Company continue with the current underground sampling program on the lower levels of the Mineros Nacionales mine as per the current exploration program. In areas where SRK considers the spatial location of the sampling to be of low quality, or in areas where isolated high-grade samples may overstate both tonnage and grades (using the current modelling technique), SRK has assigned a quality indicator to the sampling database where by Quality = 1 (high confidence), and Quality = 0 (low-confidence). Only Quality 1 samples have been used in the Mineral Resource estimate.

10 Drilling

10.1 Type and Extent

Drillholes, where regularly spaced, are inclined -60 and -75 degrees predominantly to the south west, with occasional scissor holes towards the north east. Fan drilling has been utilized both at surface and from underground, which are also typically orientated towards the south west, with a small number of less extensive fans orientated towards the north east.

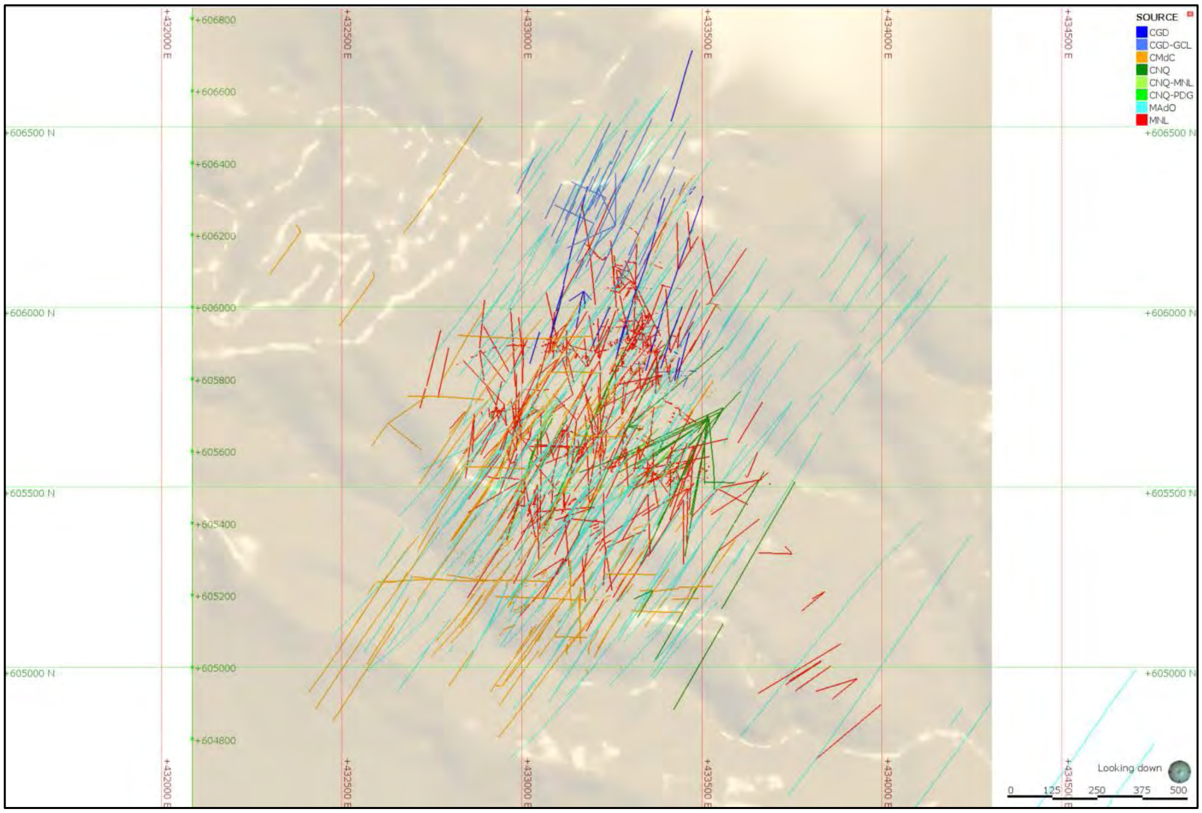
A technical report completed by SRK on September 4, 2011, titled “A NI 43-101 Mineral Resource Estimate on the Marmato Project, Colombia”, provides in depth detail on the historic drilling programs (Table 10-1).

For the purpose of the current drilling program the Zona Alta, Zona Baja and Echandia licenses are referred to collectively as the Marmato license, given the understanding these areas have now largely been consolidated in to a single license (Figure 10-1).

Table 10-1: Historic Drilling Completed at the Marmato Project (1984 – 2016)

License area	Company	Year	Collar Location	Series	Code Source	Number of Holes	Total Meters
Zona Alta	Compañía Minera de Caldas	2007 to 2008	SRF	MT	CMdC	199	45,462
	Compañía Minera de Caldas	2007 to 2008	UG	MT	CMdC	3	314
	Minerales Andinos de Occidente	2010 to 2012	SRF	MT	MAdO	128	42,849
	Minerales Andinos de Occidente	2010 to 2012	UG	MT	MAdO	19	2,633
	Conquistador	1996 to 1998	SRF	M	CNQ	6	2,733
Zona Baja	Minerales Andinos de Occidente	2010 to 2012	SRF	MT	MAdO	19	8,815
	Minerales Andinos de Occidente	2010 to 2012	UG	MT	MAdO	79	25,549
	Minera Phelps Dodge	1984 to 1985	UG	PD	CNQ-PDG	6	696
	Conquistador	1996 to 1998	SRF	M	CNQ	27	8,763
	Conquistador	1996 to 1998	UG	MU	CNQ	14	3,377
	Mineros Nacionales	1993 to 1996	UG	MN	CNQ-MNL	25	1,803
	Mineros Nacionales	2009 to 2010	SRF	MND282	MNL	5	836
	Mineros Nacionales	2001 to 2016	UG	MND; MND282; MNI; MNM **	MNL	434	36,732
Echandia	Gran Colombia Resources	1995 to 1997	SRF	M	CGD-GCL	36	7,231
	Gran Colombia Resources	1995 to 1997	UG	MU	CGD-GCL	39	3,954
	Colombia Gold	1996 to 1998	SRF	ECH	CGD	20	5,933
	Compañía Minera de Caldas	2007 to 2008	SRF	MT	CMdC	3	602
	Minerales Andinos de Occidente	2010 to 2012	SRF	MT	MAdO	97	41,804
	Mineros Nacionales	2001 to 2016	UG	MND; MND282; MNI; MNM **	MNL	6	768
Total						**1,165**	**240,855**

Source: GCM, 2017



Source: SRK, 2017

Figure 10-1: Location Map Showing Drillholes at Marmato by Company

10.2 Procedures

All surface hole collars have been surveyed using a differential GPS and have been surveyed to a high degree of confidence in terms of the XY location. Underground drilling collars have been surveyed by the mines survey department and verified against existing development.

Down hole directional surveys were conducted using a GyroSmart digital gyro tool, manufactured by Flexit Navigation A.B. (Flexit) and Imego A.B. (Imego) of Sweden, which was purchased from Ingetrol. Prior to the purchase of this instrument in 2007, down hole directional surveys were conducted using a Flexit Multishot tool supplied by Terramundo.

GCM constructed a new core storage facility at Marmato during 2010 (Figure 10-2). The core shed is based near to the lower town further down the mountain from the exploration camp. SRK visited the new core storage facility during the site visit and found the facility to be organized and clean, with sufficient space for the ongoing exploration.

Source: SRK

Figure 10-2: Core Storage Facility at Marmato Constructed in 2010

During the drilling campaigns and sample preparation phases several procedures to ensure sample integrity were employed, including:

- A geological staff member was assigned to each diamond drilling rig;
- A trained technician was assigned to each coring rig to record core recoveries and RQD and to ensure that core was properly handled and packed after each core run;
- All transport of samples from drill site to the Marmato sample Logging, Preparation and Storage facility was undertaken by a staff member;
- All splitting and sampling was supervised;
- Prior to sending samples to the laboratory, all sample bags and number strings were checked for continuity and sample bag integrity;
- All diamond cores were photographed as a routine documentation of samples; and
- Drill core was stored in locally constructed wooden core boxes with painted labels on the end of each core box detailing box number, drillhole number and sampling intervals.

To confirm that no bias has been introduced a test program was completed whereby samples of the cuttings were taken from the core saw tray and sludge samples were taken from the sumps used to settle out fine solids from the drill water. The settling tanks were installed as part of the environmental management plan for drilling. The core intervals to which these samples correspond were recorded so that the cuttings and sludge sample grades can be compared with the average grade for the interval.

10.3 Interpretation and Relevant Results

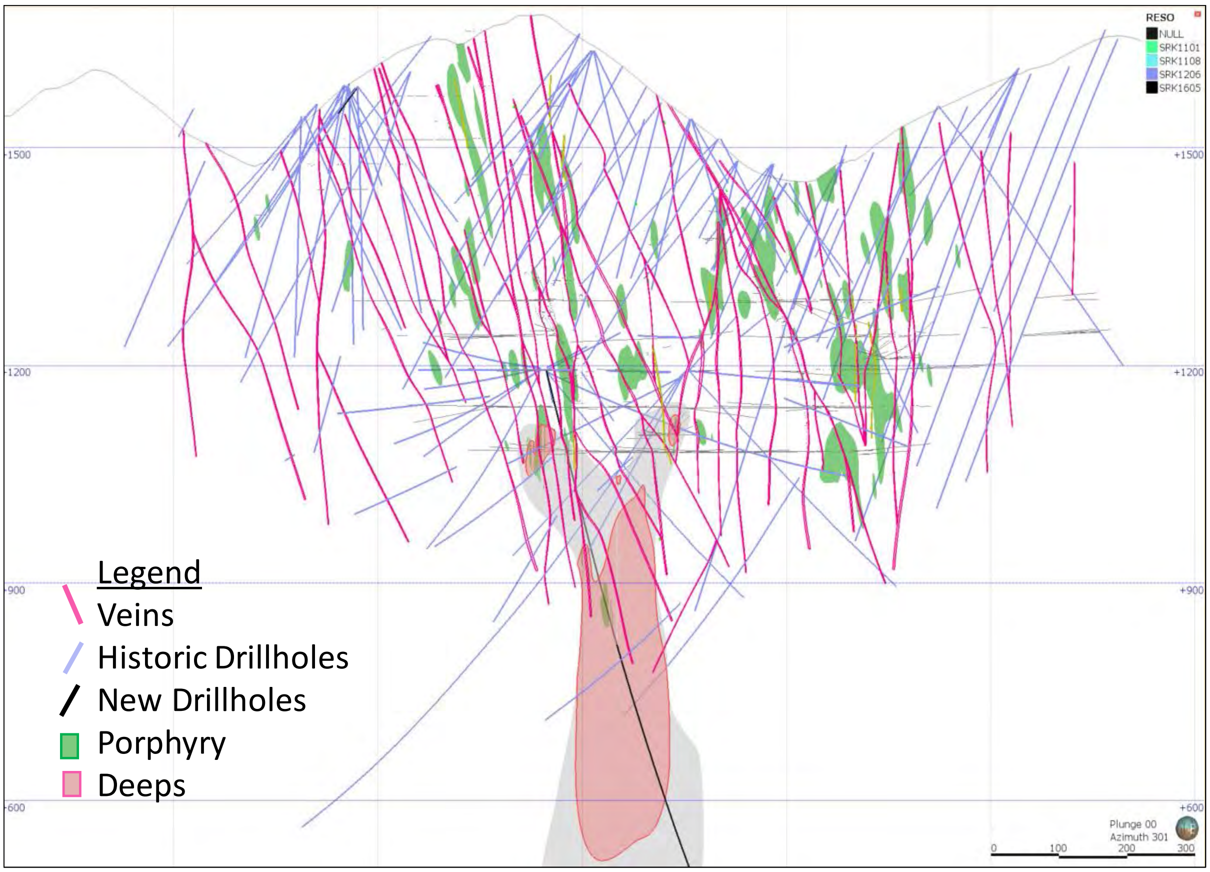
10.3.1 Collar Surveys

All hole collars have been surveyed using a differential GPS and have been surveyed to a high degree of confidence in terms of the XY location. Data has been provided to SRK in digital format using UTM grid coordinates.

Drillhole collars elevations have been adjusted for errors based on projections on a digital terrain model (dtm) surveys based on the Ikonos satellite imagery, which gives contour levels every 2 m. It is SRK's view that even given the extreme topography found at Marmato that the current procedures site the collar locations with a sufficient degree of confidence

10.3.2 Hole Orientation

Drillholes, where regularly spaced, are orientated -60 and -75 degrees predominantly to the south west, with occasional scissor holes towards the north east. Fan drilling has been utilized both at surface and from underground adits, which are also typically orientated towards the south west, with a small number of less extensive fans orientated towards the north east (Figure 10-3).



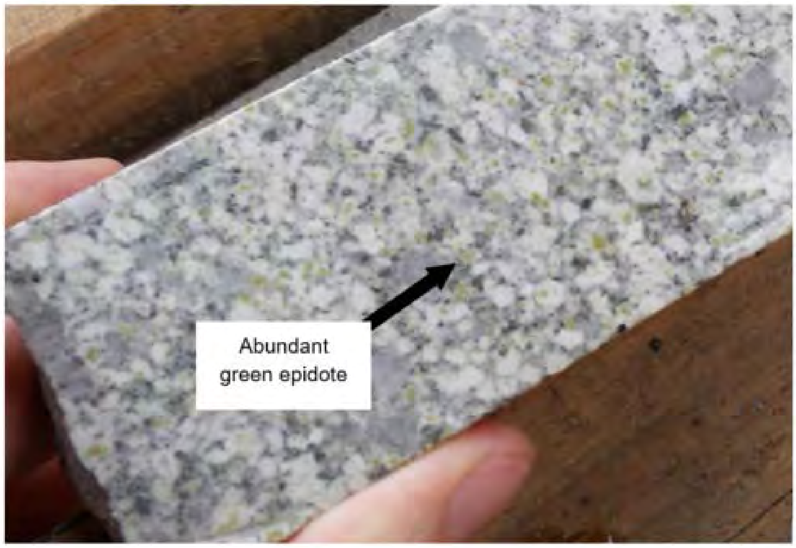
Source: SRK, 2017

Figure 10-3: Cross-section Showing Drilling Direction Compared to Geology

10.3.3 Significant Results

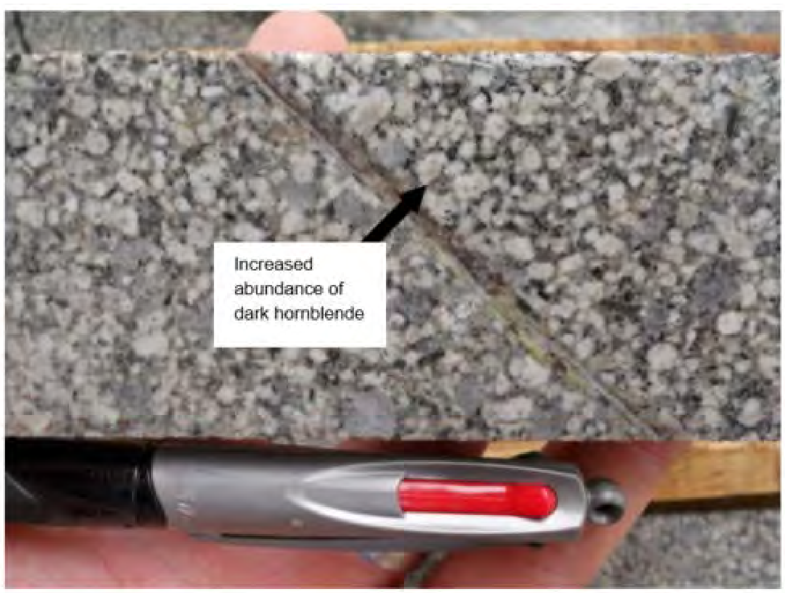
Drilling during between 2012 – 2017, along with check logging of the drill core by the Company and SRK, confirmed the presence of a relatively higher-grade core or feeder zone to the main mineralization (termed "Deeps Zone"), which SRK has modelled based on the initial interpretation provided by the GCM geologists and using a gold grade indicator model.

Figure 10-4 and Figure 10-5, illustrate the difference in mineralogy between the un-mineralized porphyry and the Deeps Zone mineralization as noted during 2011, differentiated by the increased presence of the dark mineral identified by the project geologist as hornblende (and a reduced abundance of the green epidote mineral, as previously noted).



Source: SRK, 2012

Figure 10-4: Low Grade Porphyry Material (0.04 g/t gold) showing abundant epidote and minor presence of dark hornblende (July 2011)



Source: SRK, 2012

Figure 10-5: High Grade Porphyry Material (3.9 g/t gold) showing minimal epidote and increased presence of dark hornblende (July 2011)

SRK has reviewed the sampling methods and sample quality for drilling database for the Marmato project and is satisfied that the results are representative of the geological units seen. Further no underlying sample biases have been identified. SRK has reviewed the core handling and logging and sampling procedures employed by the Company during the site visit to the core shed which showed clearly marked sampling intervals and associated check sampling. It is SRK's view that the sampling intervals and density of samples are adequate for the definition of the Mineral Resource Estimate presented here.

11 Sample Preparation, Analysis and Security

11.1 Security Measures

The Chain of Custody procedures for sample security were set up for the Company by Dr. Stewart Redwood in December 2005 (with the latest update in August 2009). During the initial exploration (2005 to 2006), sample numbers were created in the field based on a combination of the sample location, sample type and sample point, with descriptions of each sample noted in a field book and later transcribed. While providing useful information the decision was taken in 2006 to change to a sequential numbering system based on preprinted sample tickets. In both cases the sample numbers have been transcribed on the sample bags to avoid errors (lost tickets).

At the drill rig, the drilling contractors are responsible for removing the core from the bore barrel (using manual methods), and place the core in prepared core trays (3 m length). The core is initially cleaned to remove drilling additives, but attempts are made to ensure fine material is not lost. Once completed the core tray is closed by a wooden lid (hammered shut), and GCM geologists or technicians take possession. The drill core is then transported to the core shed for selection of sampling intervals and initial sample preparation. On receipt at the core shed GCM geologist and technicians follow the logging and sampling procedures laid out in Section 11.2. Once completed and the half core has been photographed the core boxes are again sealed and then transported to the new core storage facility on site. The new core storage facility is within a secure area with a single access gate controlled by a 24-hour security guard.

In preparation for shipment, samples were packed into nylon rice sacks with approximately five samples per rice sack. The shipments were accompanied with the laboratory submittal forms and were transported to Medellín. Samples were accumulated at sample dispatch (in the case of historical holes this was a warehouse in Medellín), until a hole was completed. Drillholes were only submitted in its entirety once completed. The samples have been transported by GCM employees to the preparation facilities. Upon reception at the sample preparation facility, the laboratory company checked that the samples received matched the work order and signed that it had accepted the samples.

Once the sample preparation was completed, the laboratory dispatched the sample pulps by courier to selected overseas laboratories. The laboratories were instructed to retain excess sample pulps after analysis which can be used in the event that check analyses are requested by GCM.

The coarse sample rejects and sample pulps from the preparation facilities in Medellín were picked up by GCM technicians during routine sample shipments to the preparation facilities. The coarse rejects and pulps were returned to the GCM new core shed at Marmato for long-term storage.

11.2 Sample Preparation for Analysis

11.2.1 Historic Sample Preparation

Historically, the primary laboratory used for the samples in the drill and underground sampling programs was Inspectorate (ISO 9001:2000 and ISO 9002:1994 certified) with a sample preparation laboratory in Medellín, and analytical laboratories in Sparks, Nevada, USA and Lima, Peru. The Sparks analytical laboratory was used until late 2007; however, considerable QA/QC problems were experienced during 2007 as well as long delays in turnaround time, and since late 2007 the Lima analytical laboratory has been used. The analyses from Inspectorate's Sparks laboratory which failed

QA/QC were repeated at the same laboratory a second and sometimes a third time, resulting in considerable additional delays. Other samples analyzed initially at Inspectorate's Sparks laboratory were re-analyzed at Inspectorate's Lima, Peru laboratory. Only sample batches that passed QA/QC were accepted and used in the resource estimation. Inspectorate is used as the laboratory for check and replicate assays of samples analyzed initially at SGS del Peru S.A.C in Callao, Lima, Peru.

The secondary laboratory used was SGS (ISO 9001 certified) at a sample preparation facility in Medellín, and at their analytical laboratory run by SGS del Perú S.A.C., El Callao, Lima. SGS was used for the backlog of samples in late-2007 and for check and replicate assays of samples analyzed initially at Inspectorate. They were also used as the primary laboratory for the Caramanta exploration program samples.

Sample preparation and analysis was put on hold when the drill program was suspended in September 2009, and was resumed in July 2009 in order to carry out the 2009 mineral resource estimate (SEWC NI43-101 report).

Prior to the opening of the Inspectorate and SGS sample preparation laboratories in Medellín in August 2006 and November 2007, respectively there were no internationally certified sample preparation laboratories for mineral exploration in Colombia. At the start of exploration work by GCM all samples had to be sent to other countries to be prepared and analyzed. Entire rock samples were sent by air to Inspectorate in Sparks, Nevada, for preparation and analysis, or to ALS Chemex in Quito, Ecuador (ISO 9001:2000 and ISO 17025:2005 certified) for preparation, with analysis by ALS Chemex in Lima. ALS Chemex in Reno, Nevada was also used for some check analyses. Some later samples were prepared by SGS at a sample preparation facility in its coal laboratory in Barranquilla, Colombia, and sample pulps were sent to its laboratory in Lima for analysis. The samples prepared in overseas laboratories were the initial underground samples and surface samples.

The sample preparation at the Inspectorate laboratory in Medellín consisted of drying the entire sample and crushing it to >70% passing -10 mesh by jaw crusher and roll mill. This was later changed to >85% passing -10 mesh using a TM Terminator Jaw Crusher. A split of 250 to 500 g was then obtained using a Jones splitter and was pulverized to >80% passing -150 mesh with Labtech LM2 pulverizing ring mill. Tested barren silica sand was used as a clean wash between each sample in pulverization.

The sample preparation procedures at the SGS laboratory in Medellín and SGS Colombia S.A. facility in Barranquilla, comprised drying the sample, crushing the entire sample in two stages to -6 mm and -2 mm by jaw crusher (>95% passing), riffle splitting the sample to 250 to 500 g, and pulverizing the split to >95% passing -140 mesh in 800 cm^3 chrome steel bowls in a Labtech LM2 pulverizing ring mill (preparation code 321).

The sample preparation method at the Inspectorate laboratory in Sparks, Nevada was to dry and crush the entire sample to >85% passing -10 mesh by TM Terminator Jaw Crusher, spilt 250 g to 300 g using a Jones splitter and pulverize this to >90% passing -150 mesh with a Labtech LM2 pulverizing ring mill. Tested barren silica sand was used as a clean wash between each sample in pulverization (rock chip 0 to 10 lb method).

The sample preparation procedure at the ALS Chemex laboratory in Quito was to log the sample into the tracking system, weigh, dry, crush the entire sample to >70% passing 2 mm, split off up to 1.5 kg and then pulverize the split to >85% passing 75 microns (code PREP-32).

11.2.2 Current Sample Preparation

The sample preparation method at the Mineros Nacionales mine laboratory comprise drying the sample, crushing the entire sample to minus 5.0 mm by jaw crusher (>95% passing), riffle splitting a sub-sample of 200 to 300 g, and pulverizing the sub-sample in a disc mill to >80% passing -200 mesh. SRK visited the facility during the 2017 site inspection, and noted new equipment had been purchased and was not currently in use at the time of visit (Figure 11-1). The new equipment was consistent with those used at the commercial laboratory. One issue noted during the site inspection is the stacking of sample trays (full) prior to pulverizing, which SRK does not consider to be best practice as could result in cross contamination of samples. Ideally sample should be stacked on individual trays on a trolley as shown in Figure 11-1.

Since January 2010 the primary laboratory used for the exploration samples in the drill and underground sampling programs was ACME Laboratories for sample preparation in Medellín, and analytical laboratories in Sparks, Nevada, USA and Lima, Peru. The 2011 drill program utilized the ACME sample preparation laboratory in Medellín and the ACME assay laboratory in Santiago, Chile. In addition, the SGS laboratory in Lima, Peru was used as a check laboratory.

SRK visited the ACME sample preparation facilities on November 4, 2010. The sample preparation method at ACME, Medellín was to dry the sample in large controlled and crush the entire sample to >85% passing -10 mesh by TM Terminator Jaw Crusher (Figure 11-2).

The sample is then spilt to 250 to 300 g using a Jones splitter and pulverized to >90% passing -150 (75 µm) mesh with a Labtech LM2 pulverizing ring mill.

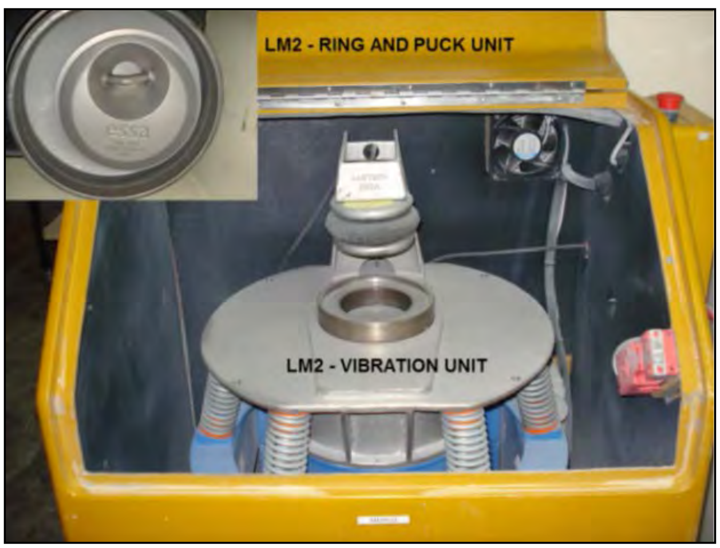
Tested barren silica sand was used as a clean wash between each sample in the crushing and pulverization stages (rock chip 0 to 10 lb method).

Source: SRK, 2017

Figure 11-1: Sample Preparation at Mine Laboratory Showing New Equipment (Crusher and Pulverizer)

(a)

(b)



(c)

(d)

Figure 11-2:Sample Preparation Facilities at ACME Laboratories in Medellín showing (a) Terminator Jaw Crusher (b) Jones Riffle Splitter (c) LM2 Mill and (d) Final Bar-Coded Sample Pulp (2010)

11.3 Sample Analysis

The ACME laboratory in Santiago analyzed the samples (from the 2011 drill program) for gold by fire assay (FA) with atomic absorption spectrophotometer (AAS) finish. Samples over 10 g/t Au were assayed by FA with gravimetric finish. Silver was assayed by aqua regia digestion and AAS finish. Silver samples above 100 g/t were assayed by FA with gravimetric finish.

The historical Conquistador samples have been assayed by Barringer for gold by FA with atomic absorption (AA) finish, and checks by gravimetric finish for some high grade samples. Silver was determined by acid digestion with AA finish.

A detailed description of the sample analytical procedure undertaken for the 2011 SRK Mineral Resource Estimate (January 2011) and is provided, given the incorporation of these samples in to the current estimate:

The Inspectorate laboratory in Lima analyzed the samples for gold by FA with an AA finish (detection limits 0.005 ppm to 3 ppm, method FA/AAS). Silver was analyzed by aqua regia digestion and AA finish (method AA, detection limits 0.2 to 200.0 ppm). Over-limit gold assays (above 3,000 ppb or 3.0 ppm) were repeated by FA (1 assay ton, 29.2 g) with gravimetric finish (method Au FA/GRAV). Samples above a 200 g/t silver upper limit of detection were repeated by FA (1 assay ton, 29.2 g) with gravimetric finish (method Ag FA/GRAV). Samples were analyzed for multiple elements by aqua regia digestion and inductively coupled plasma (ICP) finish (32 Element ICP Package for Ag, Al*, As, Ba*, Bi, Ca*, Cd, Co, Cr*, Cu, Fe, Hg, K*, La*, Mg*, Mn, Mo, Na*, Ni, P, Pb, S*, Sb*, Se, Sn*, Sr*, Te*, Ti, Tl*, V, W, Zn). Inspectorate states that for elements marked * the digestion is partial in aqua regia in most silicate matrices and the analysis is partial. Over-limit zinc and lead analyses (>10,000 ppm) were rerun by aqua regia digestion and AA. Multi-element analyses were not carried out on the final batches of samples.

The Inspectorate laboratory in Sparks, Nevada analyzed samples for gold and silver by FA with an AA finish for gold (detection limits 2 ppb to 3,000 ppb) and AA finish for silver (detection limits 0.1 ppm to 200 ppm) (method Au, Ag FA/AA/AAS). Over-limit gold assays (above 3,000 ppb or 3.0 g/t) were repeated by FA with gravimetric finish (method Au FA/GRAV). Samples above a 200 ppm silver upper limit of detection were repeated by FA with gravimetric finish (method Ag FA/GRAV). Samples were analyzed for multi-elements by aqua regia digestion and ICP finish (30 Element ICP Package for Ag, Al*, As, B*, Ba*, Bi, Ca*, Cd, Co, Cr*, Cu, Fe, Hg, K*, La*, Mg*, Mn, Mo, Na, Ni, P, Pb, Sb*, Se, Sr*, Ti, Tl*, V, W, Zn). Inspectorate states that for elements marked * the digestion is partial in aqua regia in most silicate matrices and the analysis is partial. Over-limit zinc and lead analyses (>10,000 ppm) were rerun by aqua regia digestion and AA.

SGS del Perú S.A.C. analyzed samples for gold by FA (30 g sample) with an AA finish (code FAA313; detection limits 0.005 ppm to 10 ppm), and for silver with an aqua regia digestion and an AAS finish (code AAS12CP), or 3-acid digestion with AAS finish (code AAS42C); detection limits in both are 0.3 ppm to 500 ppm). Multi-element geochemical analyses were done by two different methods. One method (ICM40B) uses a four acid digestion and both ICP-AES and ICP-MS for 50 elements (Ag, Al, As, Ba*, Be*, Bi, Ca*, Cd, Ce, Cr*, Co, Cs, Cu, Fe*, Ga*, Ge*, Hf*, In*, K*, La*, Li*, Lu*, Mg*, Mn*, Mo, Na*, Nb*, Ni*, P*, Pb, Rb*, S*, Sb, Sc*, Se, Sn*, Sr*, Ta*, Tb, Te*, Th*, Ti*, Tl*, U*, V*, W*, Y*, Yb*, Zn*, Zr*), elements marked * the digestion is partial

The second method (ICP12B) uses a two acid (HNO3 and HCl) digestion and both ICP-AES and ICP-MS for 38 elements (Ag, Al, As, Ba*, Be*, Bi, Ca*, Cd, Co, Cr*, Cu, Fe*, Ga*, Hg, K*, La*, Mg*, Mn*, Mo, Na*, Nb*, Ni*, P*, Pb, S*, Sb, Sc*, Sn*, Sr*, Ti*, Tl*, V*, W*, Y*, Zn*, Zr*), elements marked * the digestion is partial. SGS indicates that the analysis is partial for elements marked * and depends on the mineralogy. Over limit gold values were repeated by FA with a gravimetric finish (method FAG303) and a lower limit of detection of 0.02 g/t. Silver grades above 100 ppm and zinc grades above 1% were repeated by four acid digestion and AA (method AAS41B). Gold and silver for some samples was by

FA with gravimetric finish on 30 g (method FAG323 with lower limit of detection of 0.03 g/t gold and 0.03 g/t silver).

The Mineros Nacionales channel samples have been assayed at an onsite mine laboratory for gold and silver by FA with gravimetric finish. SRK reviewed the laboratory and noted some areas of improvement relating to the state of the equipment. The mine has recently purchased new sample preparation equipment, which should result in improved assay quality. SRK recommend GCM complete routine check analysis between the Mine Laboratory and an independent commercial laboratory in Medellin. SRK recommends that all exploration samples are kept clear of the mine laboratory to avoid any potential contamination.

11.4 Quality Assurance/Quality Control Procedures

SRK completed a detailed review of the Quality Assurance/Quality Control (QA/QC) procedures and results as part of the 2012 MRE. The results are summarized in the current report as limited drilling has been completed between 2012 and 2017.

The routine QA/QC program at Marmato comprises certified standard reference materials (CRM), quartz blanks, preparation duplicates (PD), field duplicates (FD) and check and replicate assays. The CRM, quartz sand blanks and PD and FD samples make up that portion of the QA/QC program which provides ongoing monitoring of the geochemical laboratories. The check assay and replicate assay samples are submitted at longer time intervals (less frequently) and provide a secondary control on the accuracy of the geochemical data.

Sampling protocols suggest the following submission rates:

- For the CRM, five random numbers are generated and the resulting random numbers are multiplied by 100 to produce five random numbers between 1 and 100.
- For the FD samples, two random numbers are generated and these resulting random numbers are multiplied by 100 to produce two random numbers between 1 and 100.
- For the PD samples, two random numbers are generated and these resulting random numbers are multiplied by 100 to produce two random numbers between 1 and 100.
- In contrast, the blanks are inserted at points within the sample stream where, based on the geology, the geologist believes that there is a high likelihood of significant mineralization, and therefore potential for contamination.

Within the 2011/2012 exploration period when the majority of the drilling has been completed by GCM a total of 1,379 certified standards, 1,024 blanks and 86 duplicates, 311 pulp duplicates and 314 field duplicates, representing over 15 % of total sample submissions for the GCM drilling programs at Marmato.

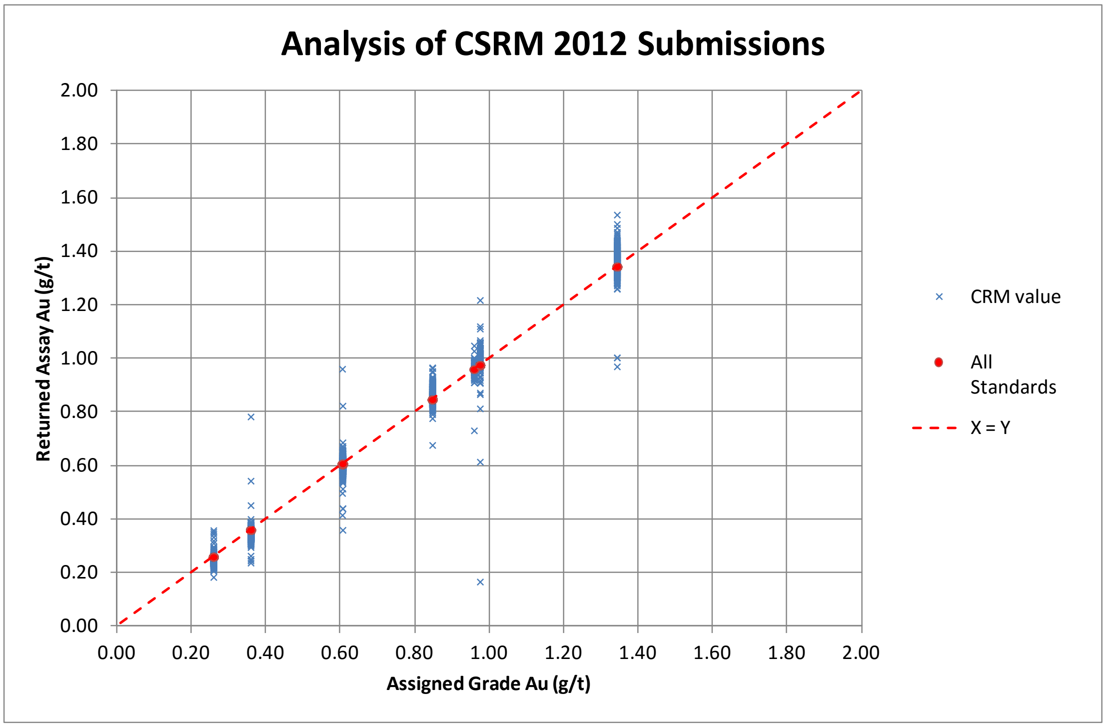
GCM employed a database administrator of the QA/QC program at Marmato, during this period. SRK held discussions with the database administrator during the site visit to review how the data was captured.

SRK has been supplied with a complete QA/QC assay database for the project, and notes that due to limited recent drilling only a very small number of QAQC samples have been inserted into the sample stream since 2012.

11.4.1 Standards

In the 2012 program, 1,379 CRM were reviewed with a summary of the submissions shown in Figure 11-3. In the submissions to SGS, SRK concluded the majority of standards had a greater number of overestimations than underestimations. The discrepancies noted are likely to be due to occasional laboratory issues, however this has not resulted in a material bias overall.

SRK has reviewed the CRM results and is satisfied that they demonstrate a high degree of accuracy at the assaying laboratory and hence give sufficient confidence in the assays for these to be used to derive a Mineral Resource estimate.



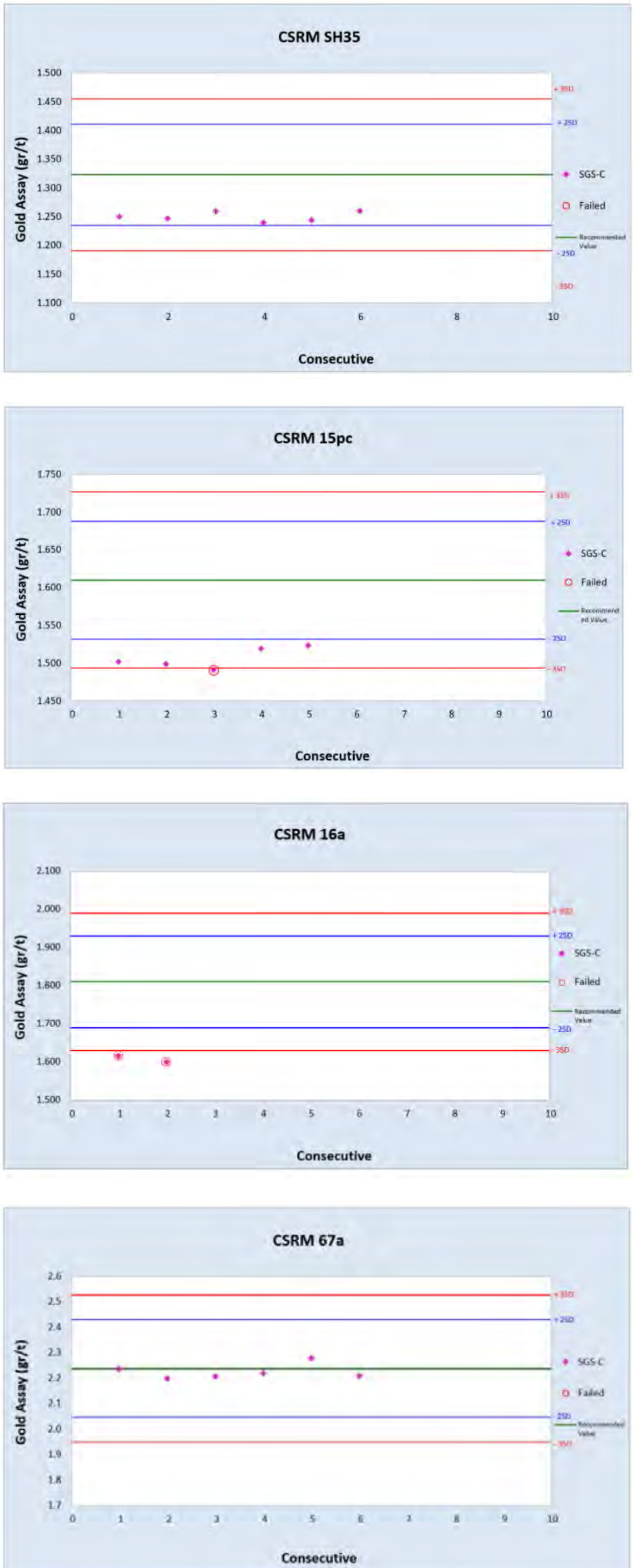
Source: SRK, 2012

Figure 11-3: Analysis of CSRM Inserted During GCM Sample Submissions from Marmato 2011-2012 Drill Program (Acme Laboratory)

In the 2012 to 2017 drilling, GCM has utilized CRM from Geostats Pty Ltd., Rocklabs, and OREAS. In 2017, 38 CRM's were inserted into the sample stream; of these, four (10.5%) were identified by GCM as being erroneous (i.e., values exceeded three standard deviations from the recommended value).

SRK notes that due to the limited drilling (and therefore limited number of QA/QC samples submitted), it is difficult to assess whether there are any trends or patterns for individual standards; however, three of the four failures occurred in CGC's lowest-grade standard (4 pb, which has a certified value of 0.01 g/t Au; has been excluded from the CRM has is effectively a certified blank).

SRK has reviewed the results with the majority of the assays reporting within the desired two standard deviation limits, but comments that in the grade ranges of 1.2 to 1.7 g/t the CRM values have reported low, and should be discussed with the laboratory to ensure the correct calibration has been completed (Figure 11-4).

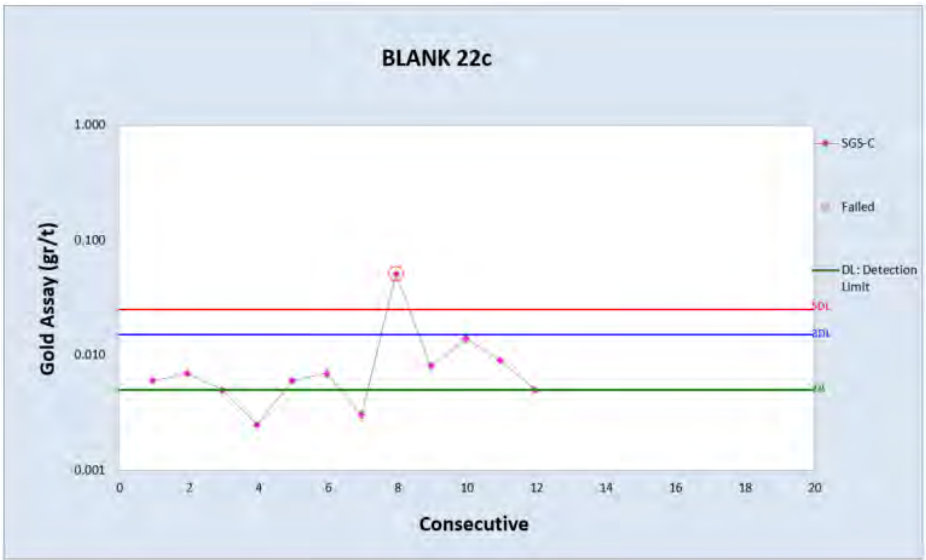


Source: GCM, 2017

Figure 11-4: Control Chart for GCM Submissions (greater than 1 sample) OREAS SH35, 15pc, 16a and 67a

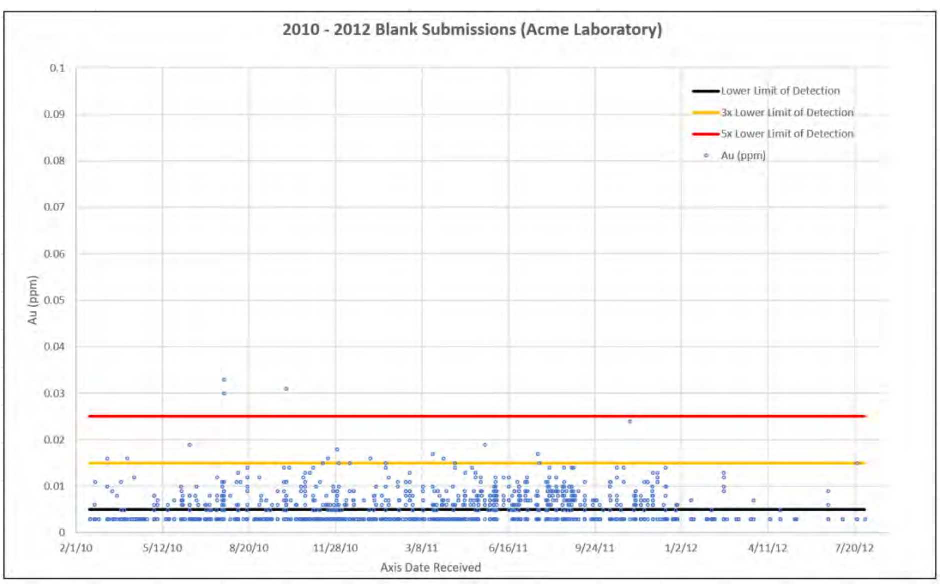
11.4.2 Blanks

Blanks are inserted at points within the sample stream where, based on the geology, the geologist believes that there is a high likelihood of significant or high-grade mineralization, and therefore potential for contamination. Blank samples are submitted to both SGS and ACME. Since 2012, only 12 blanks have been submitted, all to SGS (Figure 11-5). Of these twelve, one returned Au values higher than three times the detection limit, but still less than 0.05 g/t Au. No blank samples have been submitted to ACME since the 2012 MRE (Figure 11-6).



Source: GCM, 2017

Figure 11-5: Blank Analysis (Au) for Samples Submitted to SGS

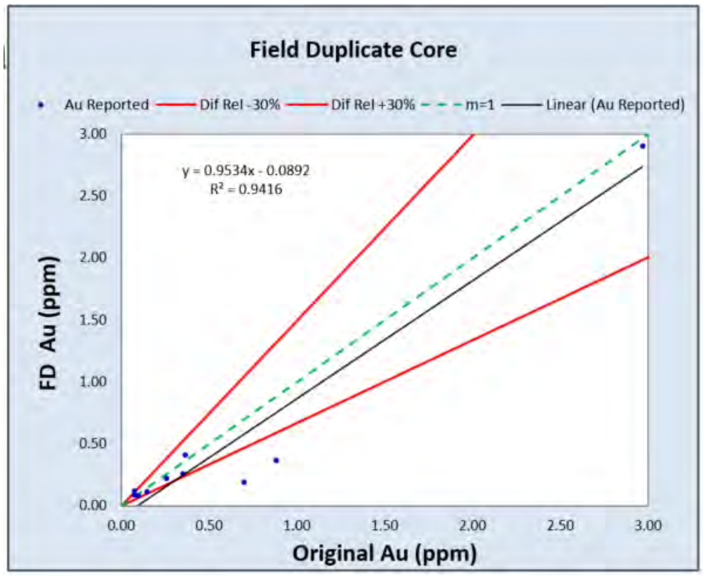


Source: SRK, 2017

Figure 11-6: Blank Analysis (Au) for Samples Submitted to ACME

11.4.3 Duplicates

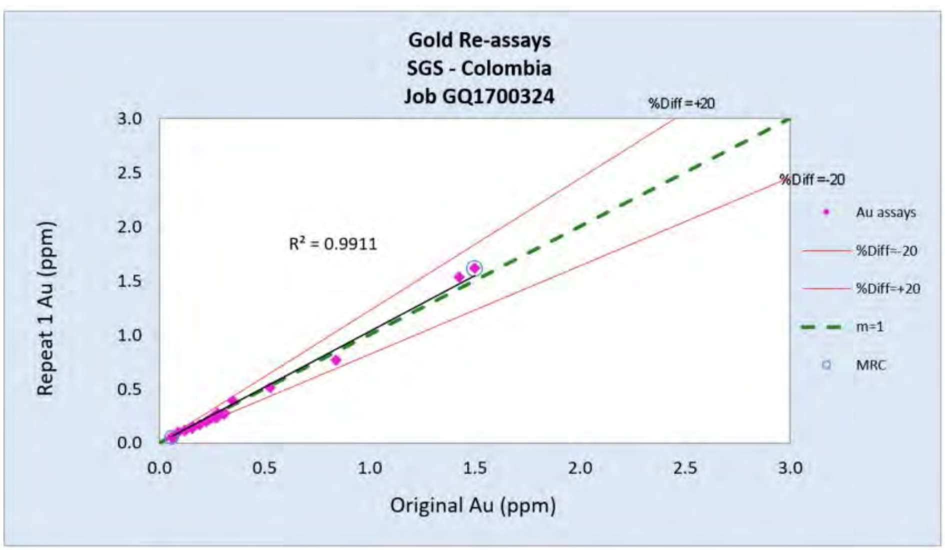
Ten duplicates, of which eight were field duplicates, were inserted into the sample stream in 2017. Although the number of samples submitted was limited, Au duplicates showed reasonable correlation for FD in a gold environment, with two samples reporting higher in the original assay (Figure 11-7).



Source: GCM, 2017

Figure 11-7: Analysis of Field Duplicates from 2017 Drilling Campaign

In addition to the FD 34 re-assays were completed during the submission of two batches to the laboratory. The results were based on re-assay of pulp material and therefore display strong correlations (Figure 11-8).



Source: GCM, 2017

Figure 11-8: Analysis of Re-assays in Batch GQ1700324 from 2017 Drilling Campaign

11.5 Opinion on Adequacy

It is the opinion of SRK that the frequency of QAQC sample insertion in the 2012 campaign is at an acceptable rate as stipulated in the Company's internal guidelines (approximately 10%). The current submission levels are difficult to draw conclusions from due to the limited number of submissions.

Overall despite very marginal evidence of potential contamination reflected in the QA/QC standards and blank samples, SRK is satisfied that these quality control procedures indicate no overall material bias in the analytical procedure.

Whilst it is not conclusive, SRK believes that duplicate analysis suggests that there is a potential of a nugget effect at Marmato that is not resolved by sample preparation in the laboratory. SRK recommends that the Company continues to monitor the results of pulp and field duplicates during the on-going drill program to confirm the presence of a nugget effect.

Replicate and check assays suggest a slight bias of the check laboratory assays towards a higher grade. It is therefore recommended that a full suite of quality control samples should be submitted to the check laboratory with any future assay submissions to further investigate the potential bias.

In general, it is the opinion of SRK that the results of the limited number of QA/QC analysis display a reasonably good correlation to the original assays and are acceptable for use in defining compliant Mineral Resource Estimates.

In the opinion of SRK the sampling preparation, security and analytical procedures used by GCM are consistent with generally accepted industry best practices and are therefore adequate.

12 Data Verification

12.1 Procedures

12.1.1 Verifications by GCM

GCM has completed a number of verification sampling programs during the history of the Marmato project. The work completed has ensured sample integrity and allowed SRK to have confidence to use the combined historical and GCM data as supplied by the Company. The work completed by the GCM can be sub-divided into the validation and verification of the on-going exploration drilling programs, and the validation underground channel sampling from the operating mine.

GCM employs a Database & GIS Manager who is responsible for tracking the samples through the laboratory. The Sample Order Form is given to the Database Manager. An Microsoft® Excel spreadsheet is used to track Company reference number, Lab order number, date of delivery to lab, date of receipt of assays by email, date of receipt of certificate, date of receipt of invoice.

The Database & GIS Manager is responsible for receiving the assay results and importing these into the database. This is the only person with authority to do this in order to maintain integrity and quality control of the database.

On receipt of each batch of assays for the exploration drilling, the QA/QC samples are checked to accept or reject the batch. If there is a problem the Chief Geologist is notified and he requests that the laboratory identify and solve the problem, if possible, or carry out re-analyze as necessary. If re-assay is required either the whole batch or the sample tray between the good QC samples on either side is then re-assayed. Microsoft® Excel or Access spreadsheets and graphs are used to check QC results and update these with each batch so that the whole program is monitored progressively.

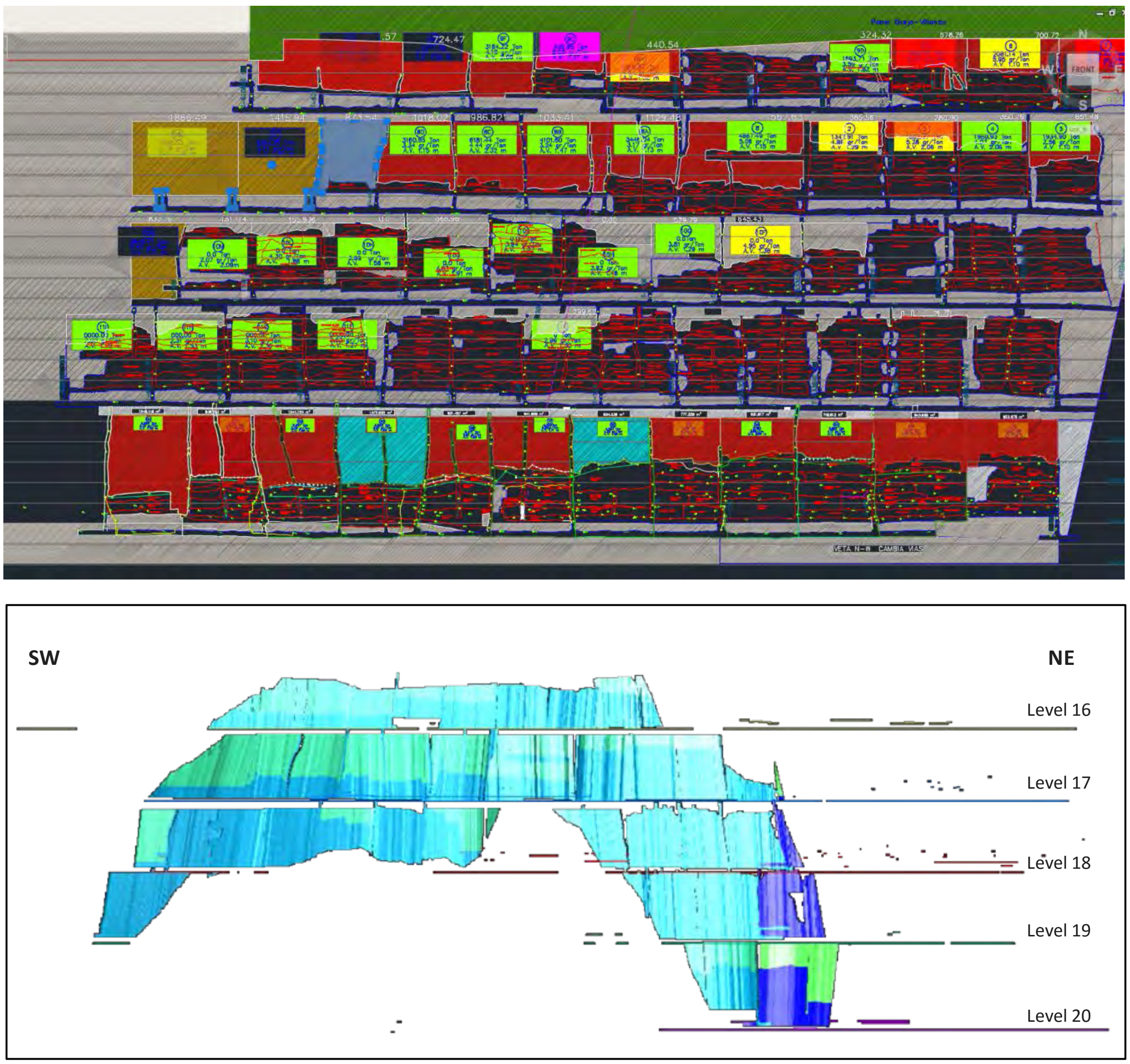
The laboratory also carries out its own internal QA/QC samples and the results for these are requested and monitored on an ongoing basis by GCM.

During the last major phase of exploration (2011), as a part of the ongoing verification of historic collar surveys, the Company identified a number of historical collar locations which required further validation based on varying positions on different plans of historical collars, and discussions with landowners. GCM completed a series of twin drillholes, and the results display a reasonable correlation in both gold assay values and logged lithologies. SRK has reviewed the results of the twin program in 2012 and elected to include the historic holes in the final database.

On-going validation included a detailed survey of historical collar positions using a DGPS which highlighted a number of minor discrepancies (typically less than 10 m). Based on the new survey data the database has been updated accordingly and the interpretations adjusted to the new drillhole positions.

The on-going validation of the underground channel sampling database has been a considerable task which has required capture of the sampling information from the mines operating long-sections into a 3D database. To complete the task GCM have completed surveys of the existing development to ensure accuracy of the placement of sampling on the main levels. GCM geologists have then created collar, survey and assay database for each sample relative to the strike of the deposit using the assumption that sampling has been completed perpendicular to the vein, as per the mines sampling procedure.

To place the raise and sub-level channel samples GCM has first generated a model of proposed or previously mined veins in 3D space (Figure 12-1). To complete the task individual panels from each of the operating veins have been digitized and geo-referenced to surveyed development. The dip and strike of the veins have been projected from structural information available on the long-sections. The mined width is then assigned from the vein sample widths in the channel database. While this is not ideal it is considered that these provide a reasonable correlation to sampling, but SRK will be required to complete more validation to ensure the geological interpretation is not impacted due to local changes in the spatial location of samples. The back transform spatial locations for the raise sampling and sub-level channel samples (using the average dip and strike of panels), have been calculated and stored in the database supplied to SRK.



Source: GCM, 2017

Figure 12-1: Example of Long-section Conversion by GCM to 2D .dwg Interpretation and 3D Interpretation (Veta Exploracion NW)

12.1.2 Verifications by SRK

SRK has reviewed the data acquired for the Project and held a number of technical meetings at the Company office in Medellin to review the progress on the data validation. SRK has been working with GCM geological team since 2016, when GCM initially began to capture information from the mine to generate a detailed geological model. For the most recent iteration of the database, SRK has undertaken basic validation for all tabulated data, and in order to independently verify the information incorporated within the latest drill program, SRK has:

- Completed a review of selected drill core for selected holes, to confirm both geological and assay values stored in the database show a reasonable representation of the project.
- Verified the digital database against the original issued assay certificates.
- Visited underground workings via Mineros Nacionales to check the continuity of vein and veinlet mineralization at depth, including a site inspection to levels 19 to 21 to understand changes in the mineralization styles.
- Verified the quality of geological and sampling information and developed an interpretation of gold grade distributions appropriate to use in the resource model.
- Reviewed the QA/QC database for the recent drilling and channel sampling programs.

SRK considers that the efforts should remain ongoing and that a lack of definition in portions of the three-dimensional (3D) survey of the mines has limited the ability to accurately place all the samples in their “true” location. SRK notes that the information for the raise sampling shows the most significant variations from SRK geological interpretation using mapping between levels. While these are areas for potential improvement, SRK is of the opinion that the exploration and assay data is sufficiently reliable to support evaluation and classification of Mineral Resources in accordance with generally accepted CIM Estimation of Mineral Resource and Mineral Reserve Best Practices Guidelines (May 10, 2014).

In accordance with NI 43-101 guidelines, SRK most recently visited the Marmato project on August 17, 2017. The main purpose of the site visits was to:

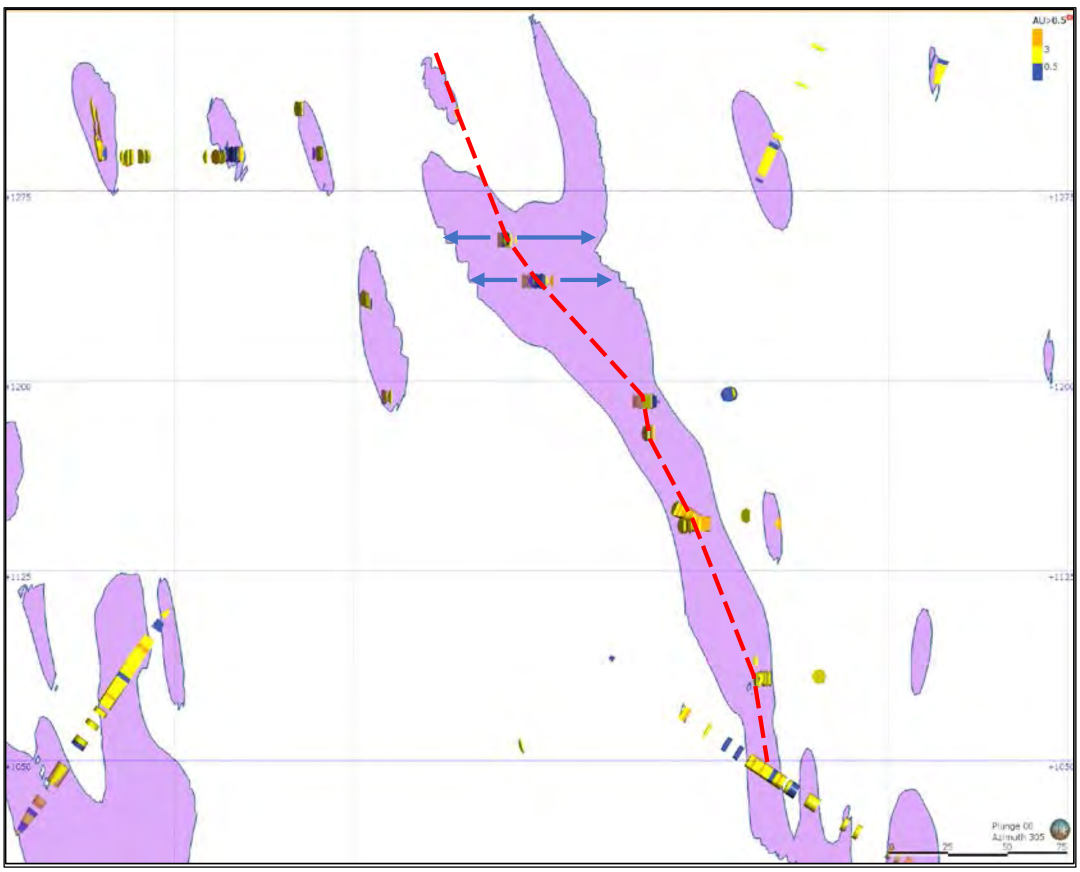
- Witness the extent of the exploration work completed to date;
- Complete an underground site inspection to understand the changes in the geological settings and possible exposure of the Marmato Deeps style mineralization;
- Inspect core logging and sample storage facilities;
- Discuss geological interpretation and inspect drill core;
- Assess logistical aspects and other constraints relating to the exploration property;
- Review data for the assay database; and
- Hold discussions with personnel involved in the current and historical exploration activities.

SRK did not completed an independent visit to the ACME sample preparation facility during the current site visit, but visited the facility previously during the November 2011 site visit also completed by Ben Parsons. SRK has not completed an independent check on the assay facilities utilized by the Company as they lie outside of the country and therefore could not practically be visited as part of the Scope of Work. SRK is satisfied with the quality of the laboratories used and based on the quality control investigations that there is no evidence of bias within the current database, which would materially impact on the estimate.

Based on the validation work completed by SRK, the database has been accepted as provided by GCM's Resource Geologist.

In addition to the site inspection, SRK has completed a series of technical meetings with GCM geologists to review the on-going capture of the underground channel sampling program and integration into the database. SRK reviewed the capture and geo-referencing of the underground development with existing geological maps for each of the mining levels.

SRK has highlighted to GCM upon the validation phase, there still remains a large number of data points which contain significant mineralization that require constraining which lie outside of the revised 2017 vein interpretations. SRK noted a number of areas where, based on short channel samples which if left unconstrained in the geological model would likely result in overstating the tonnage. Additionally, where these occur the grade in any subsequent estimate will overstate grade locally with possible vein or veinlet material being projected into the lower grade porphyry style domains (Figure 12-2). SRK would considers this interpretation overly optimistic and therefore further restrictions have been applied.



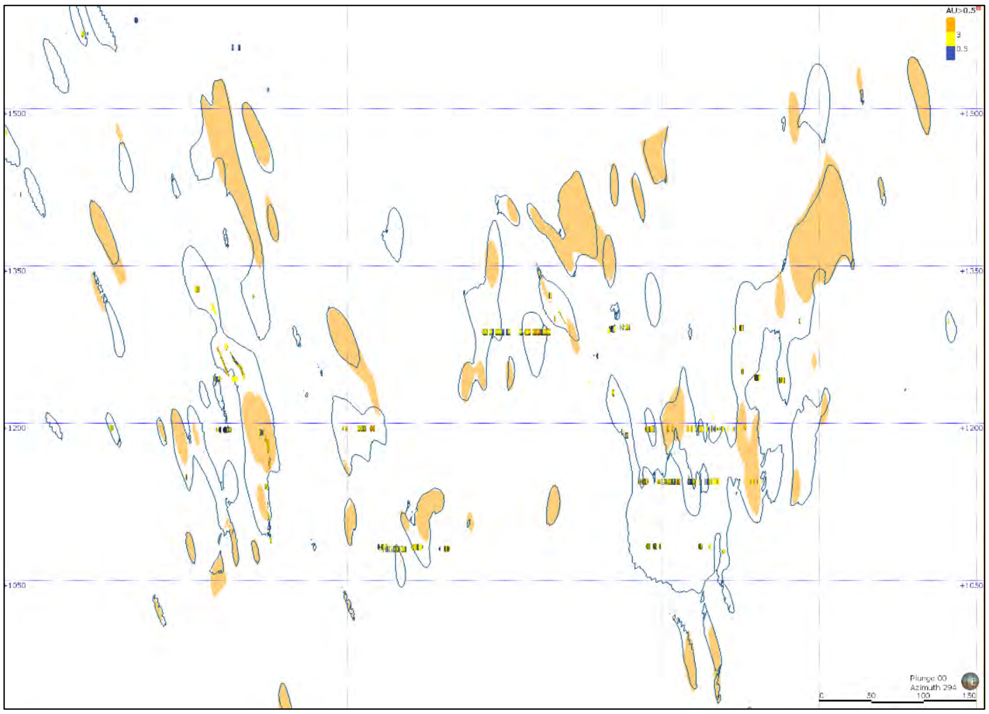
Source: SRK, 2017

Figure 12-2: Cross-section Showing Potential for Over Statement of Tonnage and Grade with High-Grades being pushed into Expanded Wireframe Volume

SRK completed a test model which removed the influence of any of these samples from the database which is considered a conservative approach by discounting the influence of short channel samples.

The resultant interpretation contained approximately half the volume of the optimistic scenario for the porphyry mineralization. SRK considers this interpretation the conservative option, which does not fully reflect the style of mineralization at Marmato, which would understate the tonnage and grades of the porphyry material.

While SRK considers this method as reasonable, a review of the interpretation on cross-section clearly shows areas where channel sampling in the cross-cuts contain mineralization not accounted for in the model (Figure 12-3).



Source: SRK, 2017

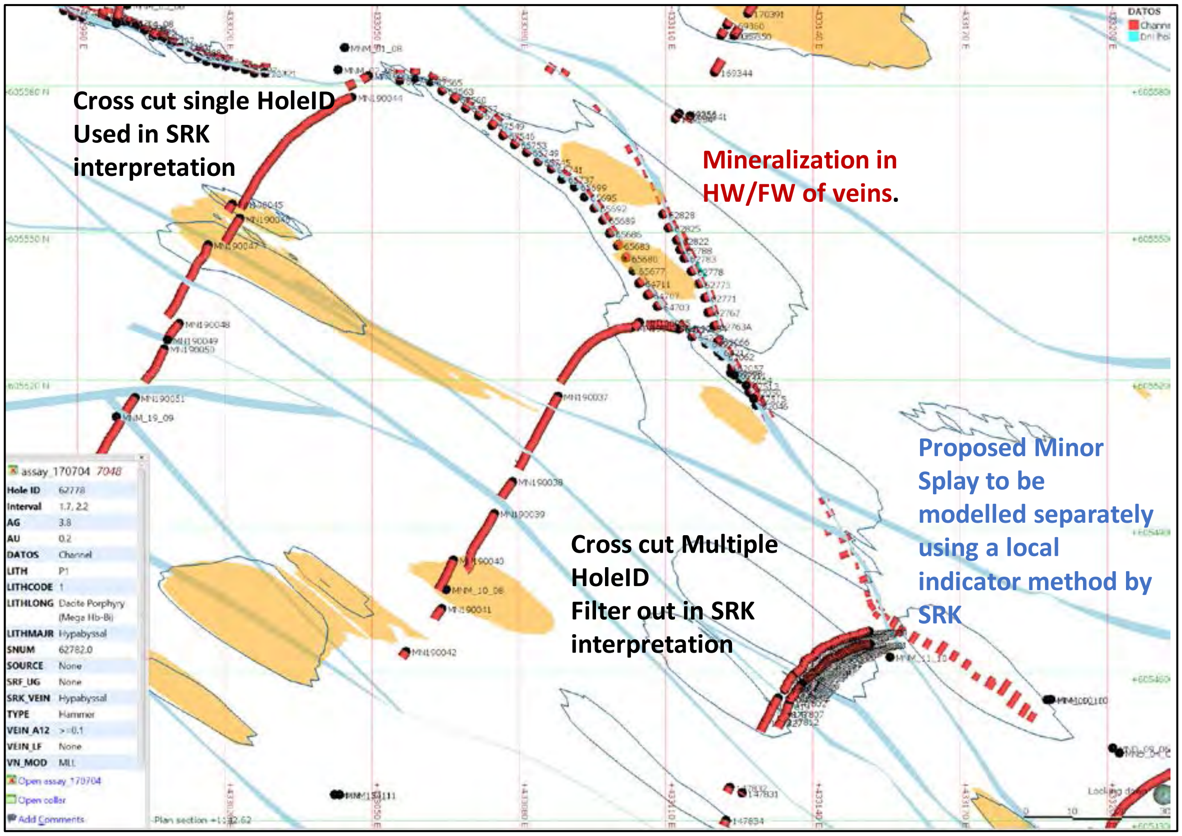
Figure 12-3: Cross-section Showing Conservative Interpretation (orange) vs. Optimistic (blue outline), vs. Channel Sampling (yellow disks)

SRK considers the best practice for the updated geological model and associated Mineral Resource estimate was to use a combination of the channels and drilling. To achieve this SRK completed a technical meeting with GCM geologists where the following information was reviewed:

- Short channel sampling associated with the veins should be re-assigned to the relevant veins;
- SRK notes that there are a number of situations where this sampling occurs on splays off the main structures which have limited extent. In these cases, SRK proposed if noted as "VEN" in the database, SRK create a subset of data and assign these to a separate splay domain which has limited strike and dip extent compared to the vein domain; and
- Longer channels or channels associated with cross-cut sampling which intersect stockwork style mineralization should be combined with the drilling database.

12.2 Limitations

The current structure of the database and naming convention for the underground channel sampling result in some limitations on generating and automated process to update the geological model. Isolated sampling of veins without surrounding samples can led to overstating the tonnage when using Leapfrog® and therefore caution has been required to review intersections on a case by case basis. Additionally, in a number of cases long cross cut drift sampling has been logged as individual Hole_ID's (Figure 12-4), so restrictions based on length cannot be applied. SRK recommends GCM geologists work to create updated Hole_ID's for the underground database.



Source: SRK, 2017

Figure 12-4: Plan Showing Impact on Current Interpretation from Database

12.3 Opinion on Data Adequacy

SRK has completed a number of investigations in order to verify the sampling and database supplied by the Company. In general, it is the opinion of SRK that the sampling preparation, security and analytical procedures used by GCM are consistent with generally accepted industry best practices and are therefore adequate. The Company employ a database administrator who is responsible for all issues relating to data quality in the database. SRK has held discussions with the administrator and reviewed the procedures in place during the data capture and is satisfied that they are consistent with industry best practice.

13 Mineral Processing and Metallurgical Testing

No detailed Metallurgical test work has been completed as part of the current study. SRK assumptions on recoveries are based on the current performance of the existing plant at the Mineros Nacionales operation.

The following section summarizes the results of the historical metallurgical test work completed between 2005 – 2007, which was designed with the view of mining the deposit via a large scale open-pit option.

13.1 Testing and Procedures

The results of recent (2005 to 2007) metallurgical test work undertaken is summarized in the March 2010 technical report (Wilson, 2010). SRK has not reviewed the source documents referred to in this summary.

Two test work programs were conducted on samples from Zona Alta, one by Kappes Cassiday & Associates (KCA) in 2006 and the other by SGS Lakefield in 2007.

The Kappes Cassiday test work was conducted on three composites samples, two of which had target gold head grades of 1 to 2 g/t Au and the other 10 to 15 g/t Au. Cyanidation tests were conducted over a range of crush / grind sizes from 80% passing 1.7 mm to 80% passing 75 µm.

The high-grade sample reported gold recoveries ranging from 77% to 95%, which increased with decreasing particle size. The re-calculated head grade of this sample was 13.8 g/t Au, matching the expected grade of 13.4 g/t. Gold recoveries from the low-grade samples ranged from 77% to 92%, and again increasing with decreasing particle size. However, the re-calculated head grades of these samples (3.6 and 2.7 g/t Au) were significantly higher than the expected grades (1.2 and 1.9 g/t), probably due to the presence of coarse free gold.

Silver recoveries were typically 50% to 60% at head grades of 13 to 17 g/t Ag (low grade samples) and 64 g/t Ag (high grade sample).

The SGS Lakefield test work was conducted on two composites samples, the first of which had a very low gold head grade (0.4 g/t Au), whereas the head grade of the second composite sample was 1.2 g/t Au. Cyanidation tests were conducted over a range of crush / grind sizes from 32 mm down to P_{80} 64 µm.

The heap leach amenability tests (i.e. on the coarse crushed material) returned gold recoveries ranging from 74-78% at the coarser sizes to 84% to 86% at the finer crush sizes (6 to 12 mm). Conventional cyanidation leach tests reported gold recoveries of up to 92%. Flotation tests conducted on the higher-grade sample returned recoveries in excess of 95% to the flotation concentrate. Cyanidation of this concentrate after regrinding returned a gold recovery of 89%, resulting in an overall recovery of about 85%.

Additional test work was conducted by SGS Lakefield between 2005 and 2007 on samples collected from the then Mineros Nacionales workings in the lower levels of the Echandia lease; this material was therefore corresponding in some respects to both Echandia and Zona Baja. Metallurgical test work was conducted on a single composite sample with a head grade of 12 g/t Au. Cyanidation recoveries ranged from 88% at a grind size of P_{80} 124 µm to 94% at a grind size of P_{80} 50 µm. Flotation gold recovery was reported at less than 80%.

13.1.1 Sample Representativeness

The metallurgical test work described above is brief in its scope, in terms of the number of samples tested, and in particular, the only material reported from Zona Baja / Echandia was of a grade significantly higher than is being targeted for open pit mining.

Nonetheless, the following general observations can be made from the results reported:

- The samples appear to respond well to conventional cyanidation;
- The response to initial heap leach amenability test work appears to be positive, in terms of the recoveries achieved; and
- There appears to be some potential to achieve good recoveries by flotation, and the recovery by cyanidation of flotation concentrates also appears to be good.

With respect to this last point, the existing Mineros Nacionales process plant follows such a flowsheet, where flotation is used, together with an initial gravity separation stage, to produce a concentrate which is then cyanide leached. The ore fed to this plant is from Zona Baja, and while the head grade of the material is higher than the developmental target, at 3 to 4 g/t Au, the recoveries reported verbally – greater than 90% in flotation and of the order of 95% in cyanidation – equate to an overall recovery of the order of 85%.

13.2 Relevant Results

The existing Mineros Nacionales flowsheet, consisting of flotation followed by cyanidation of the flotation concentrate.

The success of such a flowsheet relies on the ability to achieve a high gold recovery to the flotation concentrate, to the point where the flotation tailings can be discarded; i.e., there is insufficient gold (and/or silver) in the flotation tailings to make it worthwhile leaching this stream. While this circuit is more complex than a carbon-in-pulp (CIP) / carbon-in-leach (CIL) circuit, with flotation vessels in addition to cyanidation tanks, the size of the tanks themselves are much smaller, making them easier to place on the available topography. Notably, assuming that the flotation concentrate accounts for 10% of the feed mass, then the cyanidation tanks would be only one-tenth of the size that they would be for a CIP/CL circuit. Similarly, while the flotation vessels have to treat the entire feed stream, the residence time in flotation is measured in minutes rather than hours as in CIP/CIL, and so again the physical size of the vessels is smaller.

From an equipment perspective, this option may be more expensive than CIP/CIL due to the more complex circuit, however in terms of installed equipment in the given terrain, this increment is likely to be small. Similarly, while the operating cost is increased due to the addition of flotation reagents, the cyanide consumption, typically the largest single operating cost in a cyanidation circuit, will be much lower on a per tonne of RoM basis as the cyanide is only consumed by the flotation concentrate.

13.3 Recovery Estimate Assumptions

No detailed metallurgical test work has been completed as part of the current study. SRK assumptions on recoveries are based on the current performance of the existing plant at the Mineros Nacionales operation.

13.4 Significant Factors

Given the relatively small amount of recent metallurgical test work conducted and the potential focus on the Marmato Deeps for the operation, further metallurgical test work has been recommended by SRK.

Composite samples should be selected for from within the Inferred portions of the current interpretation.

The test work recommended is detailed below. Such test work covers the range of potential flowsheet options, i.e. conventional cyanidation and cyanidation of a flotation concentrate, to a level commensurate with a Scoping level of study.

- A comprehensive head assay, covering the precious metals (Au, Ag), base metals (Cu, Fe, Zn, Pb, etc., as well as lesser elements such as, Sb, and S) and oxide metals, as well as potentially troublesome elements such as Hg, Te, Se, Organic C;
- Bond Ball Mill Work Index;
- Batch gravity separation test on a 5 or 10 kg ground sample;
- A mineralogical examination of the as-received mineable material as well as on the gravity separation test concentrate – any free gold present will be more readily observed in the gravity concentrate;
- Batch cyanidation tests covering a range of operating conditions, e.g. grind size (range P_{80} 150 m to P_{80} 45 m), free cyanide level, pH, residence time, % solids;
- Under the optimum conditions determined above, a repeat test under CIL conditions, i.e. with the presence of activated carbon;
- Bottle roll cyanidation tests on samples crushed to typical heap leach crush sizes; e.g. -25 mm, -12 mm and -6 mm; and
- Flotation tests, focused on bulk sulfide recovery, at P80s of 106 µm and 75 µm.

Following a review of the results of this test work, possibly together with a further engineering consideration of the topographical constraints affecting each process option, further test work can be undertaken to take the overall level of test work up to that commensurate with a PEA. Such test work may include:

- Further comminution tests, such as Bond Abrasion Index, Bond Crushing Work Index, and Drop Weight Tests;
- Column leach (heap leach amenability) tests;
- Locked cycle flotation tests followed by cyanidation of flotation concentrate; and
- Materials handling tests, such as thickening and filtration tests.

14 Mineral Resource Estimate

The Mineral Resource Statement presented herein represents the latest mineral resource evaluation prepared for the Marmato Project reported in accordance with the standard adopted for the reporting of Mineral Resources of the CIM Code, and with the Canadian Securities Administrators' National Instrument 43-101.

SRK has been supplied with electronic databases covering the sampling at the Project, all of which have been validated by the Company. The databases comprise of a combination of historical and recent diamond core and underground channel samples. In total, there are 1,165 diamond drillholes for a combined length of 240,855 m; plus 13,489 individual underground channel samples, inclusive of current mine sampling contained in the databases.

The resource estimation was completed by Ben Parsons, MSc MAusIMM (CP), Membership Number 222568) an appropriate "independent qualified person" as this term is defined in National Instrument 43-101. The Effective Date of the resource statement is August 7, 2017.

The database used to estimate the Marmato Project mineral resources was audited by SRK. SRK is of the opinion that the current drilling information is sufficiently reliable to interpret with confidence the boundaries for gold and silver mineralization and that the assay data are sufficiently reliable to support mineral resource estimation.

This section describes the resource estimation methodology and summarizes the key assumptions considered by SRK. In the opinion of SRK, the resource evaluation reported herein is a reasonable representation of the global gold and silver mineral resources found in the Marmato Project at the current level of sampling. The mineral resources have been estimated in conformity with generally accepted CIM "Estimation of Mineral Resource and Mineral Reserves Best Practices" guidelines and are reported in accordance with the Canadian Securities Administrators' National Instrument 43-101. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resource will be converted into mineral reserve.

Leapfrog® (version 4.1.1) was used to generate the geological and mineralization models used to define the 2017 Marmato model. Datamine™ Studio RM (version 1.3.28.0) was used to construct the geological solids, prepare assay data for geostatistical analysis, construct the block model, estimate metal grades and tabulate mineral resources. Snowden Supervisor software (version 8.6.1) was used for the statistical/geostatistical analysis and variography.

The estimation methodology involved the following procedures:

- Database compilation and verification;
- Construction of wireframe models for the boundaries of the veins;
- Construction of wireframe models for the boundaries of the main other domains including, fault network, mineralized porphyry, low-grade porphyry, deeps/feeder structures;
- Definition of resource domains;
- Data conditioning (compositing and capping) for statistical analysis, geostatistical analysis, and variography;
- Block grade interpolation;
- Resource classification and validation;

- Assessment of "reasonable prospects for economic extraction" and selection of appropriate reporting cut-off grades; and
- Preparation of the Mineral Resource Statement.

14.1 Drillhole Database

SRK was supplied with ASCII files (.csv) containing the latest drilling and sampling information, in the form of collar, survey, lithology and assay files. The database provided included all sampling from the combined drilling database and channel sampling programs. A summary of the database used in the final estimate is detailed in Table 14-1.

Table 14-1: Summary of Database per Files Provided by GCM

File Name	Number of Records
Collar	16,654
Survey	54,930
Lith	52,615
Assay	162,571

Source: SRK, 2017

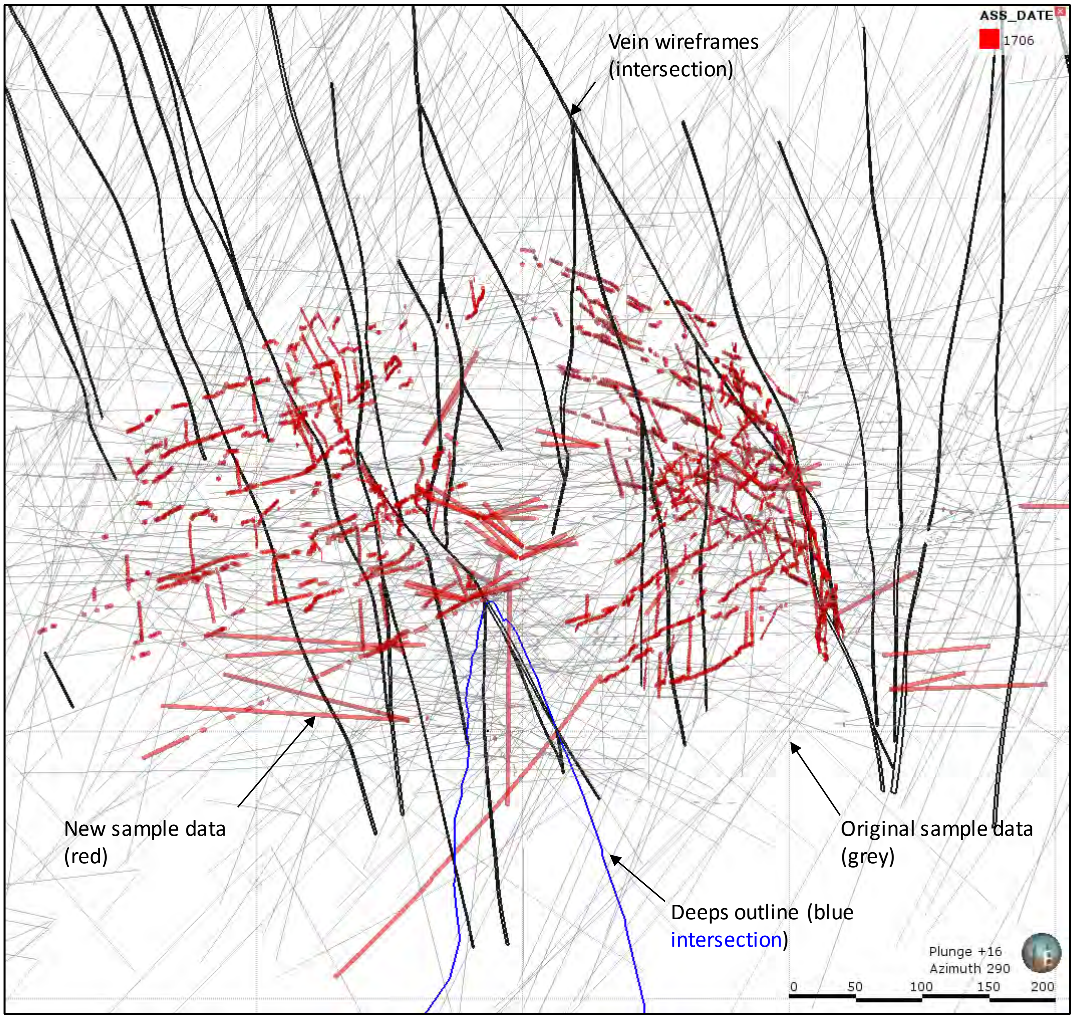
SRK reviewed the database and imported into both Leapfrog® and Datamine™ RM which have validation steps included as part of the importing routine. These include reviewing absent collar or survey information, plus overlapping sampling intervals, conflicting data logging and absent data in intervals.

SRK is satisfied with the quality of the database for use in the construction of the geological block model and associated Mineral Resource Estimate (Figure 14-1).

Table 14-2: Summary of Geological Database Information Available by Sample Type and Company

Summary of Channel Sampling Database by Company						
		Count	**Minimum Length (m)**	**Maximum Length (m)**	**Average Length (m)**	**Sum Length (m)**
Company	CGD	165	0.0	14.0	1.0	168
	CMdC	918	0.0	58.2	3.0	2,750
	CNQ	39	0.6	154.8	22.2	867
	MAdO	308	0.5	102.2	9.5	2,913
	MNL	12,059	0.0	7.6	1.2	14,823
Channel Total		**13,489**	**0.0**	**154.8**	**1.6**	**21,520**
Summary of Drilling Sampling Database by Company						
		Count	**Minimum Length (m)**	**Maximum Length (m)**	**Average Length (m)**	**Sum Length (m)**
Company	CGD	20	50.9	559.6	296.7	5,933
	CGD-GCL	75	16.8	527.4	149.1	11,185
	CMdC	205	1.2	587.3	226.2	46,378
	CNQ	47	39.2	600.2	316.4	14,873
	CNQ-MNL	25	14.0	180.0	72.1	1,803
	CNQ-PDG	6	70.6	175.0	116.0	696
	MAdO	342	12.0	1,012.1	355.7	121,650
	MNL	445	4.0	397.7	86.1	38,337
Drillhole Total		**1,165**	**1.2**	**1,012.1**	**206.7**	**240,855**
Grand Total		**14,654**	**0.0**	**1,012.1**	**17.9**	**262,375**

Source: SRK, 2017



Source: SRK, 2017

Figure 14-1: 3D View of Sampling Data, Showing New Sample Data Highlighted in Red

14.2 Geologic Model

14.2.1 Topographic Wireframes

GCM commissioned a detailed topographic map with 2 m contour intervals derived from Ikonos satellite imagery which was received in early 2007. The new topographic map provides a detailed base map for improved accuracy when plotting the results of the exploration programs, as well as a high-resolution satellite image. The topography was converted to a solid model in Vulcan™ to limit the grade estimate to the surface. This model has been supplied to SRK by the Company

14.2.2 Geological Wireframes

The Mineral Resource estimation process was a collaborative effort between SRK and GCM staff. GCM provided to SRK an exploration database with flags of the main veins as interpreted by GCM. In addition to the database GCM has also supplied a geological interpretation comprising preliminary 3D digital files (DXF) through the areas investigated by core drilling for each of the main veins.

SRK imported the geological information into Leapfrog® to complete the geological model. Leapfrog® has been selected due to the ability to create rapid accurate geological interpretations, which interact with a series of geological conditions. The following process has been completed to complete the geological models:

- Import the geological database and complete standard validation. Any erroneous data has been reported to GCM for review;
- Imported GCM geological interpretation, which are in polyline formats;
- Construction of the fault model using the GCM polylines as a guideline;
- Defined the timing and interaction of faults to generate fault blocks within which veins can be defined. The veins terminate at the contact with each fault;
- Creation of the veins based initially on lithological coding provided by, then edited by SRK based on either grade or location validation issues. The final model has not been snapped to all intersections due to continuing validation of elevations remaining an issue to a degree; and
- The initial geological model has been reviewed between SRK and GCM to confirm the current interpretation is representative of the underlying geological data, and knowledge of the veins from site.

SRK has been supplied with existing polylines which defined the sectional interpretation along with a summarized geological column, to re-create the existing interpretation in three dimensions. The geological modelling has been conducted in Leapfrog® using the geological modelling processed available. This model has been latter used in the Mineral Resource estimate to define block densities.

As part of the updated Mineral Resource, GCM and SRK initially focused on the creation of a more complete geological model (i.e., one encompassing the major geological features inclusive of the current veins being mined). The main geological units and entities modelled for the resource were:

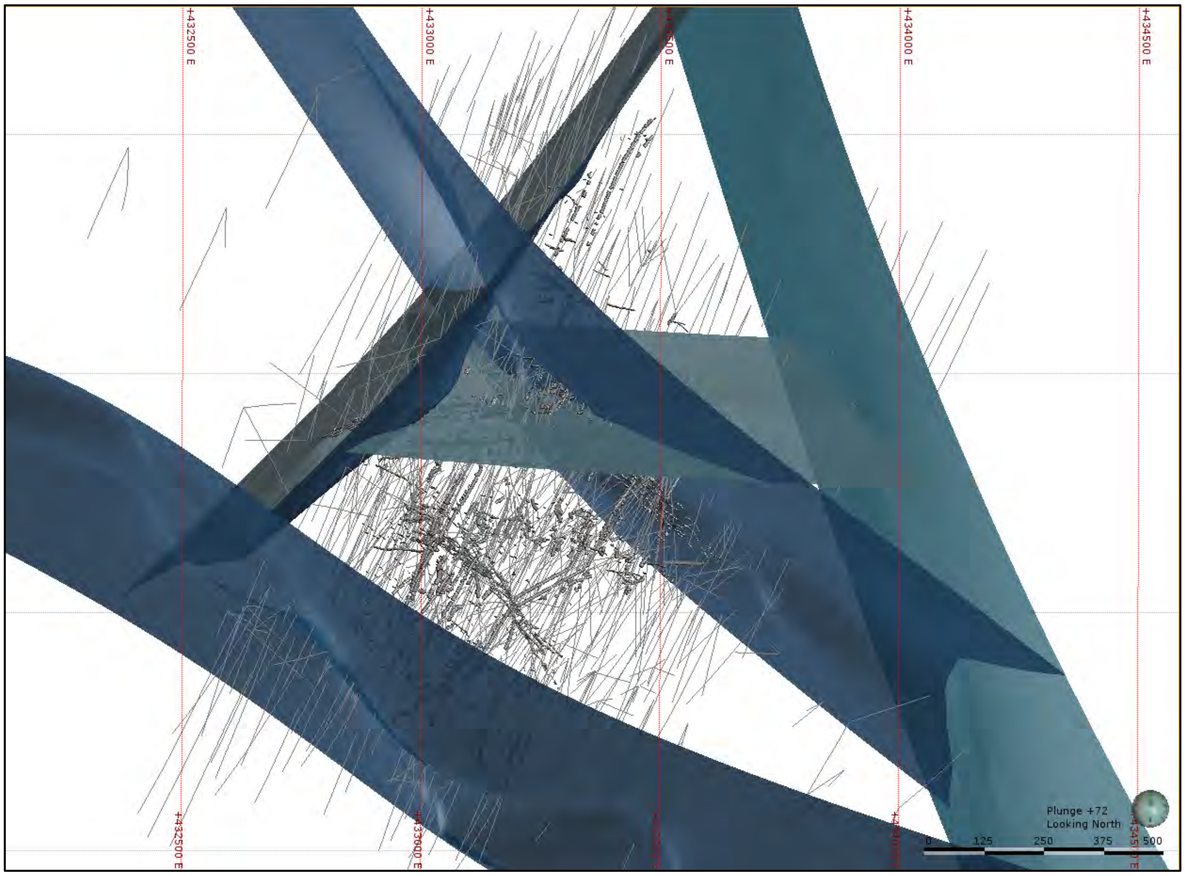
- Major Fault Network;
- Meta Schist;
- Porphyry (P1 – P4);
- Vein; and
- Marmato Deeps.

Drilling during 2011/2012, along with check logging of the drill core by the Company and SRK, has confirmed the presence of a high-grade core or feeder zone to the main mineralization (termed “Deeps Zone”), which SRK initially modelled based on interpretations provided by the GCM geologists. SRK notes that there is still limited understanding of the differences between the typical veinlet style mineralization seen in the upper portions of the deposit and the increased grades at depth. Recent drilling included in the revised database supports the presence of the Deeps Zone and will be incorporated in the updated model.

14.2.3 Structural Wireframes

GCM geological staff undertook a structural interpretation for the deposit using logged faults and breccia in drillcore, underground mapping and surface traces from the digital topography. A series of fault wireframes were provided to SRK, which were generally localized around areas of structural data.

SRK has extruded these wireframes to surface using regional mapping and underground development as a guide, and subsequently clipped these to the topography to create a fault network which has been used to review the vein interpretations during the geological modelling (Figure 14-2).



Source: SRK, 2017

Figure 14-2: Marmato 3D Fault Network Projected to Surface from Company Structural Interpretation

14.2.4 Vein Wireframes

The vein models have been updated using a combination of the drillhole information, channel sampling, geological mapping and the initial depletion shapes provided by GCM. The process has been a collaboration between SRK and GCM to ensure accuracy to the geological conditions mapped underground are considered. To complete the process GCM geologists supplied SRK with an updated underground channel database based on the procedures discussed in Section 12.1.1 of this report. Additionally, GCM created an initial stope model based on the average dip and strike taken from the underground long-sections produced by the mine.

SRK imported all the available information into Leapfrog® to aid in the generation of the vein model. The vein model was created via a staged process.

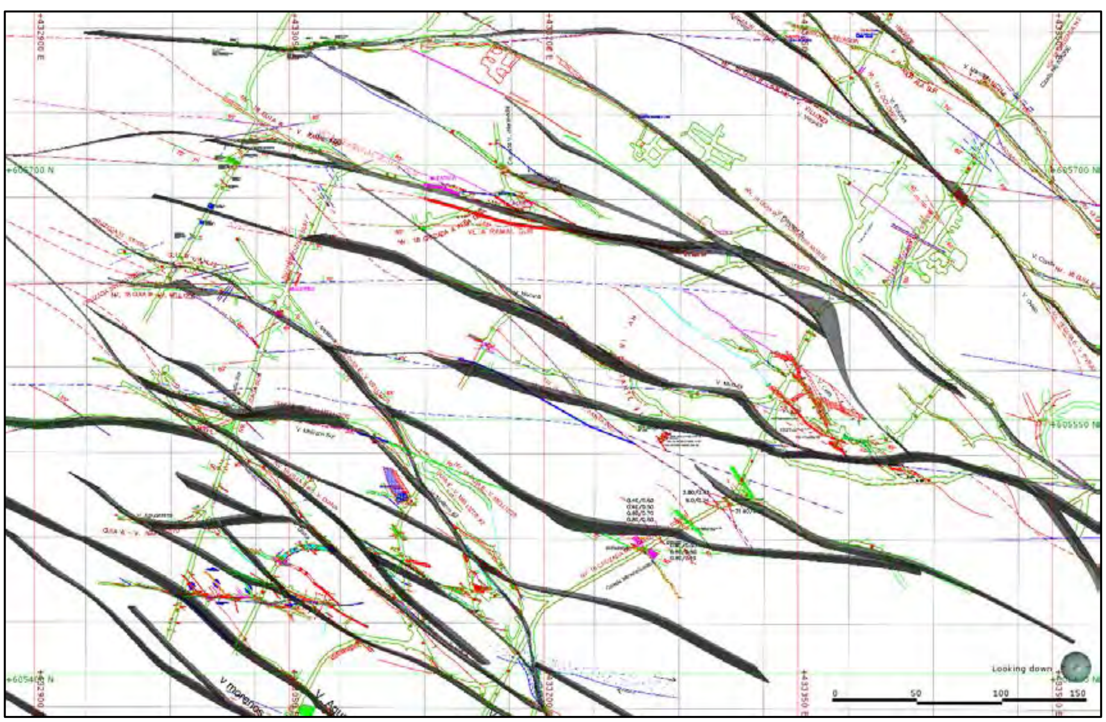
The position of the vein within the channel sampling was based on a combination of lithology logging, gold grade, geological mapping and (base of) stope wireframe data, with interpretation for the vein in less well-informed areas guided by visually evident step changes in the gold grade and characteristics of the vein (i.e., position, thickness and grade continuity) shown in adjacent samples.

The additional channel (VEN) samples have been sub-divided per GCM 'VEIN' code in to three types:

- Vein samples that influence the wireframe. These were deemed by SRK to be visually spatially positioned correctly with respect to geological mapping, mining development / stope data and surrounding drillhole assays and logging and have the following 'Veins_F' code: 'V_XXX';
- Vein samples that do not influence the wireframe, but have a code corresponding to the relevant structure for use in statistics and grade estimation. These are visually spatially offset with respect to other geological data (which if incorporated would result in 'pull points' to the vein wireframes and potentially overstate the tonnage) and have the following 'Veins_F' code: 'V_XXX_STM'; and
- Vein samples that were provided by GCM with a structure code, but are (based on visual review) more likely to be located in discontinuous splay veins in the HW or FW of the modelled vein. These are left unassigned in the background 'Veins_F' coding, and have been considered for the SPLAY domain.

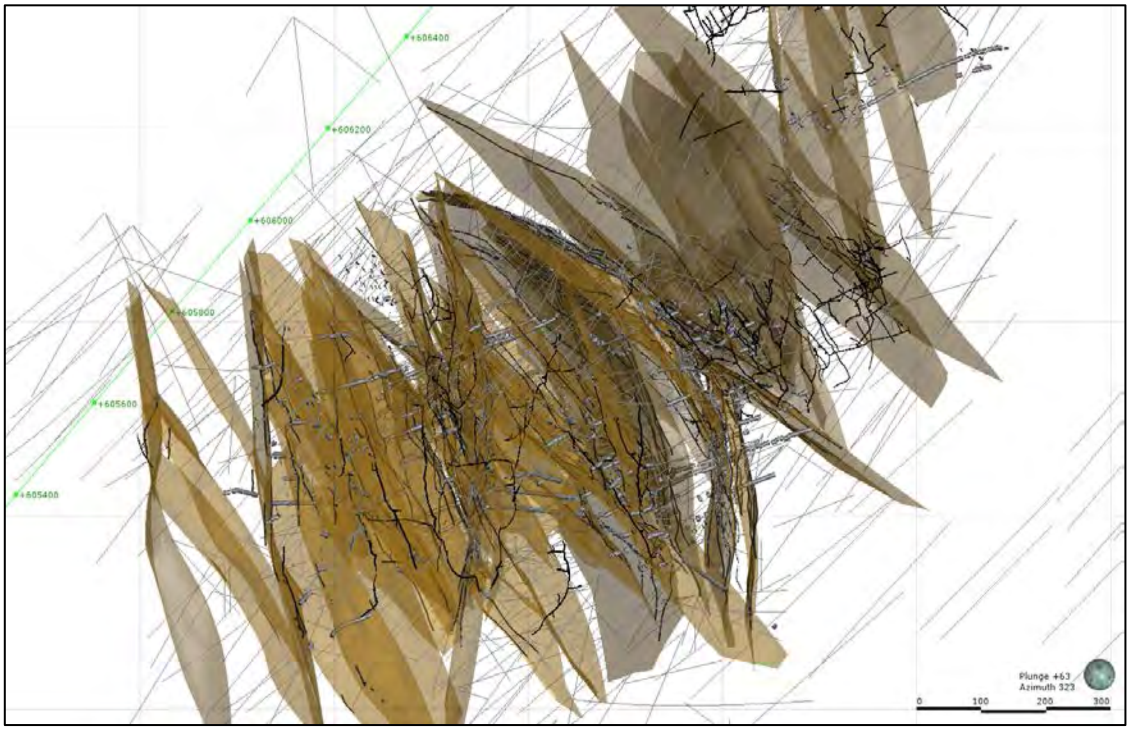
The process was initially completed on the areas with strong geological control in the mine and then expanded into the upper and lower levels of the deposit which are predominately supported by drilling information only.

SRK has validated the vein model using a series of level plans from the current mining operation for Levels 16 – 20 (Figure 14-3). The final model (Figure 14-4) has also been sent to GCM geologist for review and after further technical discussions approved as being reasonable for use in the estimation process.



Source: SRK, 2017

Figure 14-3: Level Plan Showing SRK Vein Models vs. Mapped Veins from Level 18



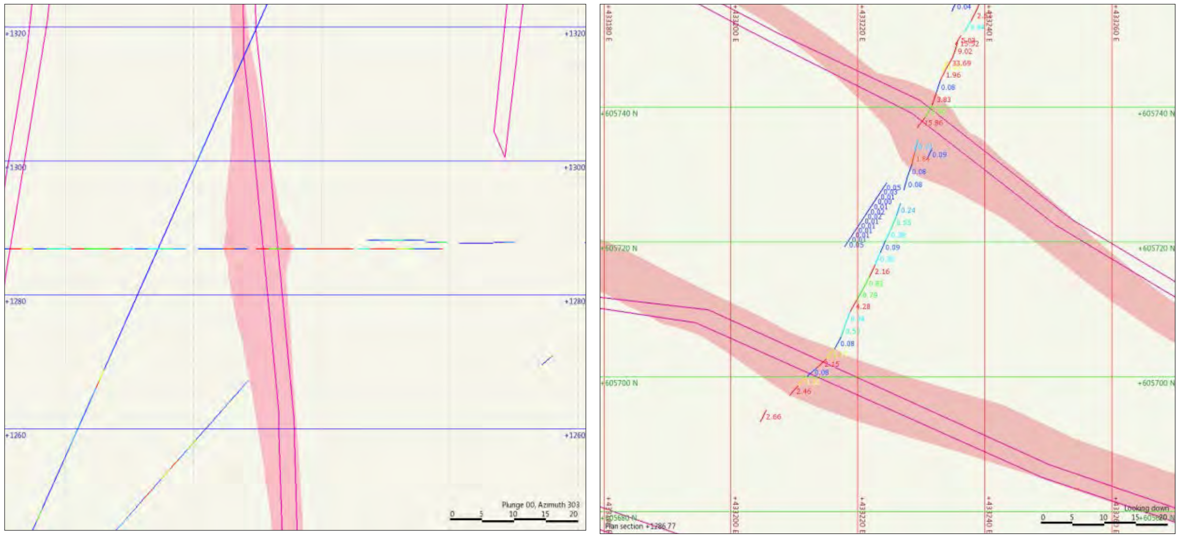
Source: SRK, 2017

Figure 14-4: 3D View Showing 3D View Models

14.2.5 Halo Wireframes

In addition to the mineralization used to define the vein, SRK noted that significant mineralization occurs outside of the vein. This can also be noted in review of the drillcore by the presence of veinlets directly in the hangingwall and footwall of some veins. SRK has elected to create a halo domain around the vein models. To create the domain SRK has initially taken each of the key intersections from the vein model and reviewed the drilling and sampling information to determine if any additional mineralization occurs directly in the hangingwall and footwall of the veins, which could potentially be mined (Figure 14-5). One limitation on defining the halo mineralization is that the channel sampling in places has only sampled the vein and therefore no record of the grades in the hangingwall and footwall are known. SRK recommends that the sampling program should be adjusted to ensure samples are taken either side of the vein where exposure permits such sampling. SRK consider there to be potential for this to exist within the mine, however the current drilling and sampling has limitation to assign this domain, and therefore a manual interpretation has been required. Based on the manual interpretation an additional 869 samples have been selected and attributed to this domain. The grades range from background to 63.5 g/t Au within the domain and have an average (uncapped) mean of 2.1 g/t Au, which would be in the order of 1.8 g/t Au if a cap of 15 g/t Au is applied.

SRK recommends GCM complete further validation of the potential hangingwall and footwall mineralization within the current mining areas as this may assist in better understanding dilution grades, or in places provide additional material to be mined.

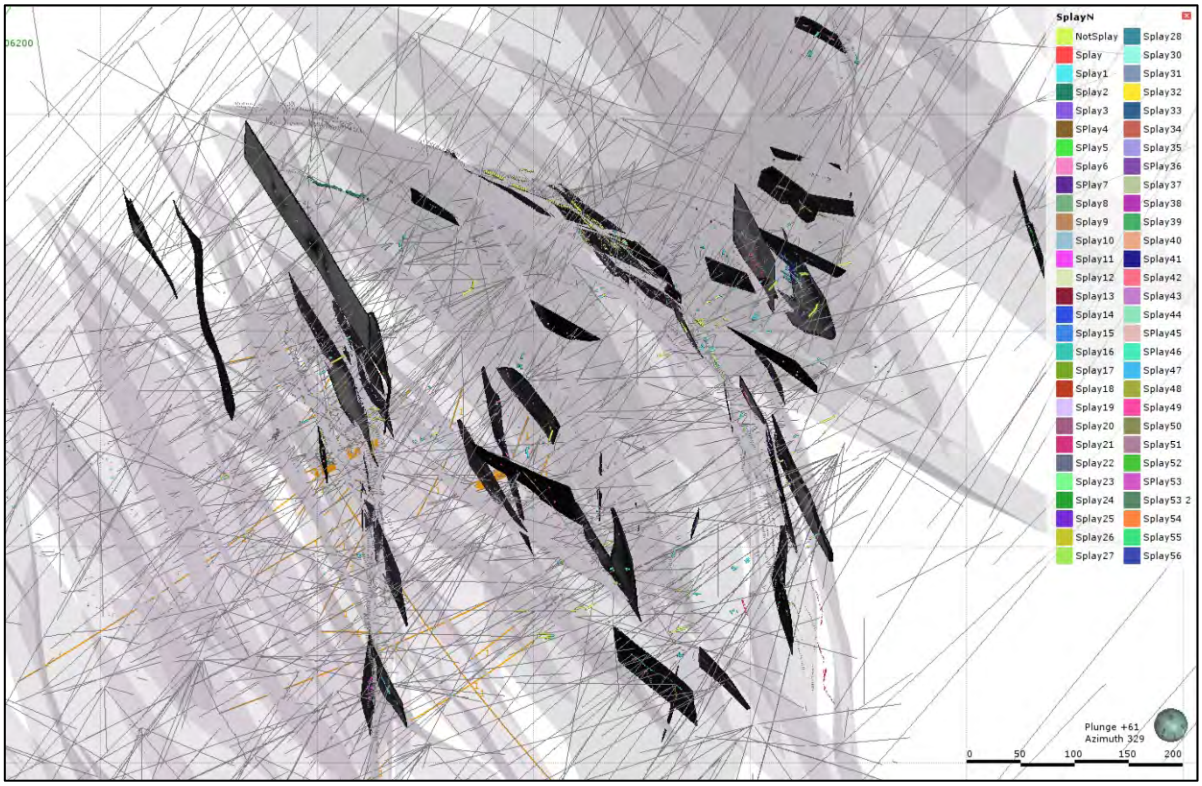


Source: SRK, 2017

Figure 14-5: Cross-section (left) and Level Plan (right) showing an example of expansion of geological wireframe to create halos around the veins

14.2.6 Splay veins

As discussed in Section 12 there are a number of intersection left after the definition of the veins which still have the logging code for "VEN". SRK has reviewed these samples along with the geological mapping to identify a number of small splays of the main structures. SRK identified a total of 52 structures which show some degree of geological continuity to be able to define wireframes. SRK considers the splays to have lower geological confidence to the main veins and further sampling will be required to confirm potential prior to mining. The wireframe has been created using the vein tools in Leapfrog® which the boundaries to limit the model defined using polylines by SRK to crop the veins as appropriate to the main structures (Figure 14-6).



Source: SRK, 2017

Figure 14-6: 3D View Showing Splays (bold) vs. Vein Interpretation (transparent)

14.2.7 Mineralized Porphyry (Grade Shells)

During the review of higher grade mineralization (in excess of 0.5 g/t gold), material has been identified which occurs outside of the veins structures. This material also lies within the host porphyry domain, but appears to have restricted strike and downdip continuity.

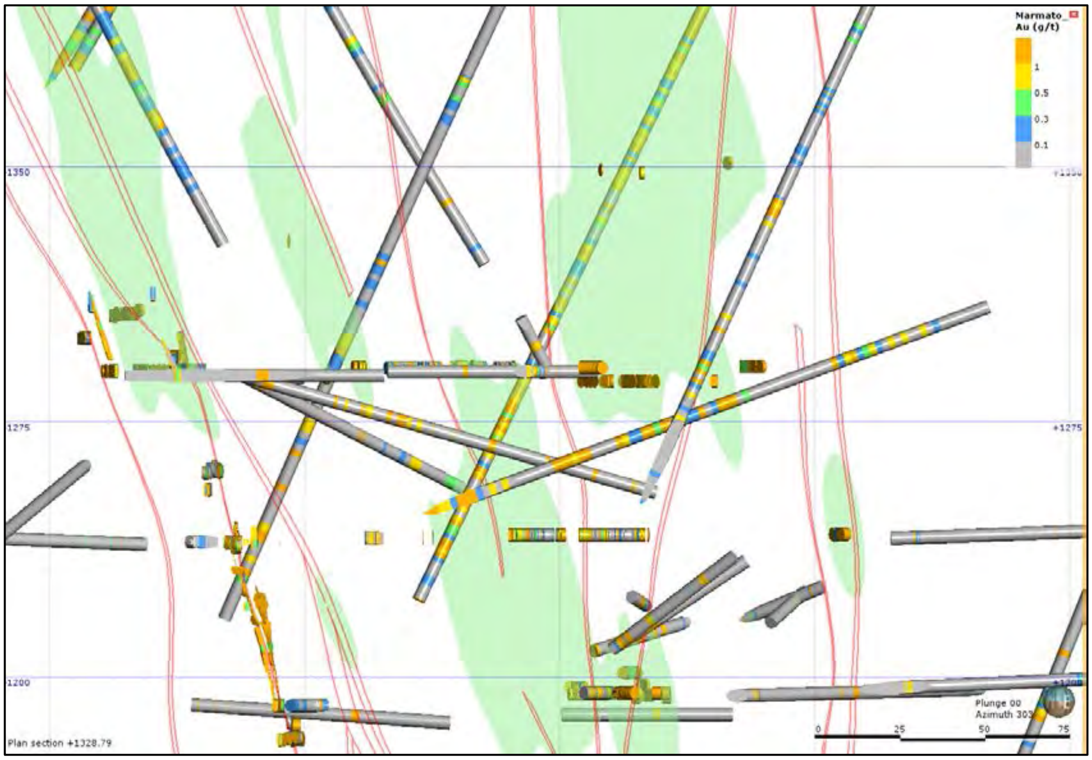
The broad zones of veinlet mineralization ("grade shells") modelled initially during the 2012 MRE update typically varied from 10 to 230 m wide, reaching up to 340 m wide in areas of significant veinlet accumulation, whilst extending with good geological continuity for between 200 m and approximately 950 m along strike, and between 100 and 900 m downdip. SRK has updated these domains during the 2017 estimate using more discrete zones and application of a 0.5 g/t cut-off grade.

SRK tested a number of scenarios which included but was not limited to, using all available information, using drillholes only, using drillholes and channel samples where the length of the channel sampling is greater than 3 m. All of which produced variable results with the volume of the defined shapes ranging from 17,500,000 m^3 to > 50,000,000 m^3. The most conservative approach would be to only use the drilling information to define this domain but sampling of the cross-cuts indicates that this would likely understate the tonnage and be too restrictive. SRK therefore worked with GCM geologists to define an Indicator model using the following assumptions:

- Only intersections which have been used to define Vein/Halo/Splay domains to remove potential errors or overstating tonnage related to isolated short channel sampling;

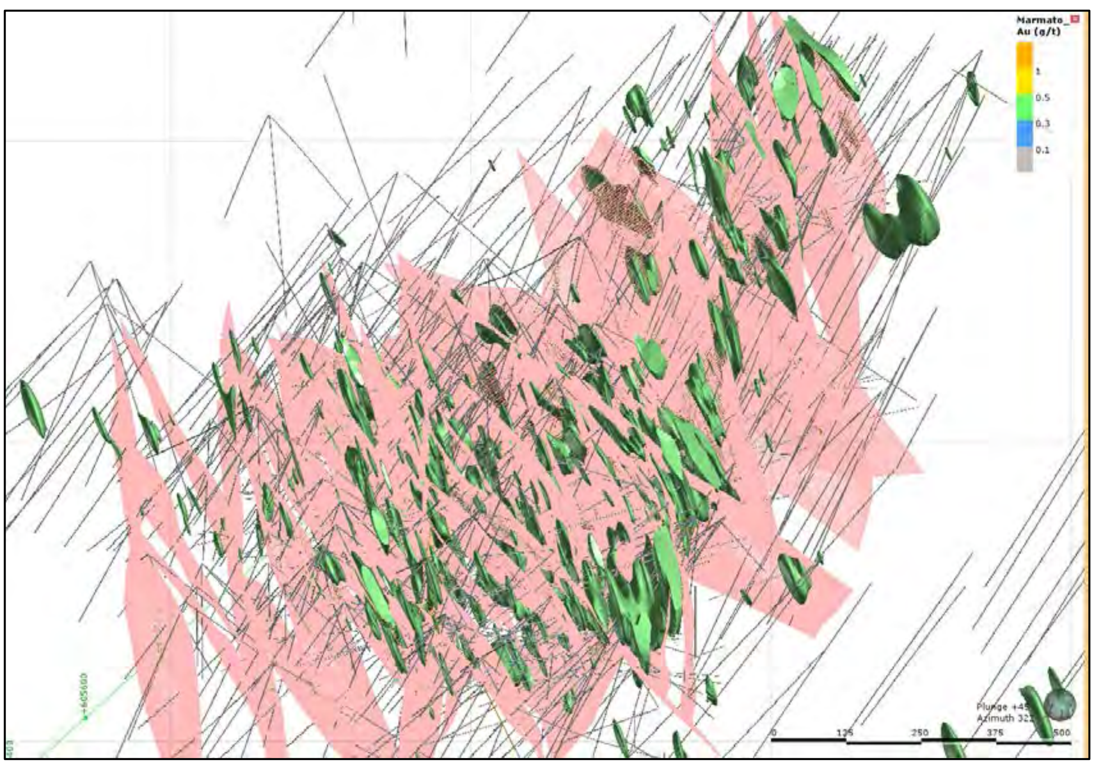
- All holes have been composited to 2.0 m, with samples at the end of holes appended to the previous sample;
- Vertical limits of 840 m to 2,000 m, clipped by the topography have been defined;
- A cut-off grade of 0.5 g/t Au was used to define the outer limit of the mineralization, which represents 12.2% of the database being assigned and indicator value of 1, with all other values assigned an indicator of 0;
- The general trend for the search ellipse has been orientated to a simplified structural trend based on the main 12 vein structures within the deposit;
- A spherical model has been used using a sill of 0.1 and a nugget of 0.03 (30%), using a base range of 250 m for the interpolant; and
- An ISO value of 0.40, with a grid resolution of 5 m has been used to define the wireframe, with any shapes with a volume of less than 1000 m^3 removed.

The resultant wireframes have been reviewed by SRK and GCM geologist on section (Figure 14-7 and Figure 14-8) and in level plan and deemed to be representative of underlying geology. The current hypothesis is that this mineralization was in place before the epithermal veins were in place.



Source: SRK, 2017

Figure 14-7: Cross-section used During Validation of Porphyry Grade Shell Domain



Source: SRK, 2017

Figure 14-8: 3D View of Mineralized Porphyry Grade Shells (green) vs. Vein Model (red)

14.2.8 Marmato Deeps Zone

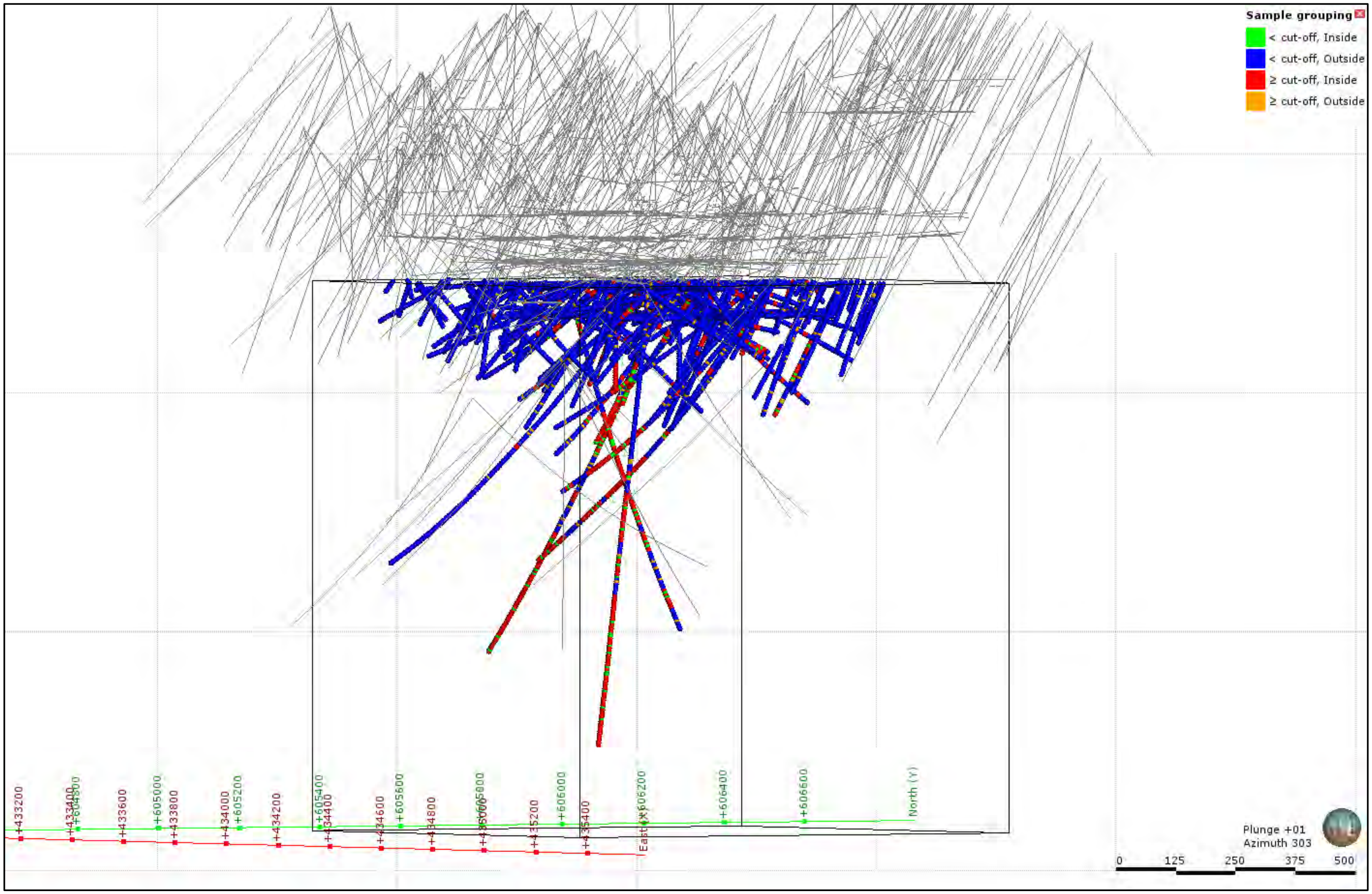
At depth within the central portion of the deposit, this zone is indicated to be continuous along strike for approximately 350 m and has a confirmed downdip extent that reaches up to 500 m, with a thickness that varies between 35 and 150 m.

SRK initially reviewed the geological logs to determine if the difference in mineralization styles have been logged sufficiently well to create an independent code for the lithological model but the results were inconclusive. SRK has therefore elected to use a grade base interpolation using Leapfrog® and tested both grade and grade indicator options. Based on sectional review of the interpretations and discussions with GCM geologist the Indicator radial basis function (RBF) approach was determined to produce the preferred interpretation.

To create the Indicator model the following assumptions have been used:

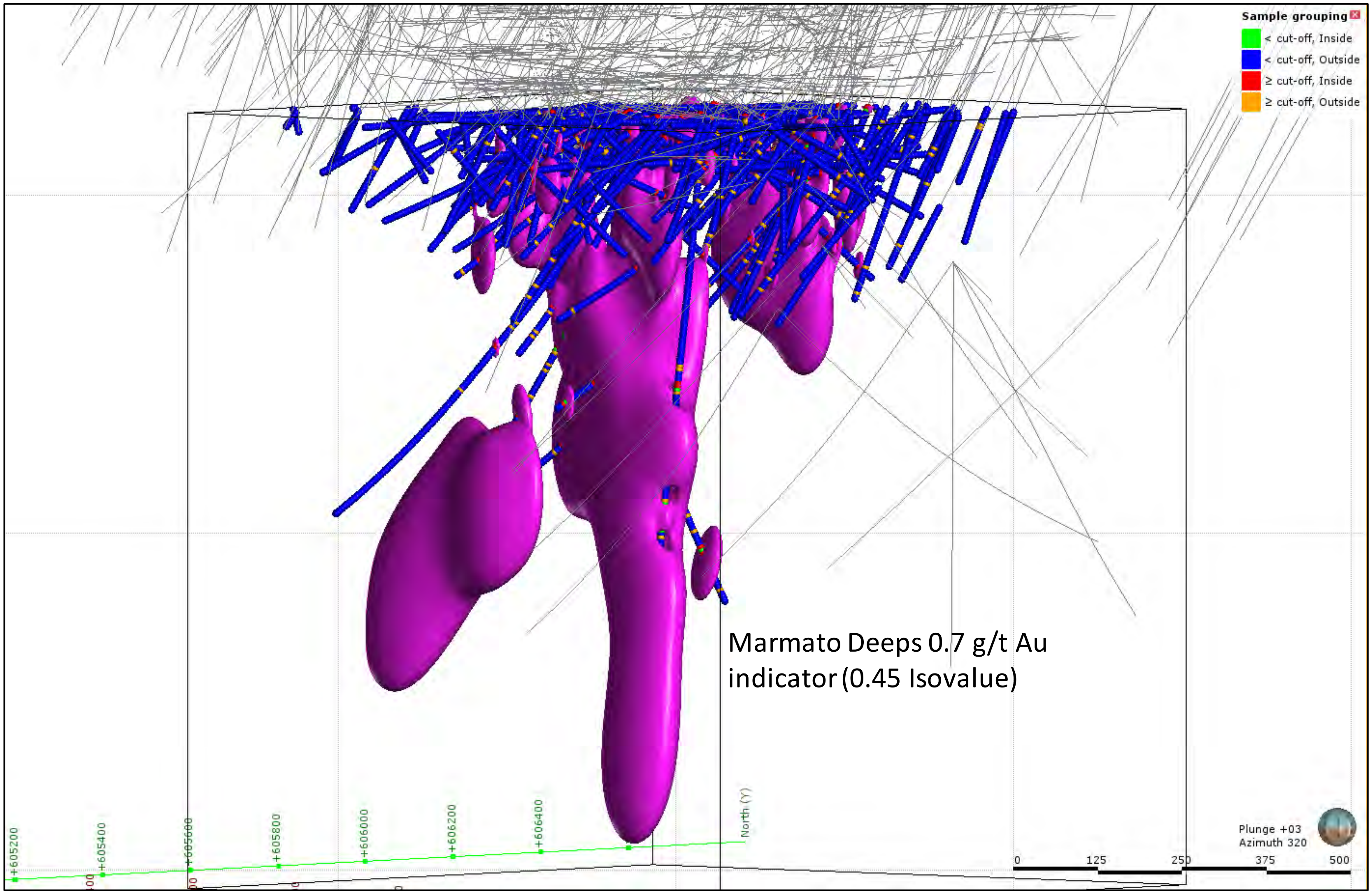
- Only drillholes have been used to define the domain to remove potential errors or overstating tonnage related to isolated short channel sampling;
- All holes have been composited to 5.0 m, with samples lengths less than 0.5 m at the end of holes appended to the previous sample;
- A vertical limit of 0 m to 1,150 m has been defined;
- A cut-off grade of 0.7 g/t was used to define the outer limit of the mineralization, which represents 13.1 % of the database being assigned and indicator value of 1, with all other values assigned an indicator of 0;
- The general trend for the search ellipse has been orientated to a Dip 85º, to a Dip Azimuth of 195º. With the ratio set for the ellipse of 5 x 3 x 1.5 in the maximum, intermediate and minimum directions;
- A spherical model has been used using a sill of 0.2 and a nugget of 0.01, using a base range of 200 m for the interpolant; and
- An ISO value of 0.45, with a grid resolution of 10 m has been used to define the wireframe.

SRK reviewed the resultant wireframes and noted that final interpretation while focused on the main deep drilling also resulted in a number of intersections from the lower levels of the mine generating potentially mineralized domains. It is SRK's view that this is a function of the interpolation at the edge of the dataset and is not supported by the current exploration. To restrict the tonnage in the current estimates SRK has requested GCM provide a list of potential intersections where "Deeps" style mineralization has been noted. The resultant table included 28 boreholes with intersections ranging from 25.0 to 737.5 m. Using the information provided to create a limit SRK generated an intrusion model within Leapfrog® to reflect the chosen intervals. The resultant shape was used to limit the indicator interpolant and therefore remove any potential overstatement of grade. The sequential nature of the model is defined in Figure 14-9 through Figure 14-13.



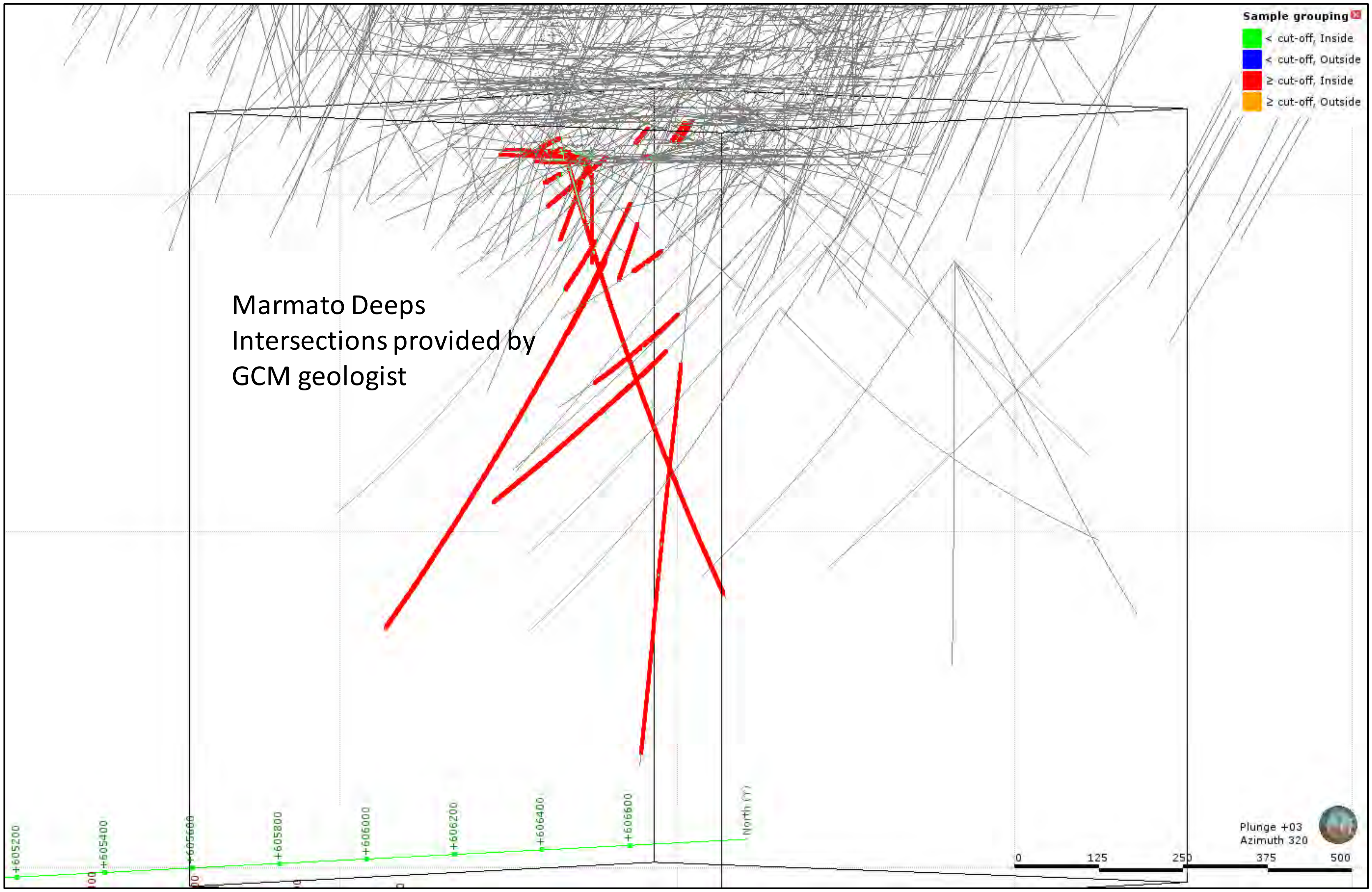
Source: SRK, 2017

Figure 14-9: Sequence 1 Used to Model the Marmato Deeps Using Leapfrog®



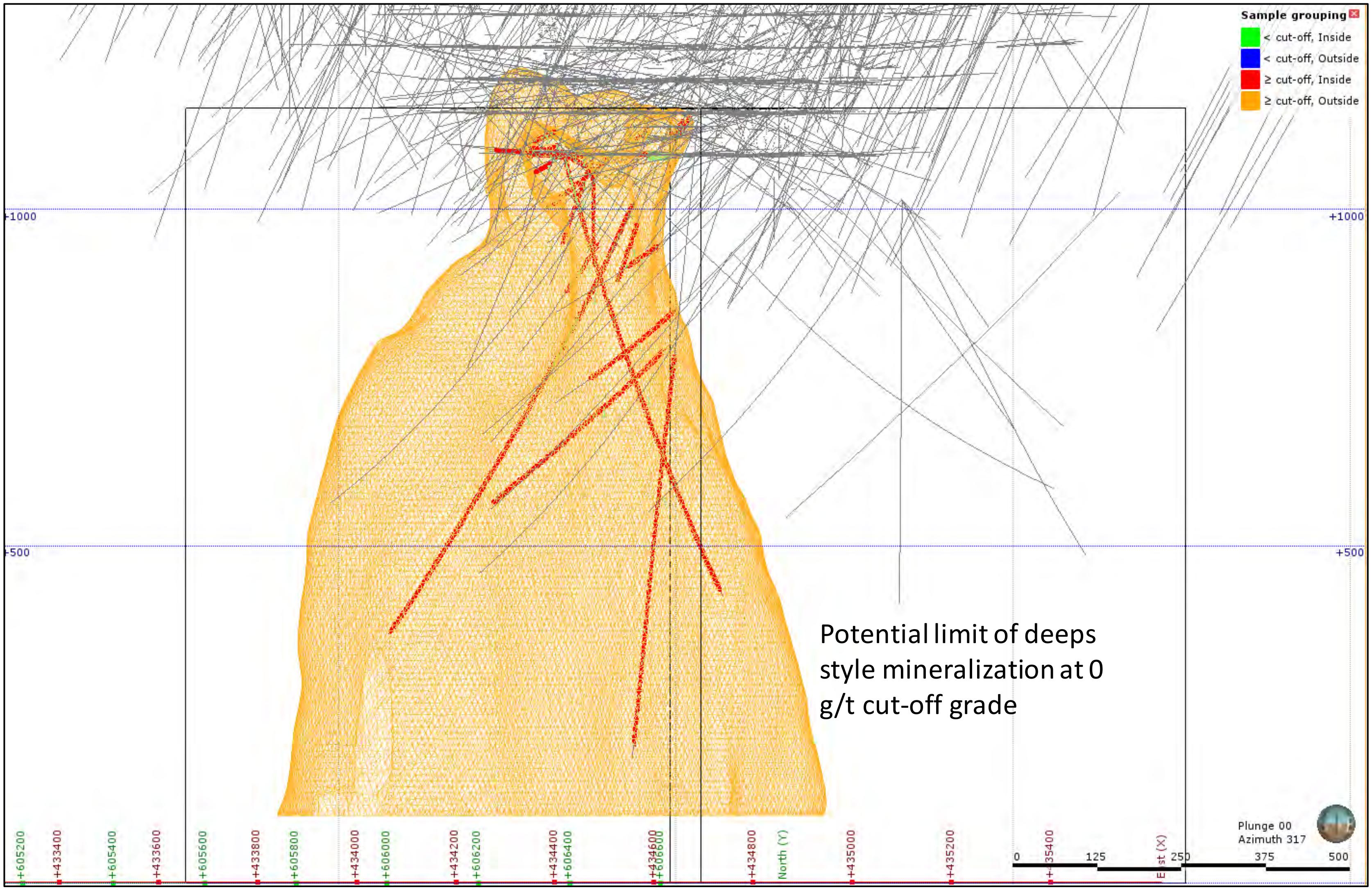
Source: SRK, 2017

Figure 14-10: Sequence 2 Used to Model the Marmato Deeps Using Leapfrog®



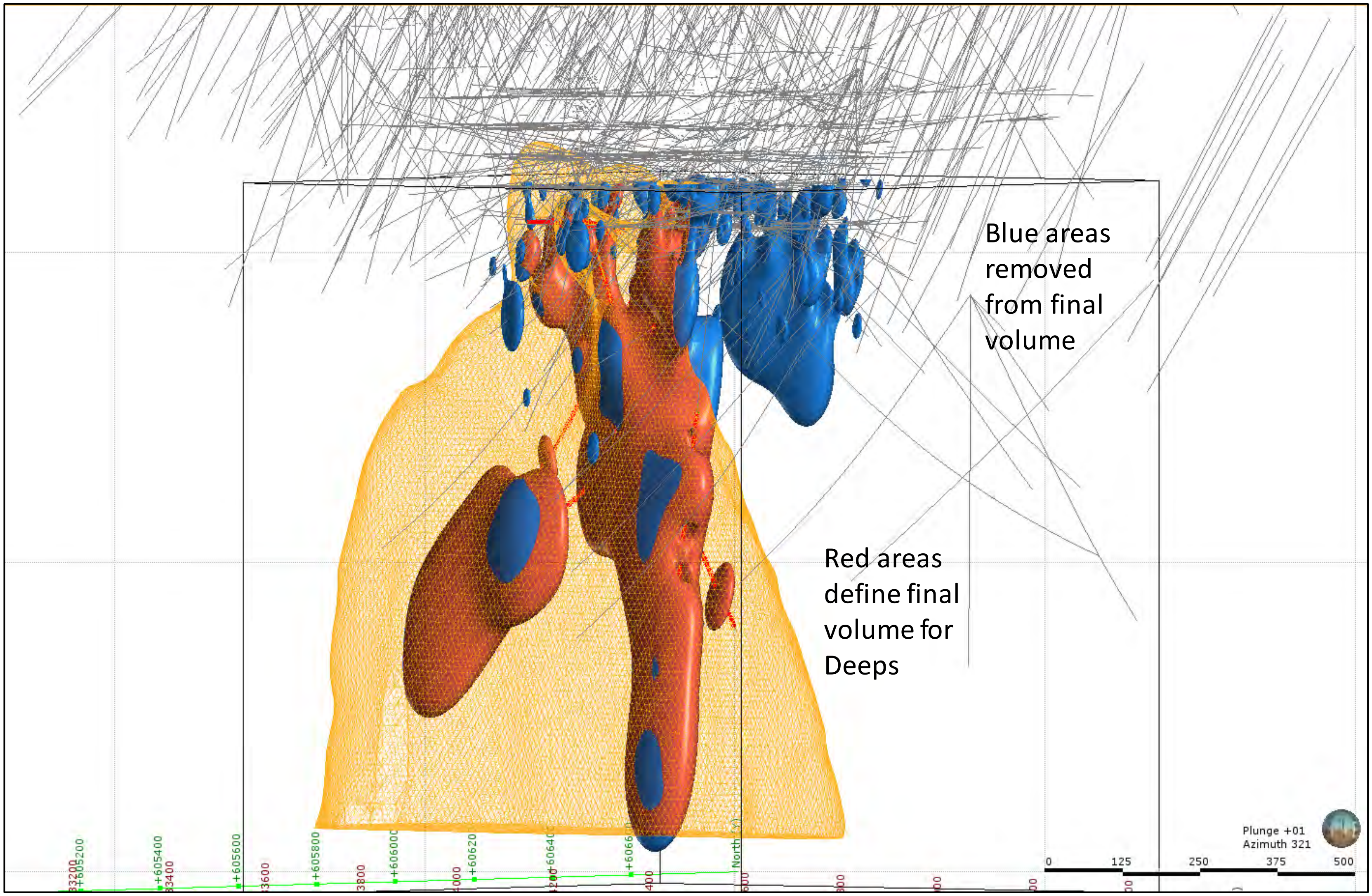
Source: SRK, 2017

Figure 14-11: Sequence 3 Used to Model the Marmato Deeps Using Leapfrog®



Source: SRK, 2017

Figure 14-12: Sequence 4 Used to Model the Marmato Deeps Using Leapfrog®



Source: SRK, 2017

Figure 14-13: Sequence 5 Used to Model the Marmato Deeps Using Leapfrog®

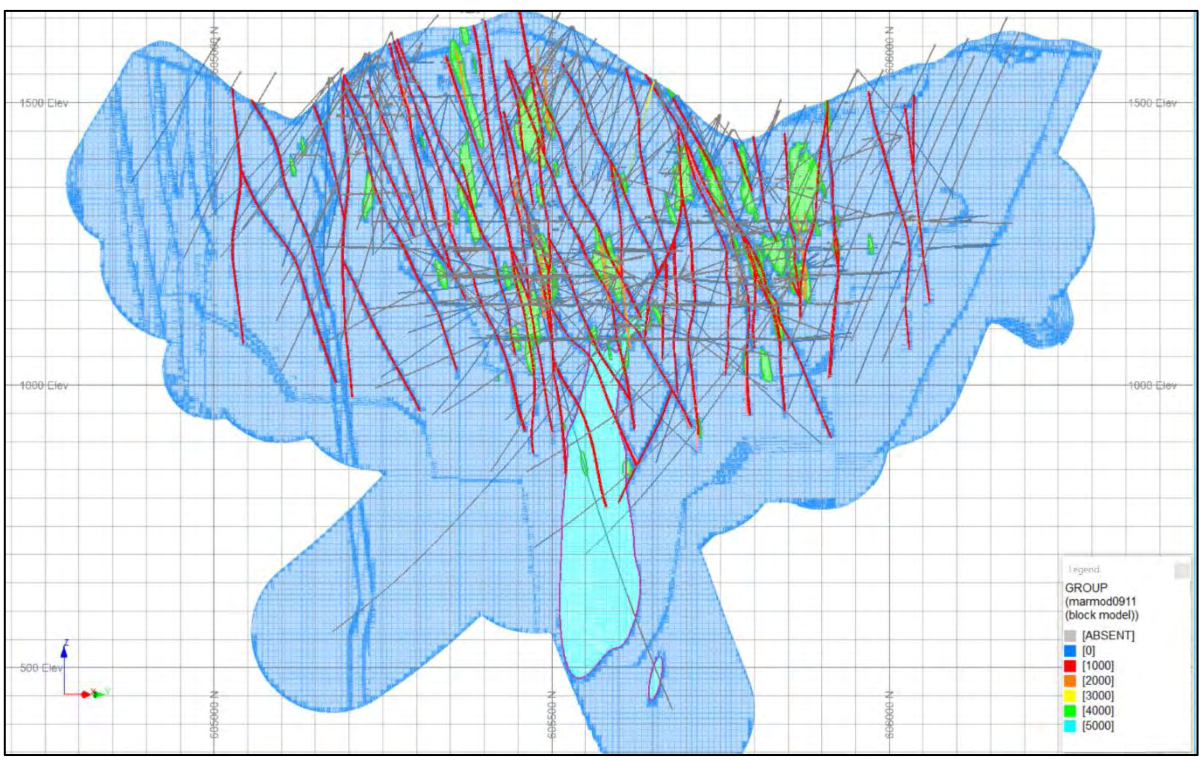
14.2.9 Domains

All geological surfaces were cut to the topography, and the final geological model has been reviewed by the Company for approval and has been deemed acceptable by SRK for use in determining the Mineral Resource Estimate. Using the wireframes SRK has coded the drilling and block model information into five domains which are stored in the block model under the field "GROUP" and "KZONE" to distinguish between mineralization style and individual mineralized structure. A list of the domains used is shown in Table 14-3 and a cross-section of the final coded block model in Figure 14-14.

Table 14-3: Summary of domain coding used in the 2017 Mineral Resource Estimate

Group	No Subdomains	Wireframe	Domain	Description
1000	68	Group1000.dxf	Vein	High grade sulfide veins
2000	68	Group2000.dxf	Halo	Halo mineralization in HW/FW of main sulfide vein structure.
3000	52	Group3000.dxf	Splays	Splays of main structure within limited continuity
4000	1	Group4000.dxf-	Grade Shell	Mineralized porphyry material (contained within veinlet), characterized by a mixed population of high grade above an elevation of 850 m, low grade and barren material, marks the default unit for all material
5000	1	Group5000.dxf	Deeps	High grade core or feeder zone to the main mineralization. Located at depth within the porphyry system with limited veinlet mineralization

Source: SRK, 2017



Source: SRK, 2017

Figure 14-14: Cross-section Showing SRK Domained Model

14.2.10 SRK Recommendations

SRK would recommend the elevations validation work being completed on the vein channels continues and that efforts should be made to initially confirm the mining levels and development in full before reviewing the channel elevations further.

SRK recommends that GCM continue to work on understanding the basis for the mineralized porphyry domains which may require additional drilling prior to mining, plus re-logging of key intersections to understand the difference in the mineralization styles with the lower grade or barren porphyry material, plus the relation of these domains if any to the main vein mineralization.

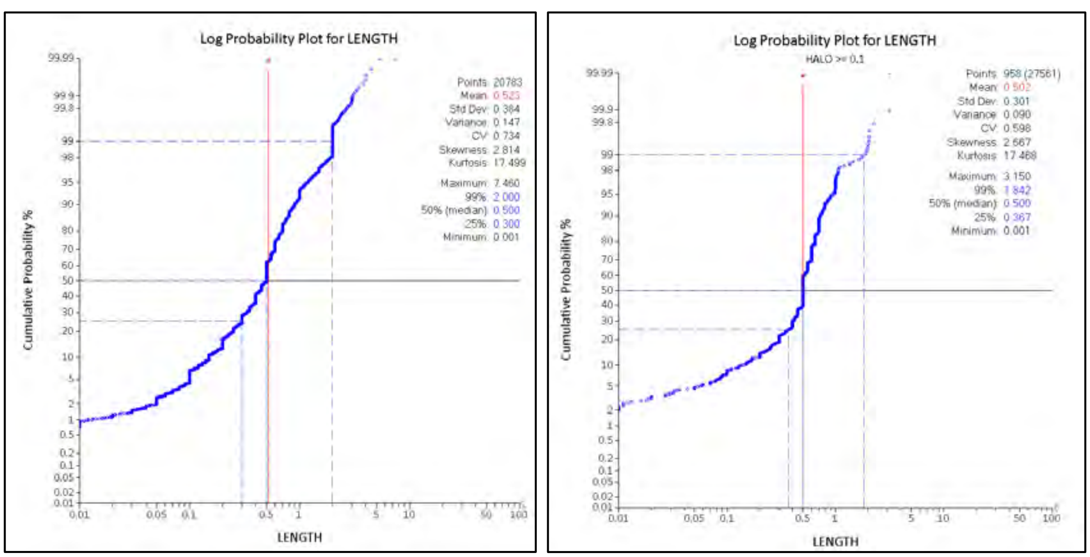
14.3 Assay Capping and Compositing

14.3.1 Compositing

Prior to the undertaking of grade interpolation, samples need to be composited to equal lengths for constant sample volume, honoring sample support theories.

SRK has undertaken a sample composite analysis for gold in order to determine the optimal sample composite length for grade interpolation. This investigated both changes in composite length and minimum composite lengths for inclusion. The analysis compared the resultant mean grade against the length weighted raw sample mean grades, and the percentage of samples excluded when applying the minimum composite length.

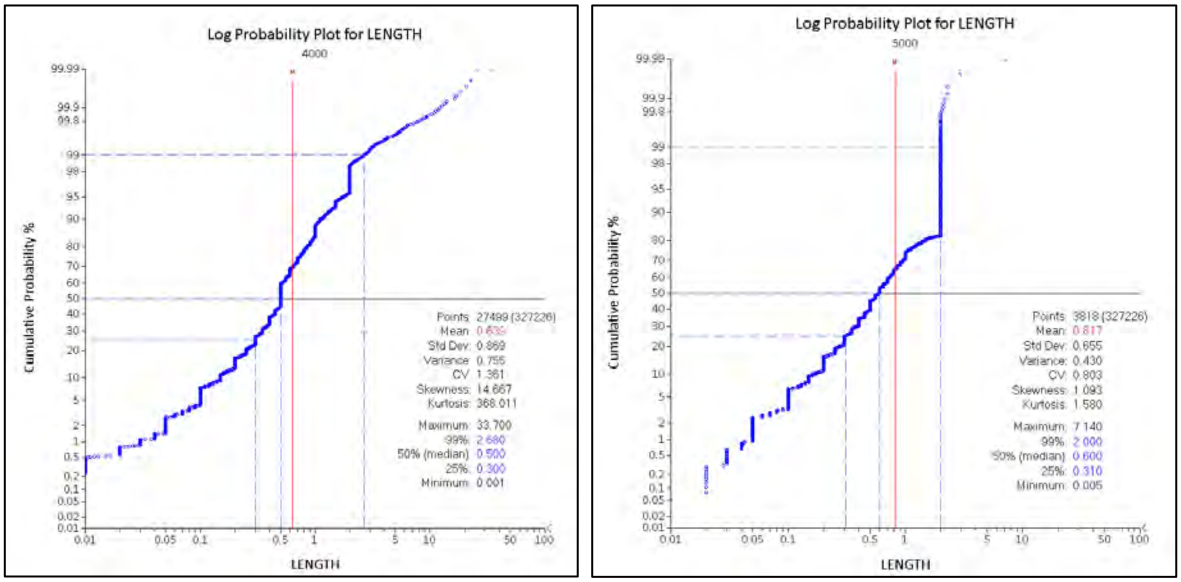
The vein, halos and splay domains (GROUP 1000 to 3000) were composited to 2.0 m intervals. A review of the sample lengths indicated that the mean sample length is approximately 0.5 m veins, but 45% of the samples are between 0.5 to 1.0 m, with a further 5% between 1.0 to 2.0 m (Figure 14-15). Given the narrow nature of the vein it is SRK's view that increasing the sample lengths to 2.0 m is preferred so only a single composite will exist across in the vein in narrow areas. A minimum composite length of 0.25 m has been selected.



Source: SRK, 2017

Figure 14-15: Raw Sample Lengths with Group 1000 and 2000

The average length of the raw sampling in the porphyry and deep mineralization is 1.0 m, with the majority of the samples ranging between 1.0 to 2.0 m (Figure 14-16). SRK completed a composite length analysis to further optimize the composite length selection in these domains. A composite sample length of 5.0 m was selected for GROUP 4000 – 5000, on the basis of achieving a reduction in the coefficient of variation (COV) with a reasonable reconciliation to the raw data mean grade.



Source: SRK, 2017

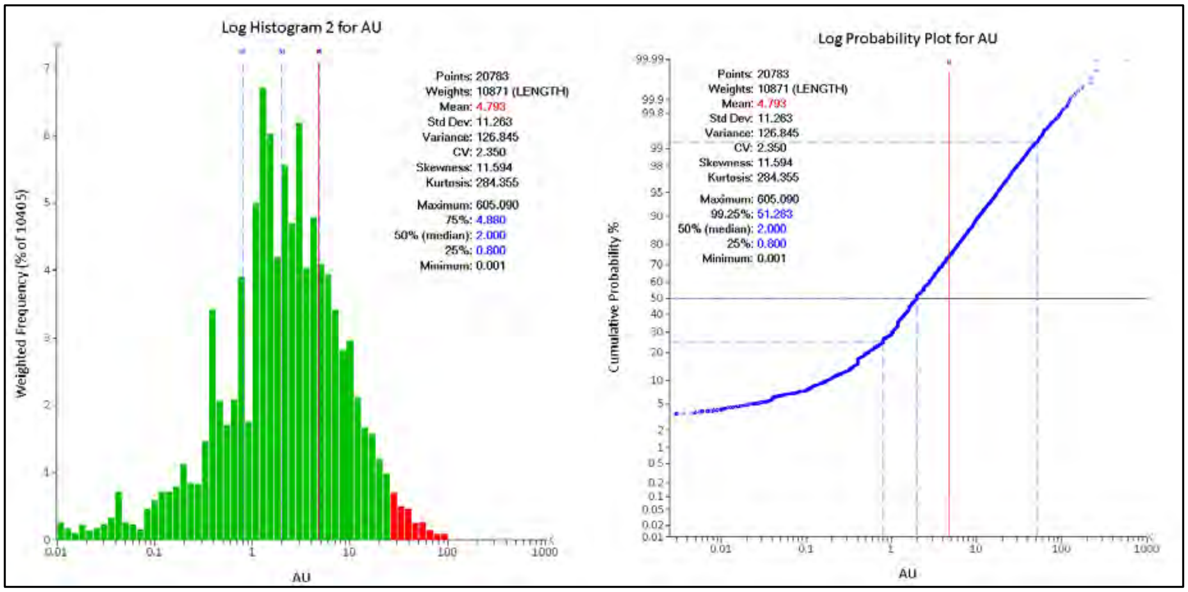
Figure 14-16: Raw sample lengths within Group 4000 and 5000

14.3.2 Outliers

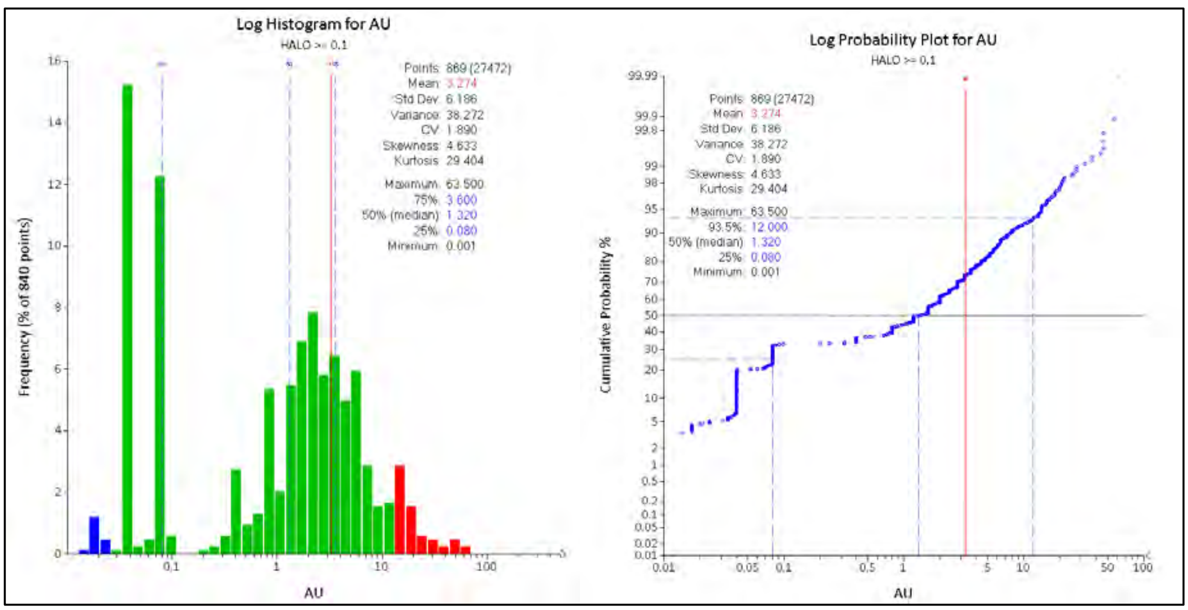
High grade capping is typically undertaken where data is no longer considered to be part of the main population. Useful discussions on the need for, and application of capping of high grades are found in Leuangthong and Nowak (2015). Capping is an appropriate technique for dealing with high grade outlier values, given that appropriate analysis is undertaken to validate the results of the implementation of capping. The following procedure is recommended for treating outliers during resource estimation:

- Determine data validity. Are the data free of sampling, handling, measurement and transfer errors;
- Review geology logs for samples with high grade assays. Capping may not be necessary for assays where the logs clearly explain the presence of high grade;
- Capping should not be considered for deleterious substances that have negative impacts on project economics;
- Decide if capping should be considered before or after compositing;
- Keep capping to a necessary minimum. If high grade assays unduly affect overall grade average, cap them; and
- Restrict influence of very high-grade assays during the estimation process if required.

Upon review of the domained samples SRK elected to apply the capping post compositing for the current estimate. To define the appropriate capping levels SRK completed analysis of the grade distributions using log probability plots, raw and log histograms (Figure 14-17 to Figure 14-19), to distinguish the grades at which samples have significant impacts on the local estimation and whose affect is considered extreme.

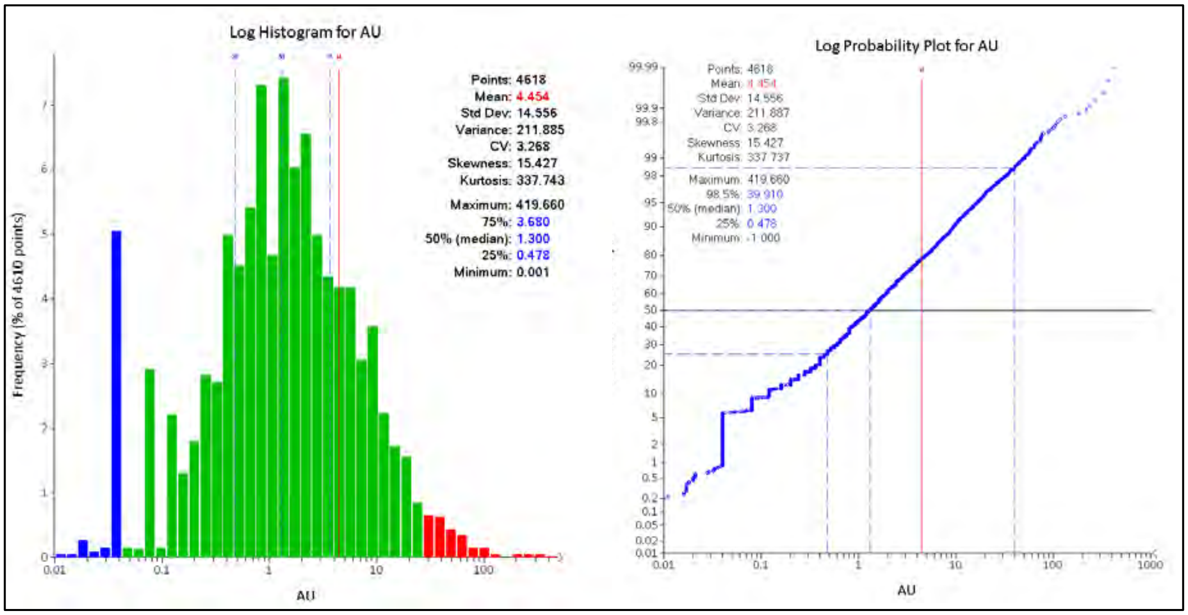


Group 1000

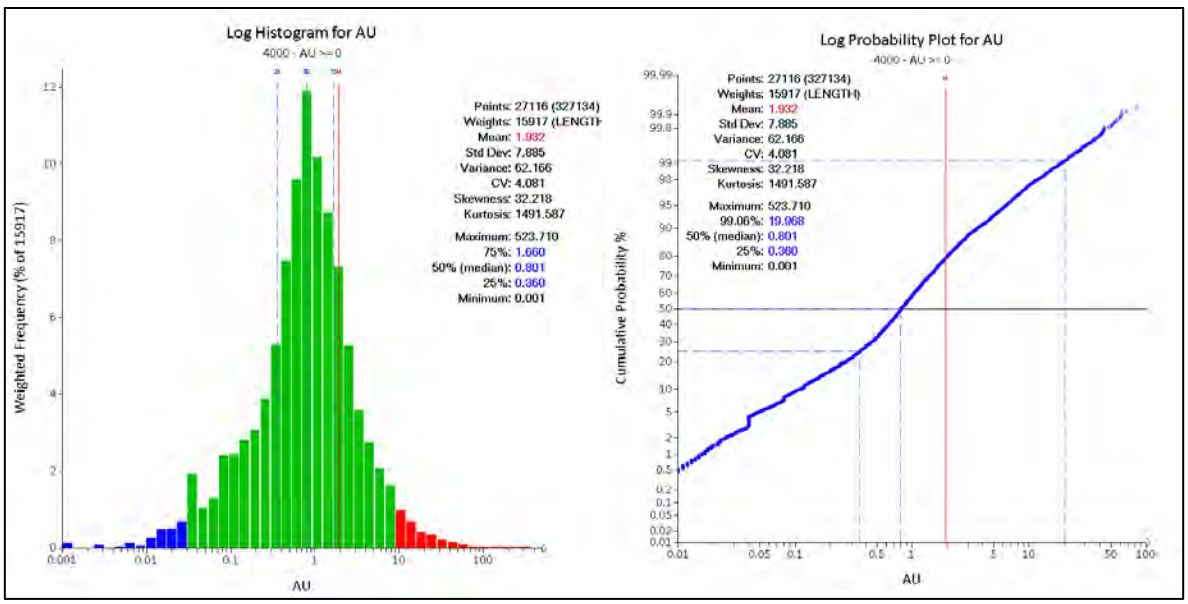


Group 2000
Source: SRK, 2017

Figure 14-17: Log Histogram and Log Probability Plots for each domain, Group 1000 and 2000

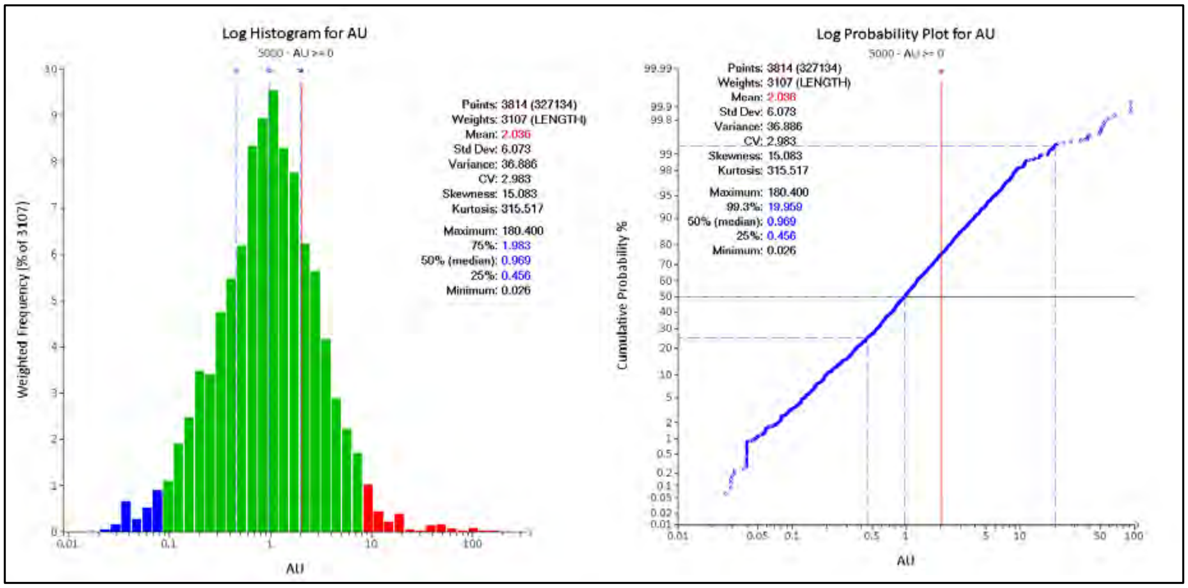


Group3000



Group4000
Source: SRK 2017

Figure 14-18: Log Histogram and Log Probability Plots for each domain, Group 3000 and 4000



Group5000
Source: SRK 2017

Figure 14-19: Log Histogram and Log Probability Plots for each domain, Group 5000

SRK notes the possibility of two populations within the Group 2000 Au (g/t) distribution which with a larger dataset may warrant further investigation. In all the domains, the sample distributions trend towards a log normal style of distribution.

SRK completed the initial review and the group level but in the case of GROUP 1000 to 4000 a number of sub-domains potentially exist which may require further sub-division on the grade. This was completed via box-whisker plots of the individual veins (logged), or via trend analysis of the mean values.

Based on the analysis SRK decided to apply the following grade caps shown in Table 14-4.

Table 14-4: Summary of Capping used per domain

Group	Condition	Au	Ag
1000	Vein_N < 9000	50	150
	Vein_N > 9000	20	150
2000	Halo = 3400	12	80
	Halo!= 3400	10	80
3000		40	80
4000	Y>606000	20	120
	Y<606000	20	500
5000		20	30

Source: SRK, 2017

In general, SRK aims to limit the impact of the capping to less than 5% change in the mean value, however in some cases with extreme outliers, the change in the mean exceeds 5%. The highly positively skewed nature of the gold distributions and the very high values seen in the population result in the significant changes in the mean values. A comparison of the raw versus capped values is shown in Table 14-5.

Table 14-5: Comparison of Raw vs. Capped Composite Statistics

Type	Statistic	Assay	Samples	Maximum	Mean	Standard Deviation	CoV	% Difference
Raw	Vein	Au	20,783	605.09	4.79	11.26	2.35	-6.2%
Composite	Vein	Au	9,737	50.00	4.50	6.52	1.45	
Raw	Halo	Au	869	63.50	3.27	6.19	1.89	-37.9%
Composite	Halo	Au	451	12.00	2.03	2.98	1.47	
Raw	Splay	Au	4,618	419.66	4.45	14.56	3.27	-23.2%
Composite	Splay	Au	2,232	40.00	3.42	5.34	1.56	
Raw	Porphyry	Au	27,116	523.71	1.93	7.89	4.08	-24.3%
Composite	Porphyry	Au	5,760	20.00	1.46	2.03	1.39	
Raw	Deeps	Au	3,814	180.40	2.04	6.07	2.98	-6.9%
Composite	Deeps	Au	697	20.00	1.90	2.46	1.30	
Raw	Vein	Ag	20,457	1995.00	24.59	43.12	1.75	-5.6%
Composite	Vein	Ag	9,567	150.00	23.22	26.53	1.14	
Raw	Halo	Ag	851	163.12	16.31	19.06	1.17	6.0%
Composite	Halo	Ag	442	80.00	17.29	17.44	1.01	
Raw	Porphyry	Ag	27,138	5613.00	13.52	76.24	5.64	-9.7%
Composite	Porphyry	Ag	5,636	500.00	12.21	33.04	2.71	
Raw	Splay	Ag	4,529	432.00	17.34	21.94	1.27	-2.6%
Composite	Splay	Ag	2,177	80.00	16.89	14.97	0.89	
Raw	Deeps	Ag	3,815	309.28	3.45	7.69	2.23	-3.9%
Composite	Deeps	Ag	697	30.00	3.31	4.76	1.44	

Source: SRK, 2017

14.4 Density

Density measurements are made routinely by GCM geologists during core logging and sample preparation. Each geologist tries to make one density measurement daily and to complete the calculation the following procedure has been used:

- A piece of unbroken core is selected;
- A 14 to 15 cm long piece of core from the interval of interest is cut;
- As the core has been cut the geologist must ensure that the cut is perpendicular to the core axis and does not result in the loss of any material along the cut line;
- The length of the core is measured and the diameter of the core is determined with a digital caliper at 3 to 4 cm intervals and the average diameter is calculated; and
- The core is weighed on a digital balance and the density is calculated as follows:
    - o Pi * core diameter * core length = core volume, and
    - o Core weight / core volume = density.

The bulk density for 20 individual samples of Composite 1 was determined using the wax core method by SGS Lakefield. The average bulk density of Composite 1 was determined to be 2.61 g/cm^3. Bulk density measurements were also conducted on some of the metallurgical samples which comprised the MET-05 composite. The bulk densities were calculated from water displacement measurements without waxing. The specific gravity of MET-05 was determined to be 2.61 and 2.67 g/cm^3 using a pycnometer.

In the 2012 MRE, the default density measurements where assigned based on three main geological units (porphyry, schist and vein), using 2.7 g/cm^3, 2.8 g/cm^3 and 3.5 g/cm^3 respectively. During the determination of the vein tonnages it was noted that only 44 tests had been completed on vein material with an average of 3.7 g/cm^3 and have a wide range from 2.01 g/cm^3 to 4.75 g/cm^3.

SRK does not consider the quality of the data to be of a reasonable confidence to estimate the density within the current Mineral Resource Estimate. Additionally, the variability shown within the vein it is SRK vein that using the lower 3.5 g/cm^3 density for the veins is more appropriate. Overall SRK considers the Density database to be relatively small compared to the information available for the assays, and therefore recommends further test work is completed to increase the size of the database. SRK also notes that limited information on the density is known for the Deeps and any future drilling should also include routine density measurements. A summary of the final parameters used are shown in Table 14-6.

Table 14-6: Summary of Density Values used in 2017 Mineral Resource

Rock Type	No. Samples	2011	2012	2017
		Density (gcm^3)	Density (gcm^3)	Density (gcm^3)
Vein	44	3.5	3.7	3.5
Porphyry	2,857	2.7	2.7	2.7
Schist	97	2.9	2.8	2.8

Source: SRK, 2017

14.5 Variogram Analysis and Modeling

The composite drillhole database was imported into Snowden Supervisor software for the geostatistical analysis. Semi-variograms have been completed for both gold and silver values. The resultant experimental semi-variogram models produced were poor in terms of definition to fit a statistical model. In order to define variograms of sufficient clarity to be modelled, the data has calculated using pairwise relative Variograms, which removes the influence of some of the variability.

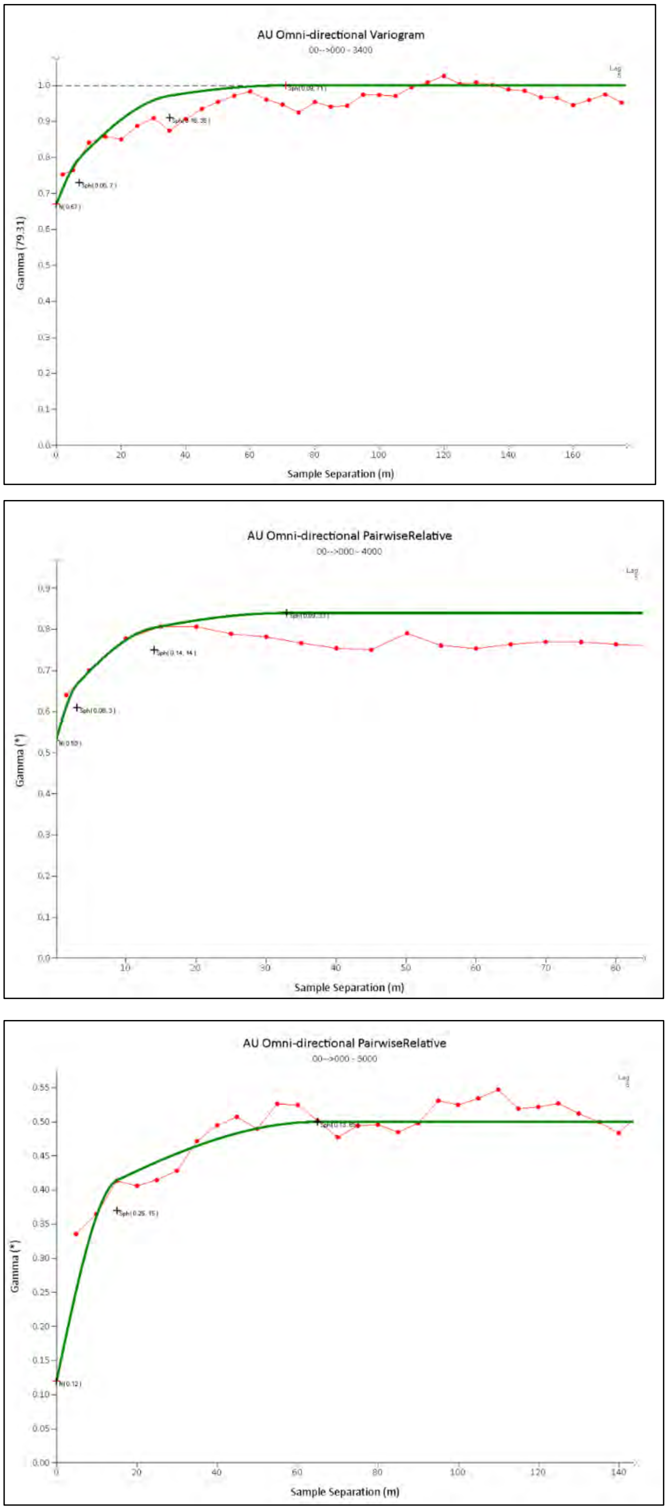
Following the pairwise transformation the next stage was to define the nugget effect from down-hole variogram and then to model the longer variogram ranges from longer lag directional variograms in the three principle directions, downdip (N0), along-strike (D90) and perpendicular to the bedding plane (N90). SRK noted poor continuity in the initial analysis of the directional semi-variograms so has elected to use omni-directional models for the current estimate.

Directional Pairwise Relative variograms were modelled for gold and silver, and the results are illustrated in Table 14-7. In all cases a composite spherical variogram model has been fitted to the experimental variograms, as illustrated for gold and silver in Table 14-7.

Table 14-7: Summary of Semi-Variogram Parameters used in 2017 Estimation Process

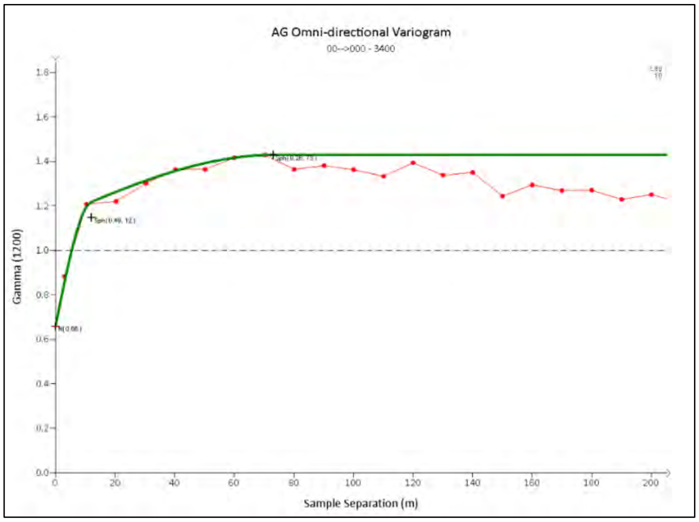
Domain	Element	Reference Number	Nugget	Range 1	Sill1	Range 2	Sill 2	Range 3	Sill 3
Vein	AU	1001	0.99	7	0.09	35	0.26	70	0.14
Vein	AG	1002	0.5	19	0.53	73	0.14		
Halo	AU	2001	0.99	7	0.09	35	0.26	70	0.14
Halo	AG	2002	0.52	11	0.27	61	0.21		
Splay	AU	3001	0.3	11	0.47	60	0.23		
Splay	AG	3002	0.3	5	0.29	54	0.41		
Porphyry	AU	4001	0.99	7	0.09	35	0.26	70	0.14
Porphyry	AG	4002	0.5	19	0.53	73	0.14		
Deeps	AU	5001	0.24	15	0.5	65	0.26	0	0
Deeps	AG	5002	0.36	15	0.26	60	0.42		

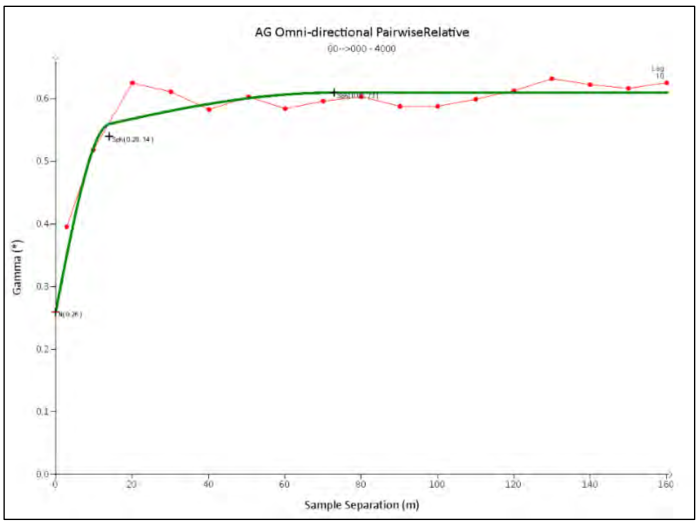
Source: SRK, 2017



Source: SRK, 2017

Figure 14-20: Example of Semi-Variogram analysis showing vein, porphyry and Deeps domains for Au (g/t)





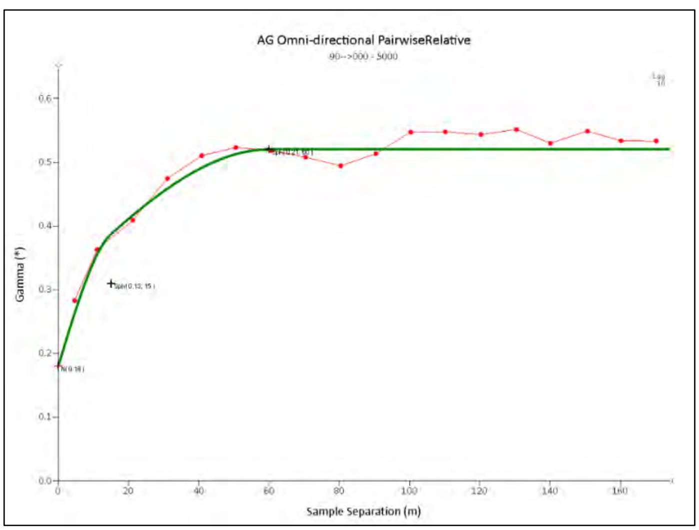


Figure 14-20: (Continued): Example of Semi-Variogram analysis showing vein, porphyry and Deeps domains for Ag (g/t)

14.6 Block Model

14.6.1 Prototype Definition

SRK has produced a parent block model with block dimensions of 10 x 20 x 10 m (X,Y,Z), as a function of the sample spacing and test work undertaken for block variance during the 2011 SRK Resource Estimate. Sub-blocking has been allowed to a resolution 1.0 m along strike, 2.0 m across strike and 1.0 m in the vertical direction to provide an appropriate geometric representation.

Given the orientation of the orebody striking to the northwest, the decision was made to rotate the database (for block model grade interpolation) from UTM coordinates through 55 degrees into a north south local grid orientation, to enable an improved representation of grade continuity along strike. To rotate the interpretation the "CDTRAN" Datamine™ command has been utilized.

The details of the block model origin, rotation and local dimensions are shown in Table 14-8.

Table 14-8: Summary of Block Model Parameters used for Geological Model

Dimension	Origin (UTM)	Origin (Local)	Block Size	Number of Blocks	Rotation	Min Sub-blocking (m)
X	433,250	0	10	210	-	0.5
Y	604,250	0	20	120	-	2
Z	100	100	10	220	-55	1

Source: SRK, 2017

14.6.2 Block Model Codes

Using the wireframes created and described in Section 14.2 several codes have been developed to describe each of the major geological properties of the rock types.

Table 14-9 summarizes geological fields created within the geological model and the codes used.

Table 14-9: Summary of Fields used in Final Block Model

Field Name	Description
SVOL	Search Volume reference (range from 1 to 3)
KV	Kriging Variance
SLOPE	Slope of regression
NS	Number of samples used to estimate the block
AU	Final Gold Estimate using for Reporting
AG	Final Silver Estimate using for Reporting
AUOK	Gold Estimate using OK
AGOK	Silver Estimate using OK
AUIDW	Gold Estimate using IDW (Power 2)
AGIDW	Silver Estimate using IDW (Power 2)
AUNN	Gold NN Methodology
AGNN	Silver NN Methodology
CLASS	Classification
GROUP	Mineralized structures grouped by domain
VEIN	Vein coding for individual mineralized structure GROUP1000 coding
HALO	Vein coding for individual mineralized structure GROUP2000 coding
SPLAY	Vein coding for individual mineralized structure GROUP3000 coding
DENSITY	Density of the rock
DEPLETE	Mined out areas
ROCK	Coding for Major Rock type

Source: SRK, 2017

14.7 Estimation Methodology

A Quantitative Kriging Neighborhood Analysis (QKNA) exercise has been completed for gold at in order to optimize the parameters used in the estimation and kriging calculations. Initial grade estimation was undertaken in Datamine™. To complete the exercise a number of scenarios were tested using various estimation and kriging parameters. Different input parameters have been changed and the differences in the slope of regression, kriging variances, and block estimates recorded.

To complete the analysis, SRK ran different estimates for Au, changing the following parameters:

- Search ellipse sizes;
- Minimum and maximum number of samples; and
- Orientation of search ellipse.

In order to assess the best grade estimate, the following data fields were analyzed in most detail: kriging variance, number of samples and proportion of blocks estimated in each search volume. Additional fields monitored included the resultant grade in comparison with the sample data. To test the optimum search volume to be used, SRK has selected a first pass minimum and maximum number of samples and adjusted the expansion factor of the semi-variogram range used per estimate per zone.

The optimum parameters selected allowed an appropriate proportion of block estimates in the initial search volumes, whilst achieving a reduction in variance and a relative increase in slope of regression (in SVOL 1 and 2) without excessive smoothing.

Based on the outcome of the validation process SRK has selected to use either OK algorithm, or IDW estimates to compile the final grade estimates. Typically zones with larger sample populations are supported by OK, while zones with less data are supported by IDW has been used for the primary interpolation within anisotropic elliptical search ranges using suitable parameters. The search distances used for the interpolations were based upon an expansion factor of the semi-variogram ranges. Individual searches were specified for each data field.

In completing a detailed review of the vein and the veinlet style mineralization, SRK concluded that given the presence of two principle strike and dip directions a bias could be introduced if a single search orientation was selected per zone. To ensure the block model reflects the nature of the vein mineralization as accurately as possible SRK therefore utilized the wireframe interpretation to aid in determining the search orientations used during the kriging equations on a block by block basis. This has been done using the dynamic anisotropy function in Datamine™.

SRK tested the estimation sensitivity of the gold grade distribution and mean grade and tonnage of the Deeps Zone using a progressively steepening (dip) of the search ellipse. In general, the global mean grade and tonnage of Deeps Zone shows only limited sensitivity to variation in dip of the search ellipse, whilst the visual gold grade distribution appears to most accurately honor the dip continuity of the sample grades at a dip of 80°.

In summary, SRK has applied a dip of 80° for the Deeps Zone search ellipse, which contrasts with the shallower dip of the search ellipses applied for the grade shell and porphyry domains.

In addition to varying the number of samples, second and third radius factored search volumes have been used for all estimation domains. The first search represents an optimized search distance (selected from a kriging sensitivity analysis), ensuring (in general) that block estimates use a minimum of two drillholes, whilst the second and third search volumes use expansion factors that produce more smoothed block estimates, appropriate to the limit of geological continuity.

The third expansion volume was sufficient to ensure that all appropriate blocks (in areas with reasonable geological confidence) were assigned grade values. These blocks were generally classified with lower confidence.

The final Kriging parameters selected for gold and silver are presented in Table 14-10. A discretization grid of 3x3x3 has been used within each parent block during the estimation. The discretization grid ensures that single blocks near the edge of each estimation zone are assigned a grade that is characteristic of the modelled domain and not just those values at the block midpoint.

Table 14-10: Summary of final Kriging Parameters for Gold at Marmato

Group	Rotation Axis						Search Range			Number Samples			Octants
	Angle 1	Axis	Angle 2	Axis	Angle 3	Axis	Along Strike	Down Dip	Across Strike	Min	Max	Max Per Hole	
First Range													
1000	Dynamic						25	25	25	4	12	2	Yes
2000	Dynamic						25	25	25	4	12	2	No
3000	Dynamic						25	25	25	4	12	2	No
4000	15	Z	-80	X	0	Y	40	30	20	6	12	4	No
5000	30	Z	-80	X	0	Y	75	75	15	4	12	3	No
Second Range													
1000	Dynamic						75	75	75	4	12	2	Yes
2000	Dynamic						75	75	75	4	12	2	No
2500	Dynamic						75	75	75	4	12	2	No
3100	15	Z	-80	X	0	Y	80	60	40	6	12	4	No
3200	30	Z	-80	X	0	Y	150	150	30	4	12	3	No
Third Range													
1000	Dynamic						150	150	150	1	8	2	Yes
2000	Dynamic						150	150	150	1	8	2	No
2500	Dynamic						150	150	150	1	8	2	No
3100	15	Z	-80	X	0	Y	160	120	80	1	8	4	No
3200	30	Z	-80	X	0	Y	300	300	60	1	8	3	No

Source: SRK, 2017

In addition to the domains above SRK also completed an estimate of the grades outside of the defined mineralization wireframes. These areas are considered too low grade to be defined as a mineral Resource, but could impact the potential dilution calculation in future mining studies. The domain has been estimated using 5 m composites capped at 3 g/t Au and 15 g/t Ag, using an orientated search (25 x 25 x 12.5 m). Striking 330 and dipping at 80^0, using a minimum of four composites and maximum of 12 composites and 3 composites per hole. Expansion factors of x3 and x6 were used for the second and third pass.

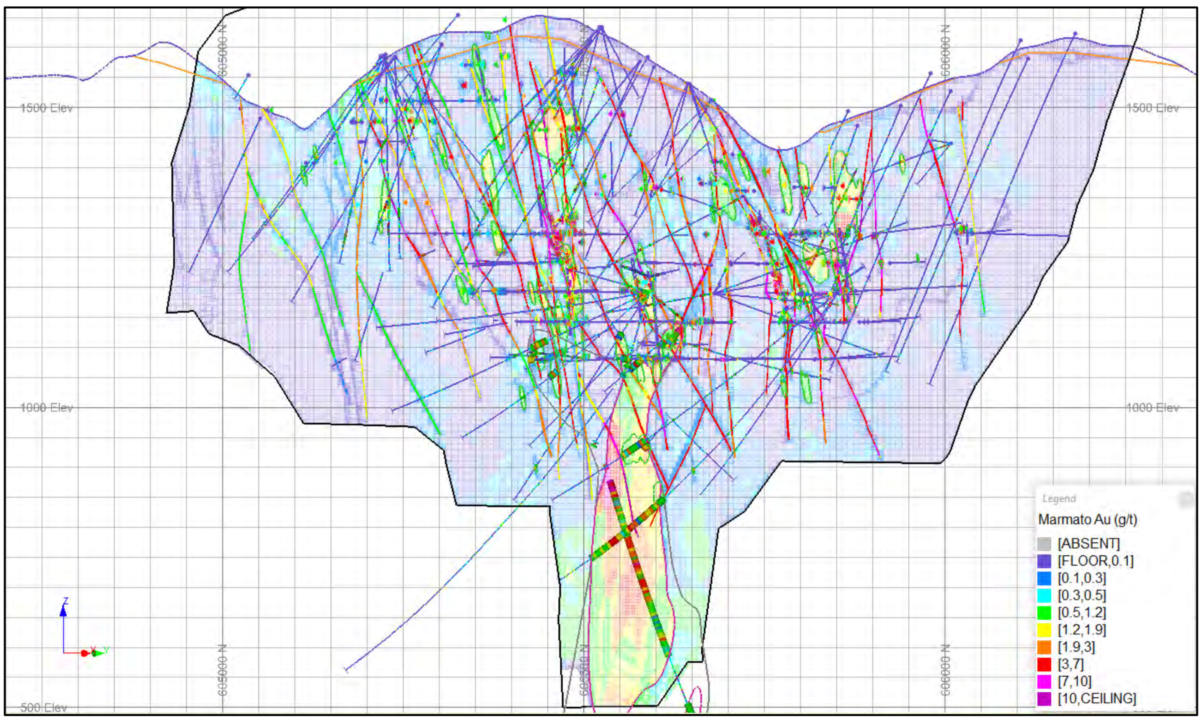
14.8 Model Validation

SRK has undertaken a thorough validation of the resultant interpolated model in order to confirm the estimation parameters, to check that the model represents the input data on both local and global scales and to check that the estimate is not biased. SRK has undertaken this using a using a number of different validation techniques:

- Inspection of block grades in plan and section and comparison with drillhole grades
- Statistical validation of declustered means versus block estimates;
- Comparison of estimates using different estimation methods (NN, IDW, OK); and
- Swath plots of the mean block and sample grades.

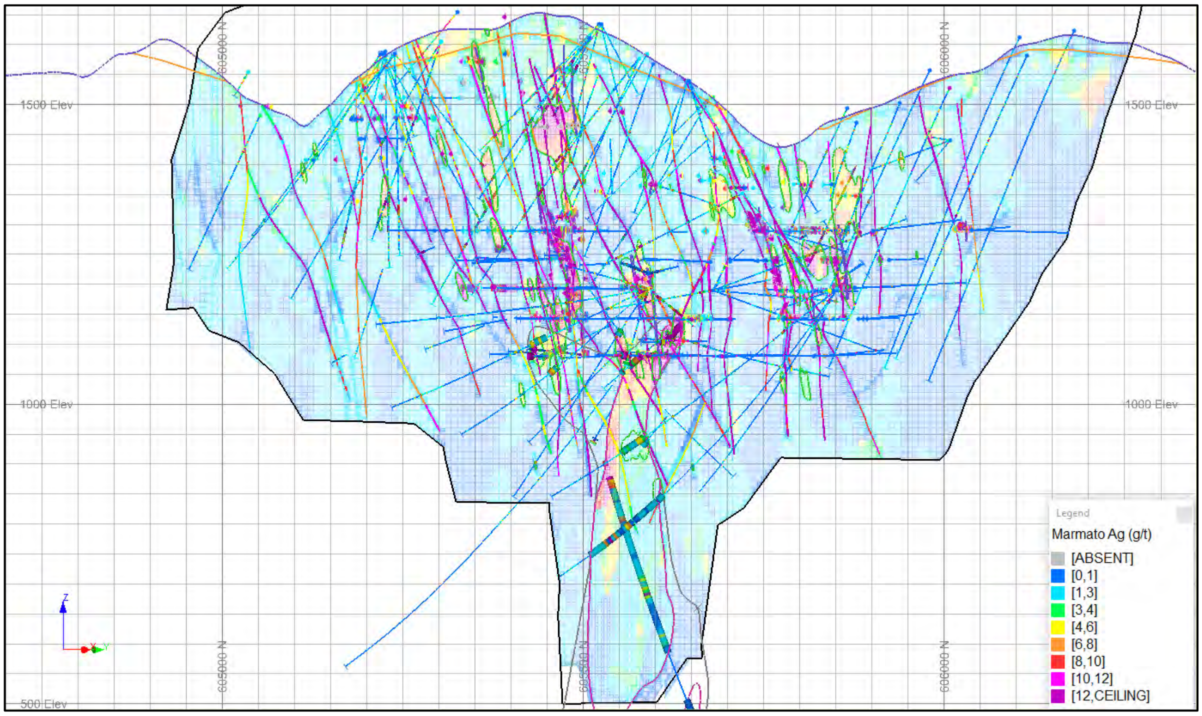
14.8.1 Visual Comparison

Visual validation provides a local validation of the interpolated block model on a local block scale, using visual assessments and validation plots of sample grades verses estimated block grades. A thorough visual inspection of cross-sections, long-sections and bench/level plans, comparing the sample grades with the block grades has been undertaken, which demonstrates good comparison between local block estimates and nearby samples, without excessive smoothing in the block model. Figure 14-21 to Figure 14-23, shows examples of the visual validation checks and highlights the overall block grades corresponding with raw samples grades.



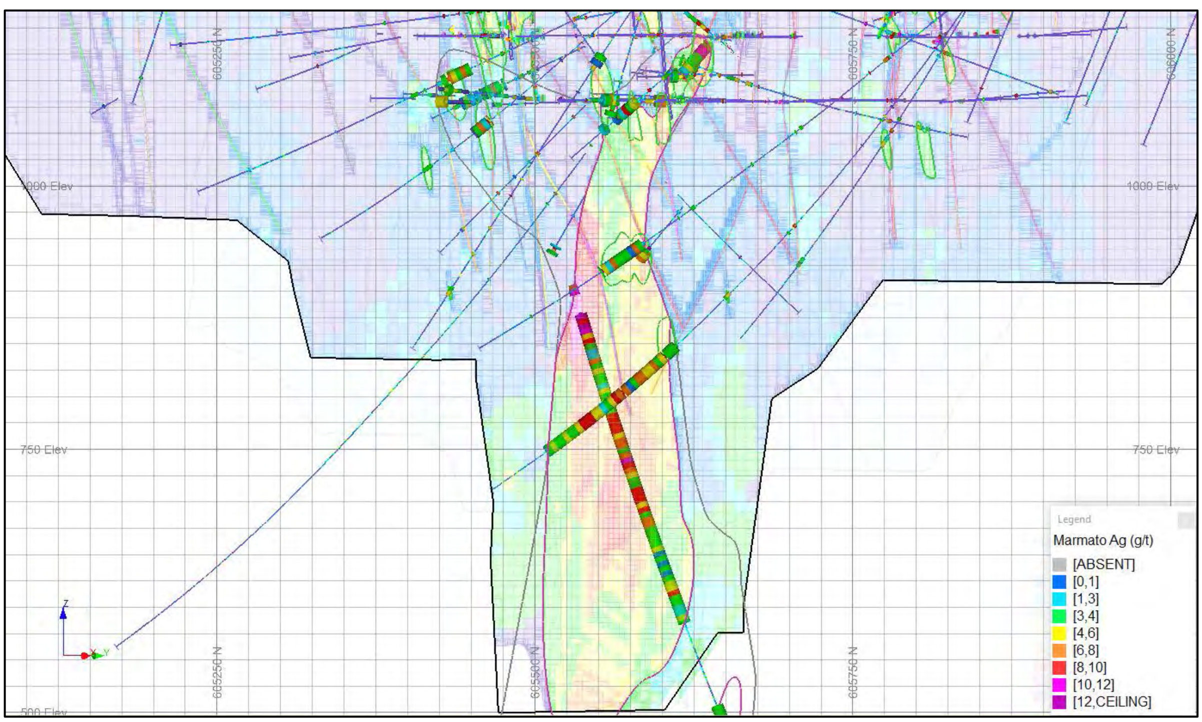
Source: SRK, 2017

Figure 14-21: Example of Visual Validation of Grade Distribution for Gold



Source: SRK, 2017

Figure 14-22: Example of Visual Validation of Grade Distribution for Silver



Source: SRK, 2017

Figure 14-23: Comparison of Au Grade within Deeps Domain between Boreholes and Estimates

14.8.2 Comparative Statistics

SRK has completed a statistical validation of the 10 x 20 x 10 m block estimates (NN, OK and IDW) versus the mean of the composite samples per zone. In general, the results indicate a reasonable comparison (Table 14-11) between the sample mean grades (declustered) and the block estimates.

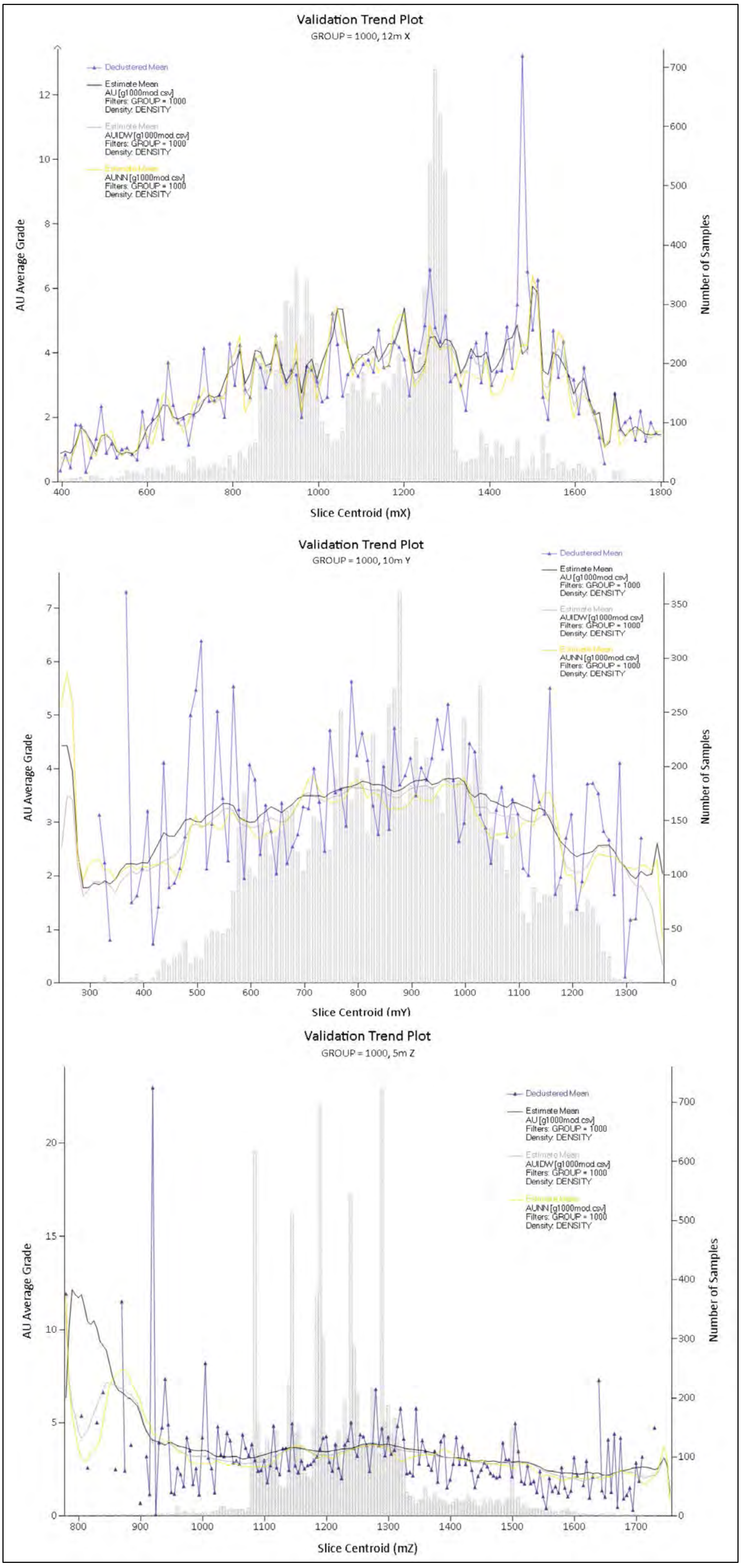
Table 14-11: Comparison of Raw, Declustered Composites vs. OK, IDW and NN Statistics (1)

Statistic	Points	Mean	Standard Deviation	Variance	Coefficient of Variation	% Difference (raw)	% Difference (decluster)
Group 1000							
Composites	10,859	4.52	6.41	41.05	1.42		
Declustered	10,859	3.29	5.25	27.59	1.59		
OK	**4,663,299**	**3.42**	**2.82**	**7.96**	**0.83**	**-24.38**	**3.83**
IDW	4,753,089	3.29	3.37	11.33	1.02	-27.27	-0.13
NN	4,753,089	3.20	5.19	26.93	1.62	-29.30	-2.92
Group 2000							
Composites	451	2.03	2.98	8.89	1.47		
Declustered	451	1.41	2.83	8.00	2.00		
OK	**213,303**	**1.60**	**1.17**	**1.36**	**0.73**	-21.46	**13.06**
IDW	964,859	0.86	1.84	3.39	2.14	-57.65	-39.03
NN	964,859	0.61	1.85	3.41	3.02	-69.94	-56.73
Group 3000							
Composites	2,232	3.36	5.54	30.68	1.65		
Declustered	2,232	3.24	5.38	28.90	1.66		
OK	46,360	1.63	1.16	1.35	0.71	-51.49	-49.71
IDW	**100,787**	**3.43**	**2.91**	**8.44**	**0.85**	**2.03**	**5.79**
NN	100,787	3.19	4.68	21.87	1.47	-5.09	-1.60
Group 4000							
Composites	5,760	1.64	2.65	7.01	1.61		
Declustered	5,760	1.46	2.03	4.11	1.39		
OK	2,325,873	1.47	0.89	0.79	0.60	-10.33	0.75
IDW	**2,327,024**	**1.48**	**0.98**	**0.96**	**0.67**	**-10.01**	**1.12**
NN	2,327,024	1.43	2.01	4.05	1.41	-12.92	-2.15
Group 5000							
Composites	619	1.78	2.21	4.86	1.24		
Declustered	619	1.65	2.03	4.11	1.23		
OK	**333,611**	**1.84**	**1.16**	**1.34**	**0.63**	**3.79**	**12.05**
IDW	333,611	1.83	1.20	1.44	0.66	3.14	11.34
NN	333,611	1.81	2.17	4.72	1.20	1.93	10.04

Source: SRK, 2017
(1) Note: Bold statistics indicate selected models

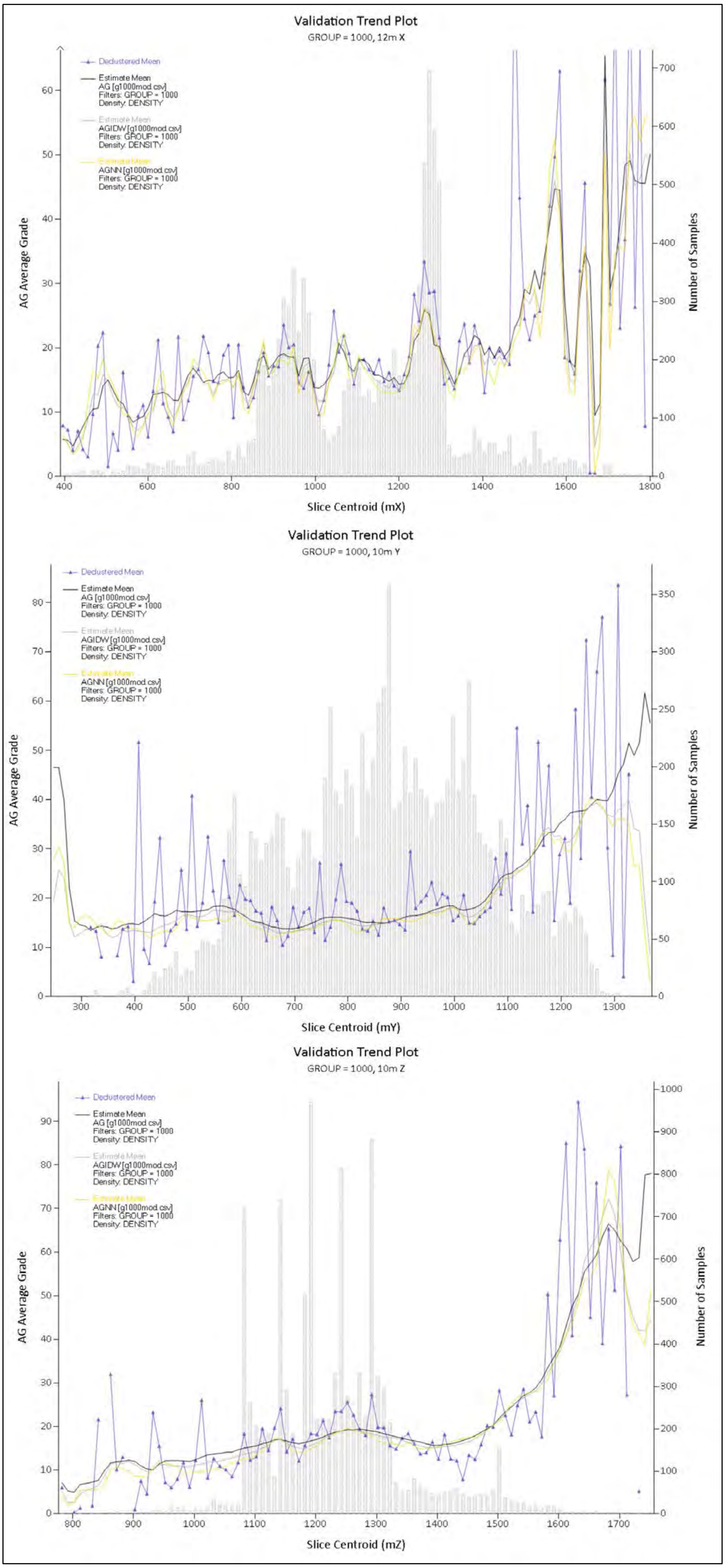
14.8.3 Swath Plots

As part of the validation process, the input composite samples were compared to the block model grades within a series of coordinates. The results of this were then displayed on graphs to check for visual discrepancies between grades. Figure 14-24 shows the results for the gold grades for the Marmato vein domain based on all three principal directions. The graph shows the block model grades (black line), NN (yellow) and the composite grades (blue line). A copy of the swath validation study per zone is contained in Appendix B.



Source: SRK, 2017

Figure 14-24: Example of Swath Analysis Used during Validation, showing Vein Au (g/t)



Source: SRK, 2017

Figure 14-25: Example of Swath Analysis Used during Validation, showing Vein Ag (g/t)

14.9 Resource Classification

Block model quantities and grade estimates for the Project were classified according to the CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014).

Mineral Resource classification is typically a subjective concept. Industry best practices suggests that classification should consider the confidence in the geological continuity of the mineralized structures, the quality and quantity of exploration data supporting the estimates, and the geostatistical confidence in the tonnage and grade estimates. Appropriate classification criteria should aim to integrate both concepts to delineate regular areas at similar resource classification.

SRK is satisfied that the geological modelling honors the current geological information and knowledge. The location of the samples and the assay data are sufficiently reliable to support resource evaluation. The sampling information was acquired primarily by diamond drilling on sections spaced at 25 to 50 meters, while underground drilling has been conducted using fan drilling from established drilling stations. Given the data quality, drillhole spacing and the interpreted continuity of grades controlled by the veins have allowed SRK to classify portions of the veins in the Measured, Indicated and Inferred Mineral Resource categories.

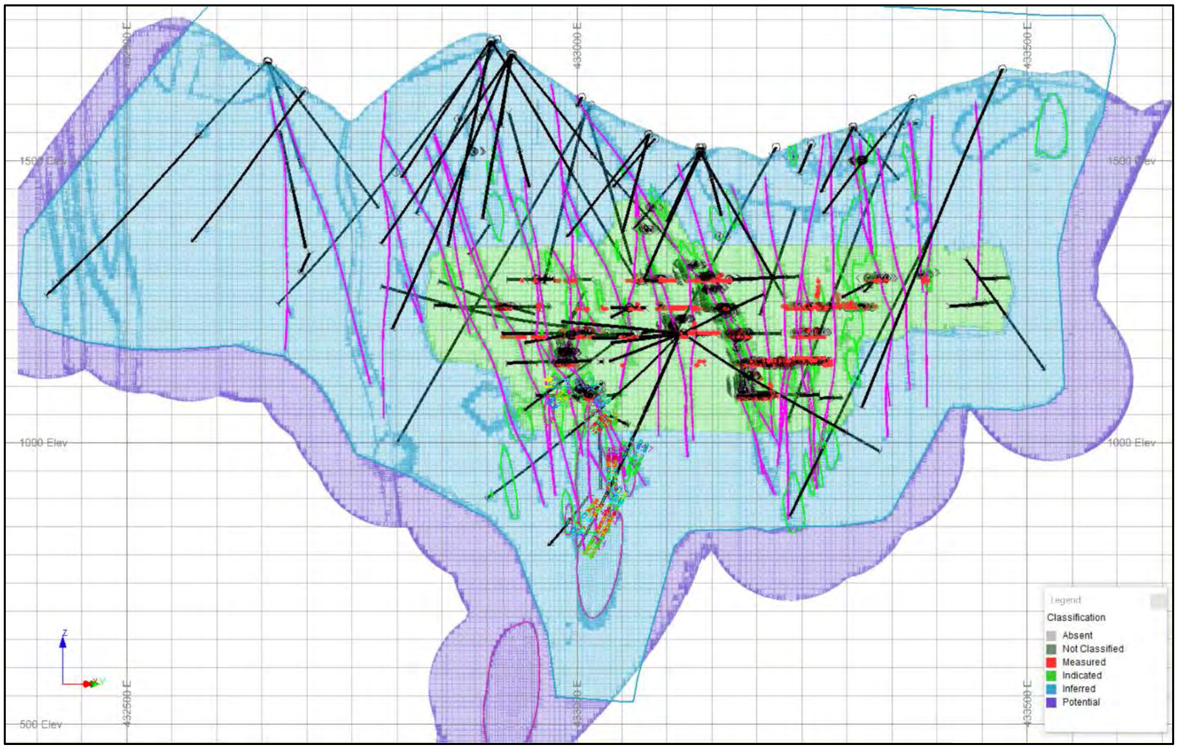
SRK's classification system differs from the previous estimate which used very broad classification as it was based on the assumption of mining adjustments based on increased knowledge of the deposit from on-going mine planning support (Figure 14-26).

Measured: Measured Resources are limited to vein material within the current levels being mined by Mineros Nacionales. These areas are considered to have strong geological knowledge as they have been traced both downdip and along strike via mapping, plus underground channel samplings provide sufficient data populations to define internal grade variability.

Indicated: For the 2017 Mineral Resource estimate, SRK has delineated Indicated Mineral Resources at Marmato primarily between Level 16 to 21 currently in operation at Mineros Nacionales. Indicated Mineral Resources have been given at the following approximate data spacing, as function of the confidence in the grade estimates and modelled variogram ranges. SRK has expanded the limits of the Indicated to also cover areas within Echandia where:

- 50 x 50 m (XY) from the nearest drilling grid;
- Enabled multiple holes to be used during the estimation process; and
- Support from both diamond drilling and channel sampling present.

Inferred: In general, Inferred Mineral Resources have been limited to within areas of reasonable grade estimate quality and sufficient geological confidence, and are extended no further than 150 m from peripheral drilling on the basis of modelled variogram ranges.



Source: SRK, 2017

Figure 14-26: Cross-section Showing Classification Systems at Marmato

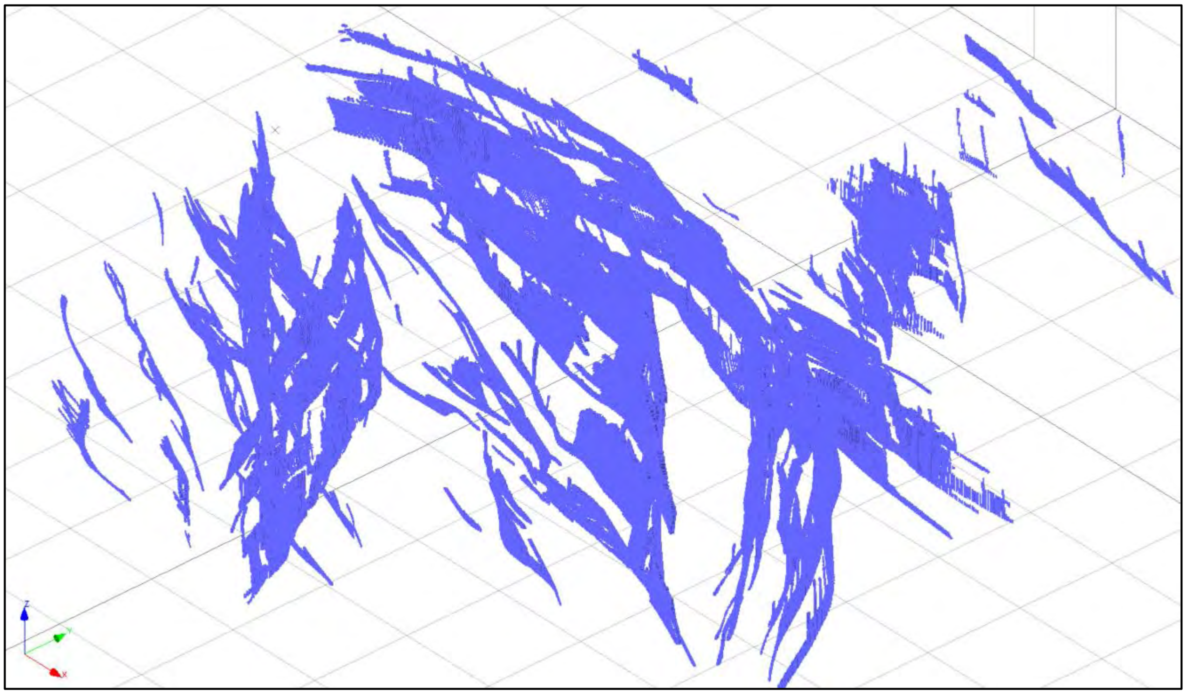
14.10 Depletion

To define the Mineral Resource SRK has created a block model to represent the depletion for the veins. In order to complete this task SRK has used a combination of AutoCAD™ polylines provided by GCM and generated Vulcan™ (.00t) files by projecting the strings in perpendicular to the strike. These wireframes have subsequently been used to copy out the assigned vein. The process is manual and labor intensive and requires each vein to be individually assessed.

This process may result in some errors of over- or under-depletion at the edges but given the size of the deposits is not considered to be material. Once the block model has been established the model has been combined with the final geological model to code all the blocks for depletion.

It is recommended that GCM work towards generating a 3D digital layout of the mine which has the depletion assigned to each of the main structures, but this will take time to initially set-up and was beyond the scope of the current Project.

An example of the resultant model used is shown in Figure 14-27.



Source: SRK, 2017

Figure 14-27: Example of Depletion Model Created by SRK for Marmato

14.11 Mineral Resource Statement

CIM Definition Standards for Mineral Resources and Mineral Reserves (May 2014) defines a Mineral Resource as:

"(A) concentration or occurrence of diamonds, natural solid inorganic material, or natural solid fossilized organic material including base and precious metals, coal, and industrial minerals in or on the Earth's crust in such form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction. The location, quantity, grade, geological characteristics and continuity of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge".

The "reasonable prospects for eventual economic extraction" requirement generally implies that the quantity and grade estimates meet certain economic thresholds and that the Mineral Resources are reported at an appropriate cut-off grade taking into account extraction scenarios and processing recoveries. In order to meet this requirement, SRK considers that portions of the vein system to be amenable for underground mining.

To determine the potential for economic extraction SRK has used the following key assumptions for the costing, but notes that the deposit has variable mining costs depending on the mining types resulting in a range of cut-off grades (Table 14-12). A metallurgical recovery of 90.0% Au, has been assumed based on the current performance of the operating plant.

Table 14-12: Summary of Cut-off Grade Assumptions at Marmato based on assumed costs (averaged for all mining styles)

	Units	Vein Mining 2017 Averaged Cut-off Grade	Deeps Option (Long Hole) Averaged Cut-off Grade
Assumptions			
Gold Price	US$/oz	$1,400.00	$1,400.00
Gold Price	US$/g	$45.01	$45.01
Au Recovery	%	90.0%	90.0%
Operating Costs			
Mining	US$/t mined	$42.84	$26.00
Processing	US$/t ore	$13.35	$9.25
Production Taxes	US$/t ore	$7.80	$7.80
G&A and Other	US$/t ore	$13.02	$6.00
Other	US$/t ore	$0.00	$0.00
Subtotal	**US$/t**	**$77.01**	**$49.05**
Cut-off Grade - Head Grade	g/t	1.9	1.2

Source: SRK, 2017

SRK has defined the proportions of Mineral Resource to have potential for economic extraction for the Mineral Resource based on two separate cut-off grades, relating to the different mining methods involve. The initial cut-off is based on the mining of the veins using the current mining processes and assumed costs, with a second method (long-hole) defined for mining the Deeps and potentially areas of wider porphyry mineralization in the upper levels.

The estimation domains have therefore been grouped for the Mineral Resource statement into veins, porphyry and Deeps mineralization. The veins account for the veins, halos and splay material and have used a 1.9 g/t Au cut-off, while all other domains (grade-shell, Deeps, porphyry) have used a lower cut-off of 1.2 g/t to account for the larger bulk mining methods involved.

The Mineral Resource statement for the Project is shown in Table 14-13.

Table 14-13: Marmato Mineral Resource [(1)] Estimate as of June 16, 2017 – SRK Consulting (U.S.), Inc.

Category	Quantity	Grade		Metal	
		Au	Ag	Au	Ag
	Mt	(g/t)	(g/t)	(000's oz)	(000's oz)
Underground Vein [(2)]					
Measured	2.6	4.7	21.3	396	1,774
Indicated	10.7	4.6	22.3	1,583	7,660
Measured and Indicated	13.3	4.6	22.1	1,979	9,434
Inferred	9.4	4.2	18.9	1,275	5,722
Underground Porphyry [(3)]					
Measured					
Indicated	27.0	2.1	14.9	1,858	12,892
Measured and Indicated	27.0	2.1	14.9	1,858	12,892
Inferred	13.3	1.8	15.4	777	6,655
Underground Deeps [(3)]					
Measured					
Indicated	0.9	2.0	8.0	60	235
Measured and Indicated	0.9	2.0	8.0	60	235
Inferred	29.3	2.3	2.8	2,142	2,628
Underground Combined					
Measured	2.6	4.7	21.3	396	1,774
Indicated	38.6	2.8	16.7	3,501	20,787
Measured and Indicated	41.2	2.9	17.0	3,897	22,561
Inferred	52.0	2.5	9.0	4,194	15,005

(1) Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.

(2) Vein mineral resources are reported at a cut-off grade of 1.9 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal.

(3) Porphyry and Deeps mineral resources are reported at a cut-off grade of 1.2 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal within a limiting pit shell.

14.12 Mineral Resource Sensitivity

The mineral resource given above is sensitive to the selection of the reporting cut-off grade. To illustrate the sensitivity the block model quantities and grade estimates

The reader is cautioned that the figures presented in the tables should not be misconstrued with a Mineral Resource Statement. The figures (Figure 14-28 and Figure 14-29) are only presented to show the sensitivity of the block model estimates to the selection of cut-off grade. The following tables (Table 14-14 to Table 14-19) have been split by the mineralization style and classification (Measured and Indicated have been combined for ease of reporting).

Table 14-14: Measured and Indicated - Vein Domains (Group 1000 - 3000)

Cut-Off (Au g/t)	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
0.00	20.3	3.3	17.5	2,153	11,412
0.50	17.2	3.9	19.9	2,149	11,048
1.00	16.5	4.0	20.5	2,130	10,818
1.20	15.9	4.1	20.7	2,112	10,606
1.50	14.9	4.3	21.2	2,066	10,147
1.70	14.1	4.5	21.5	2,025	9,740
1.90	13.3	4.6	21.8	1,979	9,330
2.00	12.9	4.7	22.0	1,955	9,130
2.20	12.1	4.9	22.3	1,900	8,680
2.50	10.9	5.2	22.9	1,806	7,987
2.70	10.0	5.4	23.4	1,736	7,549
3.00	8.9	5.7	24.1	1,635	6,923
3.50	7.3	6.2	25.4	1,471	6,002
4.00	6.0	6.8	26.4	1,310	5,096
4.50	4.9	7.4	27.3	1,160	4,300
5.00	4.1	7.9	28.0	1,040	3,706

Source: SRK, 2017

Table 14-15: Measured and Indicated - Porphyry Domain (Group 4000)

Cut-Off (Au g/t)	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
0.00	52.2	1.5	11.4	2,536	19,071
0.50	49.4	1.6	11.8	2,505	18,776
1.00	34.4	1.9	13.6	2,123	15,068
1.20	27.0	2.1	15.0	1,861	13,061
1.50	19.1	2.5	17.2	1,517	10,562
1.70	15.3	2.7	18.5	1,322	9,067
1.90	12.4	2.9	19.6	1,158	7,801
2.00	11.2	3.0	19.9	1,080	7,130
2.20	9.1	3.2	20.1	938	5,842
2.50	6.7	3.5	20.8	759	4,464
2.70	5.5	3.7	21.5	661	3,803
3.00	4.1	4.0	22.5	537	3,005
3.50	2.8	4.4	23.8	398	2,148
4.00	1.6	4.9	25.4	258	1,338
4.50	0.9	5.4	26.7	163	812
5.00	0.5	5.9	26.9	98	443

Source: SRK, 2017

Table 14-16: Measured and Indicated - Deeps Domain (Group 5000)

Cut-Off (Au g/t)	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
0.00	2.3	1.3	7.1	97	525
0.50	2.2	1.3	7.2	96	515
1.00	1.2	1.8	7.2	71	287
1.20	0.9	2.0	7.8	60	228
1.50	0.6	2.4	8.5	47	167
1.70	0.5	2.6	8.8	40	135
1.90	0.4	2.8	8.8	36	114
2.00	0.4	2.8	8.8	34	106
2.20	0.3	3.0	8.1	30	81
2.50	0.2	3.2	7.5	24	55
2.70	0.2	3.4	7.1	19	40
3.00	0.1	3.6	7.1	14	28
3.50	0.1	4.0	8.1	8	16
4.00	0.0	4.4	8.1	3	5
4.50	0.0	5.1	10.7	1	2
5.00	0.0	5.5	5.4	0	0

Source: SRK, 2017

Table 14-17: Inferred - Vein Domains (Group 1000 - 3000)

Cut-Off (Au g/t)	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
0.00	20.5	2.4	13.7	1,591	9,048
0.50	16.9	2.9	16.3	1,580	8,848
1.00	14.7	3.2	17.4	1,527	8,235
1.20	13.6	3.4	17.8	1,487	7,776
1.50	11.7	3.7	18.5	1,406	6,940
1.70	10.6	4.0	18.5	1,350	6,305
1.90	9.5	4.2	18.5	1,285	5,648
2.00	9.0	4.3	18.6	1,258	5,404
2.20	8.0	4.6	18.7	1,190	4,831
2.50	6.8	5.0	19.2	1,099	4,223
2.70	6.3	5.2	19.5	1,051	3,923
3.00	5.3	5.6	20.3	963	3,461
3.50	4.2	6.3	21.3	850	2,891
4.00	3.4	6.9	21.9	748	2,368
4.50	2.7	7.5	22.7	661	1,990
5.00	2.3	8.1	23.3	596	1,726

Source: SRK, 2017

Table 14-18: Inferred - Porphyry Domain (Group 4000)

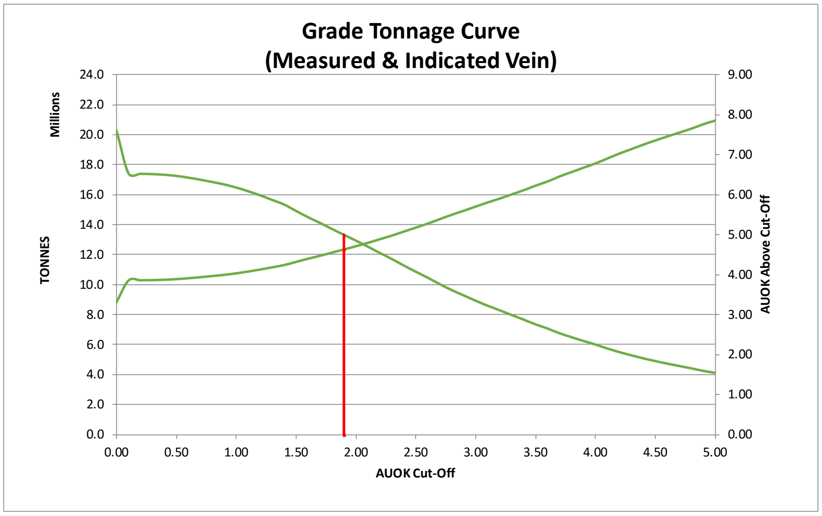
Cut-Off (Au g/t)	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
0.00	25.2	1.4	11.6	1,124	9,404
0.50	24.9	1.4	11.7	1,121	9,385
1.00	17.9	1.6	13.6	943	7,861
1.20	13.5	1.8	15.7	786	6,824
1.50	8.5	2.1	19.2	572	5,280
1.70	6.1	2.3	23.0	446	4,486
1.90	4.3	2.5	24.1	340	3,298
2.00	3.4	2.6	26.6	289	2,937
2.20	2.5	2.8	31.7	229	2,586
2.50	1.6	3.1	43.2	156	2,174
2.70	1.1	3.3	57.8	114	1,972
3.00	0.6	3.8	98.0	67	1,738
3.50	0.3	4.4	146.9	37	1,258
4.00	0.1	5.0	183.3	22	827
4.50	0.1	5.6	248.3	13	601
5.00	0.1	5.9	281.8	10	498

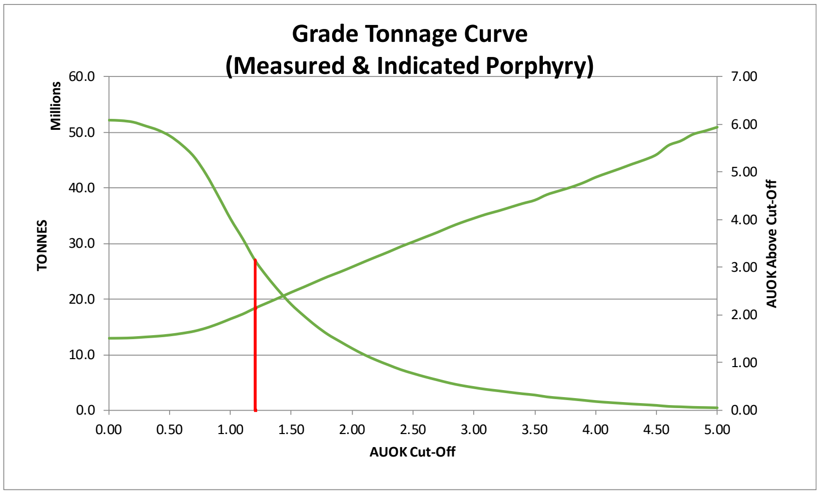
Source: SRK, 2017

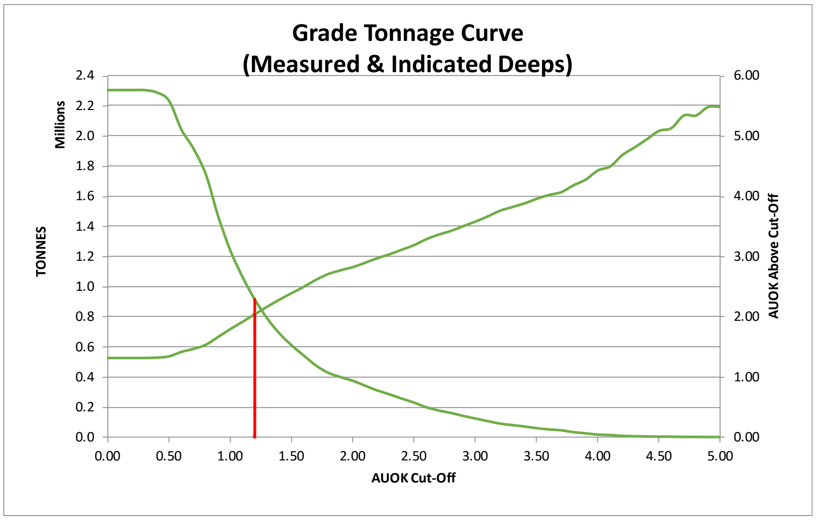
Table 14-19: Inferred - Deeps Domain (Group 5000)

Cut-Off (Au g/t)	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (koz)	Ag (koz)
0.00	42.1	1.9	2.5	2,538	3,322
0.50	42.0	1.9	2.4	2,536	3,308
1.00	35.3	2.1	2.6	2,354	2,947
1.20	29.3	2.3	2.8	2,142	2,610
1.50	21.2	2.6	3.0	1,795	2,063
1.70	17.4	2.9	3.2	1,596	1,779
1.90	14.6	3.1	3.3	1,438	1,560
2.00	13.3	3.2	3.4	1,357	1,461
2.20	11.3	3.4	3.5	1,223	1,288
2.50	8.6	3.7	3.7	1,017	1,021
2.70	7.0	3.9	3.8	880	861
3.00	5.1	4.3	4.2	712	699
3.50	3.4	4.9	5.0	531	547
4.00	2.3	5.4	6.0	404	444
4.50	1.6	5.9	6.9	313	365
5.00	1.2	6.3	7.8	251	308

Source: SRK, 2017

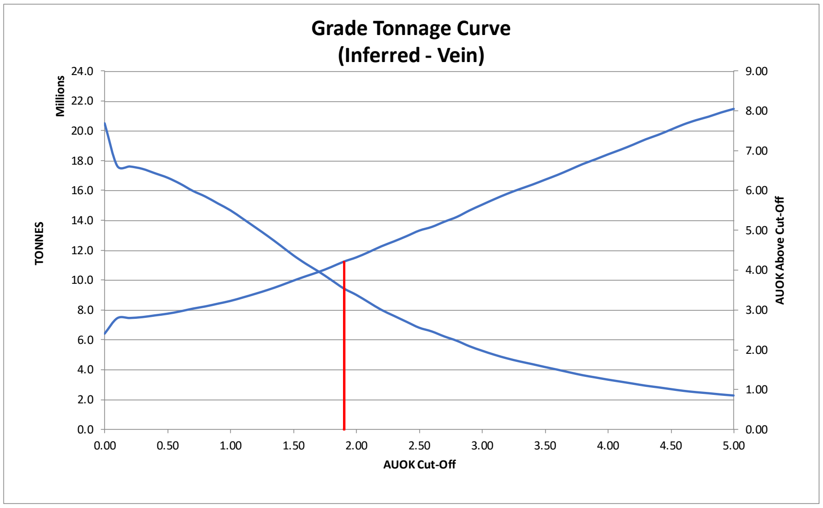


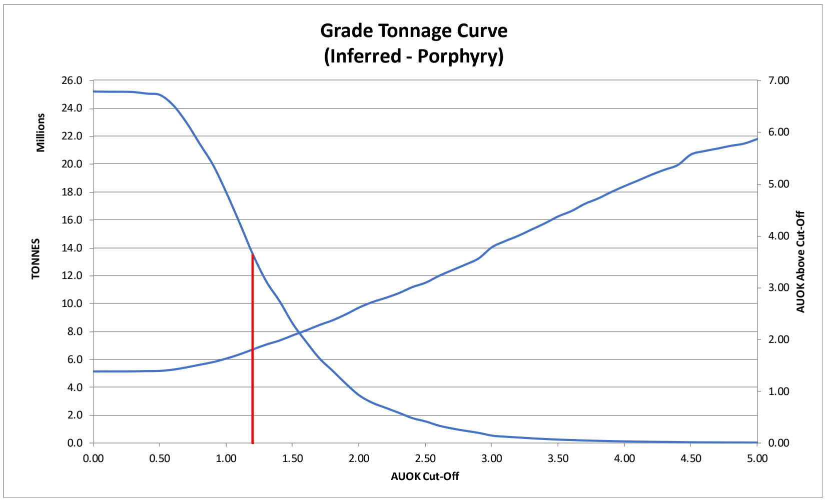


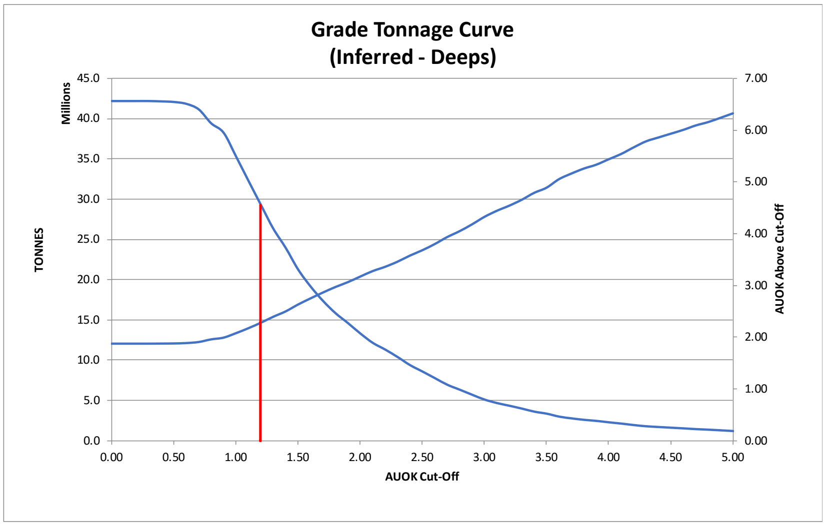


Source: SRK, 2017

Figure 14-28: Grade tonnage curves showing sensitivity to changes in cut-off for Measured and Indicated mineralized material







Source: SRK, 2017

Figure 14-29: Grade tonnage curves showing sensitivity to changes in cut-off for Inferred mineralized material

14.13 Comparison to Previous Mineral Resource Estimates

In comparison to the 2012 MRE for the Marmato Project demonstrate a significant adjustment in the Mineral Resource statement. SRK urges caution that it will be important that these changes are clearly explained in any future press release to avoid potential issues of investor confidence.

The changes in the Mineral Resources are a direct function of the change in the focus of the mining style from Open Pit to Underground Mining, and can be attributed to the following factors:

- No open pit Mineral Resources declared;
- Increase in the cut-off grades used from 0.3 g/t to 1.2 g/t and 1.9 g/t for the different mineralization styles;
- Change in the classification strategy which previously assumed large bulk mining where local variability in the grades would be more smoothed over annual production periods, compared to the requirement to have sufficient geological and grade confidence within the veins for the definition of stope design;
- Major focus on modelling of the geological continuity in the veins has resulted in reduced tonnages, but higher grades;
- Increase in the cut-off grade used to define the mineralized porphyry units, which has resulted in more discrete zones (increasing the average grades from the range from 0.9 to 1.0 g/t, to 1.2 to 1.3 g/t); and
- Additional Deeps Mineralization included in the 2017 model at depth within the Inferred category.

To provide GCM with a clear summary of the impact of these changes, SRK has completed a reconciliation between the 2012 and 2017 Mineral Resource statements. The 2012 MRE had a combined **495.8 Mt at a grade of 0.94 g/t Au for 14.96 Moz**, which has been reduced to **371.1 Mt at 1.1 g/t Au for 13.14 Moz,** when reviewing the updated 2017 at the same 0.3 g/t Au cut-off grade. This represents a reduction of approximately 12% in the contained metal. SRK assumes this change is due to the more discrete definition of the “grade-shells” between 2012 and 2017. In the 2012 models, the grade shell was manually created using broad zones at a 0.3 g/t Au cut-off grade. Additional detail captured from the channel database and the underground mine drilling suggest these zones are more variable and therefore SRK increased the cut-off to 0.5 g/t using an Indictor interpolation within Leapfrog®, using the veins orientation to guide in interpretation.

The other major impact relates to the increase in the cut-off grade. Increasing the cut-off grade from 0.3 g/t to 1.2 g/t Au, results in a drop in the Mineral Resource from **371.1 Mt at 1.1 g/t Au for 13.14 Moz**, to **93.2 Mt at 2.7 g/t for 8.09 Moz.** This is a reduction in the contained metal of approximately 38%. This represents the largest change between the models.

The final difference of significance relates to change in the classification strategy between 2012 and 2017. In order to consider this, it is importance to consider the criteria for the declaration of the Mineral Resource which states that there is sufficient confidence that the “*form and quantity and of such a grade or quality that it has reasonable prospects for economic extraction”.* The previous work completed on the 2012 model have indicated that an open pit mine for the Project has sufficient issues that it might not meet the criteria for reasonable prospects for economic extraction, and therefore the 2017 has only considered underground potential to have reasonable prospect for extraction. The philosophy in defining underground Mineral Resources differs from an open pit, as with open pit material it is assumed all material will be mined, and that the key decision or economic criteria is that it has sufficient grade to cover processing and G&A costs. For underground mining one must also consider cost of mining, plus also to a degree the cost of development if areas are isolated. To test this criteria SRK has filtered the block model to ensure all the areas of the Mineral Resource form reasonable mining targets. Using this and the applicable cut-off grade SRK has defined the mining targets with reasonable prospect for extraction. In considering application of the classification SRK has considered if the level of confidence is sufficient to define stope design within a reasonable level of confidence. The highest levels of confidence exist within the Zona Baja (Mineros Nacionales) area of the deposit, where the veins have been mapped over multiple levels, and underground channel sampling provides a level of confidence in the grade variability within the veins. In the upper portion of the deposit (Zona Alta), the confidence in the spatial location of the veins is lower and therefore these areas previously considered Indicated for open pit mining have been down-graded to Inferred. The channel sampling present in these upper levels is often isolated and lacks the required levels of quality control to assign higher levels of confidence.

A direct comparison of the Mineral Resource statements is shown in Table 14-20.

Table 14-20: Mineral Resource Comparison of 2017 vs. 2012 Roll Forward Numbers for Marmato

2017						2012					
Category	Quantity (Mt)	Grade		Metal		Category	Quantity (Mt)	Grade		Metal	
		Au (g/t)	Ag (g/t)	Au (000's oz)	Ag (000's oz)			Au (g/t)	Ag (g/t)	Au (000's oz)	Ag (000's oz)
Open Pit Vein						Open Pit Vein (1)					
Measured						Measured	8.1	2.29	8.93	597	2,322
Indicated						Indicated	44.7	2.06	12.62	2,967	18,140
Measured and Indicated						Measured and Indicated	52.8	2.1	12.05	3,564	20,462
Inferred						Inferred	7.4	1.76	8.7	417	2,062
Open Pit Porphyry						Open Pit Porphyry (1)					
Measured						Measured	43.1	0.81	4.11	1,128	5,689
Indicated						Indicated	313.8	0.7	5.37	7,097	54,179
Measured and Indicated						Measured and Indicated	356.9	0.72	5.22	8,225	59,868
Inferred						Inferred	71.8	0.94	3.19	2,171	7,367
Open Pit Combined						Open Pit Combined					
Measured						Measured	51.1	1.05	4.87	1,725	8,011
Indicated						Indicated	358.5	0.87	6.27	10,064	72,319
Measured and Indicated						Measured and Indicated	409.7	0.9	6.1	11,789	80,330
Inferred						Inferred	79.1	1.02	3.71	2,588	9,429
Underground Vein (3)						Underground Vein (2)					
Measured	2.6	4.7	21.3	396	1,774	Measured					
Indicated	10.7	4.6	22.3	1,583	7,660	Indicated	0.2	1.96	15.42	15	114
Measured and Indicated	13.3	4.6	22.1	1,979	9,434	Measured and Indicated	0.2	1.96	15.42	15	114
Inferred	9.4	4.2	18.9	1,275	5,722	Inferred	1.1	2.26	13.42	82	486
Underground Grade Shell (4)											
Measured						Measured					
Indicated	27.0	2.1	14.9	1,858	12,892	Indicated	0	2.86	4.31	2	4
Measured and Indicated	27.0	2.1	14.9	1,858	12,892	Measured and Indicated	0	2.86	4.31	2	4
Inferred	13.5	1.8	15.4	777	6,655	Inferred	5.6	2.69	2.58	481	461
Underground Deeps (4)											
Measured						Measured					
Indicated	0.9	2.0	8.0	60	235	Indicated					
Measured and Indicated	0.9	2.0	8.0	60	235	Measured and Indicated					
Inferred	29.3	2.3	2.8	2,142	2,628	Inferred					
Underground Combined											
Measured	2.6	4.7	21.3	396	1,774	Measured					
Indicated	38.6	2.8	16.7	3,501	20,787	Indicated	0.3	2.05	14.26	17	118
Measured and Indicated	41.2	2.9	17.0	3,897	22,561	Measured and Indicated	0.3	2.05	14.26	17	118
Inferred	52.2	2.5	9.0	4,194	15,005	Inferred	6.7	2.62	4.41	563	947

Source: SRK, 2017

(1) The open pit mineral resources have been reported at a cut-off grade of 0.3 g/t. Cut-off grades based on a price of US$1,400/oz of gold and gold recoveries of 88% for open pit and underground resources, without considering revenues from other metal within a limiting pit shell.

(2) Underground mineral resources have been reported at a cut-off grade of 1.5 g/t and below the material considered potentially mineable via open pit methods. Cut-off grades have been based on a price of US$1,400/oz of gold and gold recoveries of 88% for underground resources, without considering revenues from other metals.

(3) Vein mineral resources are reported at a cut-off grade of 1.9 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal.

(4) Porphyry and Deeps mineral resources are reported at a cut-off grade of 1.2 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal within a limiting pit shell.

14.14 Relevant Factors

SRK is not aware of any Environmental, permitting, legal, title, taxation marketing or other factors that could affect resources, however SRK considers that there may be some degree of sensitivity for the potential to extract mineralization based on the various mining domains.

At Marmato there are currently a number of small scale operations working in the upper portion of the deposit (Zona Alta). While the mineralization within these areas current falls within the GCM concessions, due to social issues the mine currently does not extract material from within these areas. GCM are considering reviewing the potential to implement a contractor/toll model similar to that used at the Company's Segovia operations also in Colombia. Further work will be required to confirm the potential for this business model. SRK have therefore broken down the Mineral Resource further into the three main mining areas, Zona Alta, Zona Baja and Echandia (Alta), for the reader to understand the split (Table 14-21).

Table 14-21: Breakdown of Mineral Resources by Mining Zone

2017 Detail Breakdown					
Category	**Quantity (Mt)**	**Grade**		**Metal**	
		Au g/t	**Ag g/t**	**Au 000'oz**	**Ag 000'oz**
Underground Vein (2)					
Measured	2.6	4.7	21.3	396	1,774
Zona Alta	0.5	4.4	19.9	70	315
Echandia (Alta)	0.0	0.0	0.0	0	0
Zona Baja	2.1	4.8	21.6	326	1,458
Indicated	10.7	4.6	22.3	1,583	7,660
Zona Alta	1.6	4.6	20.2	235	1,039
Echandia (Alta)	1.1	4.5	42.4	158	1,496
Zona Baja	8.0	4.6	19.9	1,189	5,124
Measured and Indicated	13.3	4.6	22.1	1,979	9,434
Zona Alta	2.1	4.5	20.2	306	1,355
Echandia (Alta)	1.1	4.5	42.4	158	1,496
Zona Baja	10.1	4.7	20.2	1,515	6,583
Inferred	9.4	4.2	18.9	1,275	5,722
Zona Alta	4.6	4.1	18.6	617	2,777
Echandia (Alta)	1.0	4.0	37.9	135	1,278
Zona Baja	3.7	4.4	14.0	523	1,668
Underground Porphyry (3)					
Measured					
Indicated	27.0	2.1	14.9	1,858	12,892
Zona Alta	3.5	1.8	9.8	205	1,092
Echandia (Alta)	4.0	1.9	34.2	241	4,388
Zona Baja	19.5	2.2	11.8	1,412	7,412
Measured and Indicated	27.0	2.1	14.9	1,858	12,892
Zona Alta	3.5	1.8	9.8	205	1,092
Echandia (Alta)	4.0	1.9	34.2	241	4,388
Zona Baja	19.5	2.2	11.8	1,412	7,412
Inferred	13.3	1.8	15.5	777	6,655
Zona Alta	6.9	1.8	10.1	395	2,250
Echandia (Alta)	3.9	1.9	30.7	248	3,897
Zona Baja	2.5	1.7	6.4	135	507
Underground Deeps (3)					
Measured					
Indicated	0.9	2.0	8.0	60	235
Zona Baja	0.9	2.0	8.0	60	235
Measured and Indicated	0.9	2.0	8.0	60	235
Zona Baja	0.9	2.0	8.0	60	235
Inferred	29.3	2.3	2.8	2,142	2,628
Zona Baja	29.3	2.3	2.8	2,142	2,628
Underground Combined					
Measured	2.6	4.7	21.3	396	1,774
Indicated	38.6	2.8	16.7	3,501	20,787
Measured and Indicated	41.2	2.9	17.0	3,897	22,561
Inferred	52.0	2.5	9.0	4,194	15,005

Source: SRK, 2017

(1) Mineral resources are not mineral reserves and do not have demonstrated economic viability. All figures are rounded to reflect the relative accuracy of the estimate. All composites have been capped where appropriate.

(2) Vein mineral resources are reported at a cut-off grade of 1.9 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal.

(3) Porphyry and Deeps mineral resources are reported at a cut-off grade of 1.2 g/t. Cut-off grades based on a price of US$1,400/oz of gold, suitable benchmarked technical and economic parameters and gold recoveries of 90% for underground resources, without considering revenues from other metal within a limiting pit shell.

15 Mineral Reserve Estimate

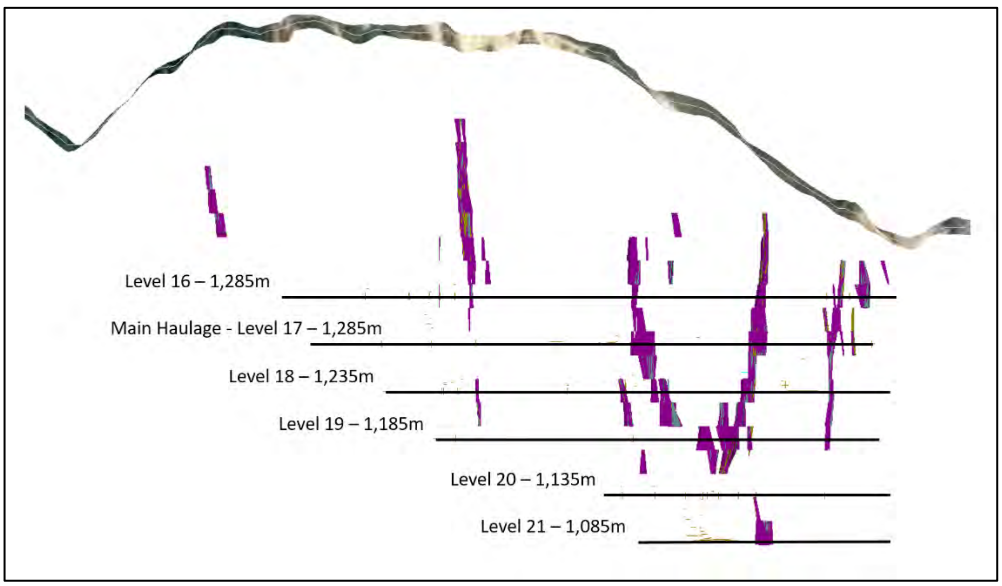
There are currently no Mineral Reserves declared for the Project based on the current level of study. SRK highlights that there are current commercial operations mining the current Mineral Resource at the site with an established production history since the Company has taken ownership.

16 Current Mining Methods

GCM mines the Zona Baja with a conventional cut and fill stope mining technique that supplies approximately 1,200 t/d to the 1,500 t/d capacity mill. The Project has been in operation in various forms since the mid-1500s. MN was awarded the contract for the concessions in 1989. The Project was originally developed as a 300 t/d underground project in 1997 and has expanded through the years to the existing 1,500 t/d capacity operation. The Project processed 303,279 t of mineralized material in 2015 to recover 23,963 oz of gold. In 2016, production was 341,308 t of mineralized material with a recovery of 23,447 oz of gold. In the first three quarters of 2017, the Project produced and processed 275,374 t of mineralized material and recovered 19,050 oz of gold.

16.1.1 Mine Layout

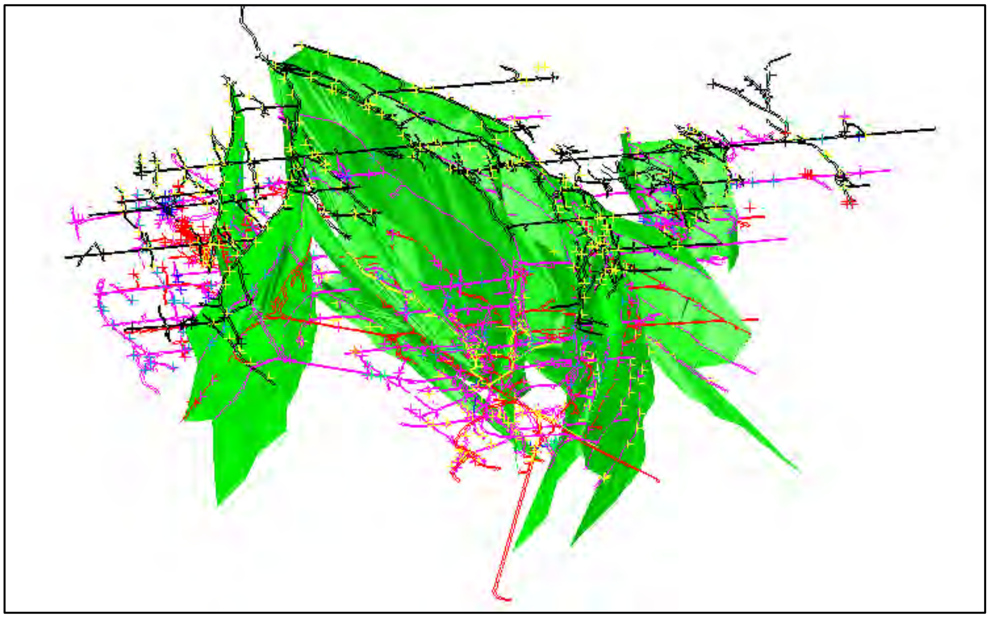
The mining zone extends approximately 300 m vertically and approximately 900 m along the vein structure. The mine has been developed with level accesses proceeding horizontally from the main portal at the surface to horizontal cross cuts that provide access the veins. The mine has six levels all 50 m apart with the highest in elevation being the 16th level and the lowest level of the being the 21st level (Figure 16-1).



Source: SRK

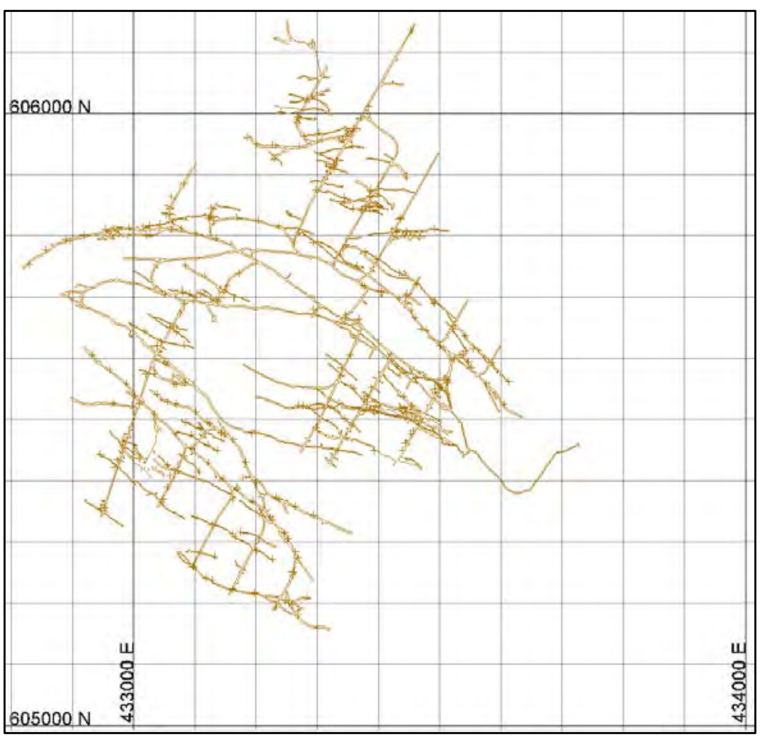
Figure 16-1: Marmato Zona Baja Generalized Cross-section with Active Levels

The top level (Level 16) has an adit access. Level 17 is the main haulage level and primary access for men and materials. The main haulage and primary access is at Level 17 using a 3 m x 3 m track drift that provides the main haulage for ore and waste from the mine. An incline rail declines from the 17 level to the 18 level and provides ore and waste haulage, as well as the ability to moves supplies, back and forth between the 17 level and the main haulage level. Other lower levels of the mine are accessed by ladder-ways for men. The deeper levels are accessed by apique hoist and skip systems that allow transport of mineralized material and waste and other materials. The ore and waste are moved from the lower levels to the 17 level where the track haulage moves the mineralized material and waste to the surface facilities. Figure 16-2 shows the existing mine workings and the mineralized material area. Figure 16-3 shows a plan view of the workings.



Source: GCM

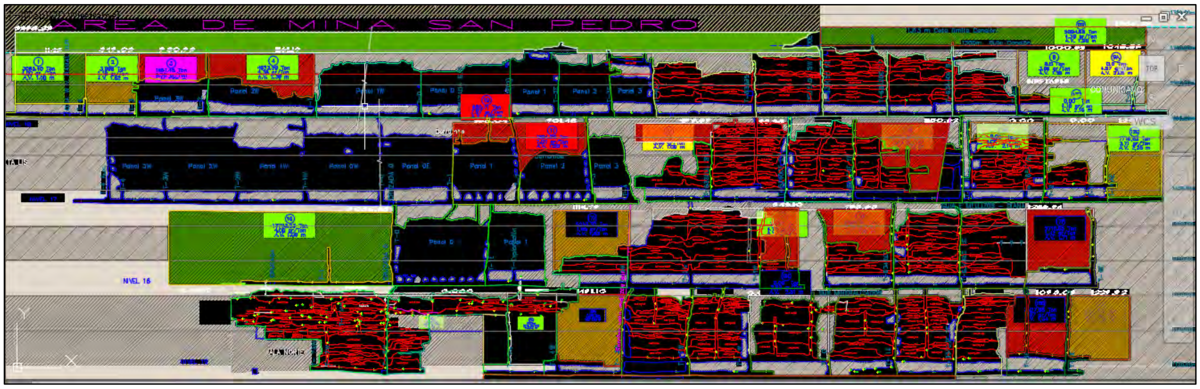
Figure 16-2: Marmato Zona Baja 3D Rotated View of Existing Workings



Source: SRK

Figure 16-3: Marmato Zona Baja Plan View of the 17 Level Existing Workings

A long-sectional view of the active mining area is provided in Figure 16-4.



Source: GCM

Figure 16-4: Marmato Zona Baja Cross-section View of Existing Workings

16.1.2 Reconciliation

SRK recommends that production reconciliation to the mine plan should occur to ensure the mine plan is predicting appropriate grades. Within a known mining area the tonnes and grades mined should be compared to the tonnes / grades in the block model. If there are continuous discrepancies between the mined material and the predicted mine plan, modifications to the mine plan process should be made to more accurately predict future mining.

16.2 Cut-Off Grade

In a cut-off grade, all the costs associated with the operations and related activities must be identified. The following are typical costs and inputs used in a cut-off grade calculation for an operating gold mine:

- Mining;
- Processing;
- Site and corporate general administration;
- Environmental and permitting;
- Plant, mine, tailings, discharges and other sustaining costs;
- Royalties;
- Taxes (local, state and federal);
- Smelting and refining charges;
- Metallurgical recoveries;
- Site infrastructure; and
- Debts and other obligations.

The following operating costs were provided by GCM and used to calculate the Au cut-off grade.

- **Mining:** US$39.31/t of processed material;
- **Processing:** US$12.18/t of processed material;
- **Planning:** US$3.60/t of processed material;
- **Support Area Operations:** US$7.44/t of processed material;

- **Royalties and Considerations:** US$7.77/t of processed material;
- **Others:** US$4.62/t of processed material;
- **Corporate G&A:** Not included in the cut-off calculation;
- **Site Yearly Security:** Included in site G&A cost;
- **Au Refining:** US$24.00/oz or 2% of gold selling price;
- **Au Royalty:** US$119.1oz or 4.4% of gold selling price; and
- **Metallurgical Recoveries:** 86%.

Current estimated full Project costs, less fixed cost and their associated calculated cut-off grade, are shown in Table 16-1. SRK estimated that the mining cost would decrease to US$39.31/t of RoM based on costing database information and benchmarking to similar mines in US, Mexico and Canada.

Table 16-1: Adjusted Costs - Underground Cut-off Grade Calculation

Parameter	Amount	Unit
Mining cost	39.31	US$/t of RoM
Process and tailings cost	12.18	US$/t of RoM
Planning	3.60	US$/t of RoM
Support Area Operations	7.44	US$/t of RoM
Royalties and Considerations	7.77	US$/t of RoM
Others (Sustaining, Projects, Drilling)	4.62	US$/t of RoM
Total Cost	**$74.92**	**US$/t**
Gold price	1,250.00	US$/oz
Average AU mill recovery	86	%
Smelting & Refining (1)	24.00	US$/oz
Royalty (2)	4.4	% of NSR
Cut-off grade	2.17	g/t

Source: SRK, 2015
(1) Included in Other costs
(2) Included in Royalties and Considerations

This updated cut-off of 2.17 g/t Au is used for mine planning purposes but the internal operational cut-off is set at 1.9 g/t.

16.3 Dilution

GCM monitors dilution in the stopes by loading tool. The dilution data is summarized in Table 16-3. The total dilution has increased since 2006. The year-to-date (YTD) dilution is 30.72% for total dilution reported in 2017. The higher percentage of the dilution is being contributed by the slushers.

Table 16-2: Summary of Dilution by Period

Period (Month or Year)	Total Dilution (%)	Slusher Dilution (%)	Bobcat/LHD Dilution (%)
2006	**16.69**		
2007	**15.41**		
2008	**11.44**		
2009	**8.84**		
2010	**14.81**		
2011	**18.57**		
2012	**20.98**		
2013	**23.32**		25.47
2014	**21.13**	18.44	23.17
2015	**22.86**	22.41	23.11
2016	**26.42**	30.39	24.05
Jan 2017	**31.58**	33.78	28.60
Feb 2017	**29.90**	32.28	26.13
Mar 2017	**30.01**	31.03	29.18
Apr 2017	**31.00**	34.00	30.00
May 2017	**27.00**	31.00	24.00
Jun 2017	**34.00**	36.00	33.00
Jul 2017	**31.00**	35.00	29.00
Aug 2017	**32.00**	36.00	28.00
Sep 2017	**30.00**	35.00	25.00
YTD 2017	**30.72**	**33.79**	**28.10**

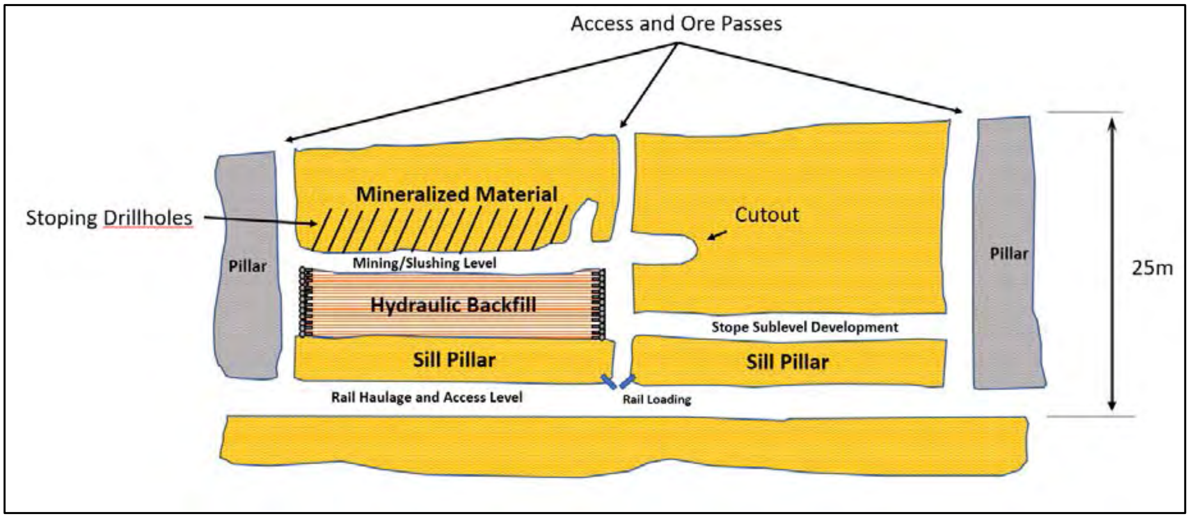
Source: GCM, 2017

16.4 Development

The mining development is completed by the mining staff using jackleg drills with mucking by air powered overshot muckers, small Bobcat equipment, and at times slushers. Vertical development is by conventional drill and blast methods. Ground support is discussed in Section 16.8.

16.5 Mining

Current mining in the mineralized material zones specifically targeting the veins, splay, and halo materials. The mineralized zone currently being mined by GCM extends from Level 16 to the deepest level at Level 21. Mining is conducted using modified sublevel stoping mining method with 25 m high stopes that vary in length and width depending on the vein. The minimum stope width is 1 m. The stoping is completed using jackleg drills operating on hydraulic backfill from the processing plant that fills the stopes. No cement is mixed in the hydraulic backfill material. The mine typically has 20+ stopes in various forms of development or production. The multiple stopes are used to meet production needs and to balance grade fed to the plant. The target head grade is 2.5 g/t. Figure 16-5 shows a cross-section of the mining method.



Source: GCM, modified by SRK

Figure 16-5: Typical Cut and Fill Stoping Method

16.6 Haulage and Material Movement

Material is moved from the stopes to ore passes by air or electric powered slushers. The ore passes feed into chutes with air operated doors that allow loading the train cars at the haulage level. The 10 car unit trains with 10-tonne side dump cars are moved by battery powered locomotives to the surface where the cars are dumped at the mineralized material feed area at the crusher. Any waste rock is hauled to a second location past the crusher for final disposal. On levels other than the main haulage level, the mined material is moved by the same methods to a loading pocket that fills the 1-t or 1.5-t skips to one of the two apique systems (inclined shaft with hoist and skips) in the mine. The apiques dump into a loading pocket on Level 17 that allows the muck trains to be loaded and hauled by a battery-operated rail system directly to storage areas near the processing plant. In some instances, the Company uses a combination of small Bobcats loaders and slushers to load the material into rail cars.

Figure 16-6 shows the loading equipment used by GCM including small Bobcat loaders, small LHD's, and air operated slushers.

Source: GCM

Figure 16-6: Typical Loading Equipment at Marmato

Figure 16-7 shows the main apique system on Level 17. The photograph of the skip is on the left, the hoist and ropes in the center, and the hoist and operator on the right.

Source: SRK, 2017

Figure 16-7: Apique Hoist at Marmato

16.7 Backfill and Mine Support

The mine uses a sand backfill that is provided by a cut of the tailings from the processing plant. The backfill uses approximately 80% of the tailings generated by the processing plant. The tailings are reconstituted into a slurry and pumped with positive displacement pumps to the underground through piping in the drifts, shafts, and raises. Underground in the stopes backfill barriers are constructed to hold the backfill in the stopes. The backfill material then is filled into the stope. Once the backfill drains to a point that the miners can operate on it, they miners begin to mine the next level of the stope.

The mine has crews that maintain the rail, and a group that moves supplies from the surface to the underground and to the various stope and mining locations.

A large compressed air system near the plant provides compressed air to power the overshot muckers, slushers, and jackleg drills.

Explosives are managed by the military and they maintain a magazine on the site.

Marmota has a maintenance shop and laydown yard on the surface where the majority of the equipment is maintained and rebuilds can take place on the rail equipment, loaders and Bobcat equipment. A fully stocked warehouse is also present on the surface.

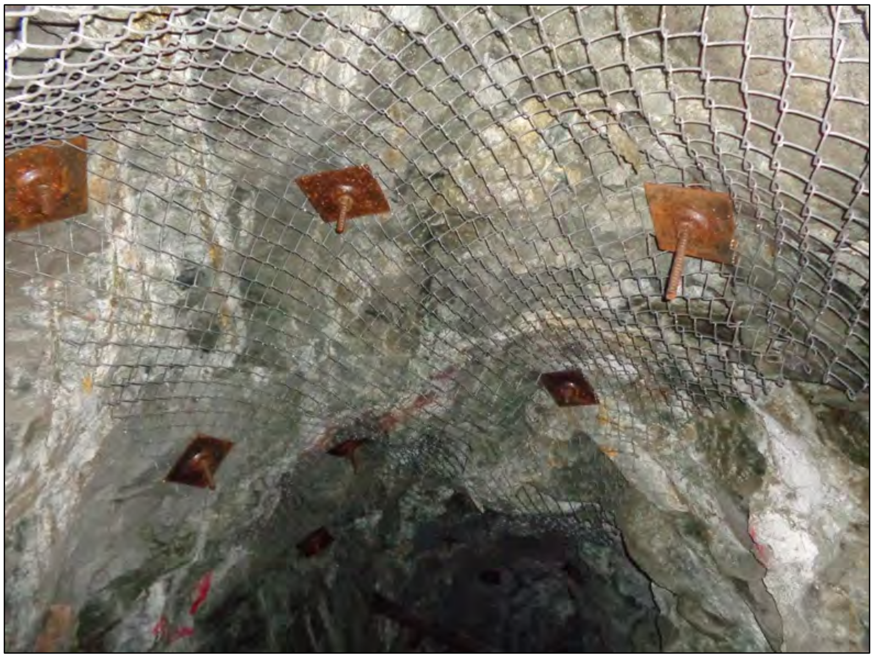
16.8 Geotechnical

The Baja area is currently being mined using conventional cut and fill, and open stoping mining methods. Ground conditions are routinely assessed to address ground support needs. The mine uses RMR_{89} method of rock mass classification to characterize ground conditions, which have been verified against drift mapping and ground support requirements. Three types of ground are encountered described as follows:

- Fair Quality – Rock type III - (RMR_{89}: 40-60);
- Poor Quality – Rock type IV (RMR_{89}: 20-40); and
- Very Poor Quality – Rock type V (RMR_{89}: <20).

Most of the reduced rock quality is the consequence of joint weathering, especially in fault zones that includes veins and their cross jointing.

Ground support methods used in various ground conditions can be illustrated by photographs. In Fair quality ground (RMR_{89}: 40-60) the support includes bolts and mesh, as shown on Figure 16-8. When Poor quality ground is encountered (RMR_{89}: 20-40) the bolt spacing is decreased and shotcrete is added to the ground support as shown on Figure 16-9. In both long-term accesses in Poor quality ground and Very Poor-quality ground where more substantial support is required, steel arches with wooden lagging between are used, as shown on Figure 16-10. Short-term support in active mining stopes where ground support is required for safety can consist of wood stalls as shown on Figure 16-11 and wooden cribs or posts.



Source: Marmato, 2016

Figure 16-8: Example Photograph of Rock Bolting and Mesh Ground Support in Marmato Baja Area

Source: Marmato, 2016

Figure 16-9: Example Photograph of Rock Bolting, Mesh and Shotcrete Ground Support in Marmato Baja Area

Source: Marmato, 2016

Figure 16-10: Example Photograph of Steel Sets and Lagging Ground Support in Marmato Baja Area

Source: Marmato, 2016

Figure 16-11: Example Photograph of Wooden Stall Ground Support in Marmato Baja Area

16.9 Waste and Stockpile Design

The waste rock is used to backfill underground or placed in unused headings. Any additional waste rock is transported to the surface by rail. The rock is used for construction projects on the site or in some cases stored at the core shed area. Minimal waste rock is hauled to the surface at this time.

16.10 Mining Equipment

The Project has a fleet of air, diesel, and electrically operate equipment that supports the mine production plan. The system is flexible due to additional capacity by adding ore cars and additional slushers or LHD's to the stopes mined with jackleg drills. Table 16-3 summarizes the 2017 mine equipment.

Table 16-3: Marmato Mine Equipment List

Equipment Type	Quantity
Battery locomotives	22
Rail Cars	230
Hoists for ore hoisting (400HP, 200HP)	2
Supply winches	2
Electric microscoops	5
Diesel front loaders	22
Double and triple drum electric slushers	54
50 HP electric fans	4
30 HP electric fans	14
20 HP fans	28
Overshot Muckers	32
Jackleg Drills	106
Minidumper	2
Electric drills (diamond)	3
Pneumatic drill (diamond)	1
Electrical substations	3
Piston slurry (positive displacement - PD) pumps for hydraulic filling	2
Centrifugal slurry pumps for hydraulic filling	6
Stationary electric pumps for dewatering sandfill	7
Mobile submersible pumps	5

Source: GMC, 2017

16.11 Mine Dewatering

The mine has a series of pumps that pump from the lowest levels of the mine (Level 21) to Level 17 where the water is pumped to the processing plant where it is used for makeup water. The pumps have been functional and control water in the mine. There have not been any recent or changes in quantities of water of substance.

16.12 Operational Results

The mine has been in operation for many years. The production and cost information for the past 5 years in provided in Table 16-4. The production tonnage has increased consistently from 2012 to 2016 while the grade is declining. Au production averages 21,159 oz/y over the last 5 years. Costs have consistently decreased on a per tonne basis.

Table 16-4: Mine Production (2012 through 2016)

Parameter	2012	2013	2014	2015	2016
Mine Cost/t (US$/t)	$58.20	$51.88	$47.24	$39.88	$39.31
Mine Cost/oz Au (US$/oz)	$719	$630	$578	$505	$572
Tonnes (t)	268,137	274,190	295,023	303,279	341,308
Grade (g/t)	2.85	2.90	2.85	2.79	2.56
Recovery (%)	88.36%	88.58%	89.05%	87.99%	83.67%
Ounces (Au)	21,717	22,566	24,113	23,954	23,447

Source: GCM, 2017

The 2017 YTD production and cost is summarized in Table 16-5. The mining cost is up slightly from 2016 but total recovered ounces will increase driven by higher recovery at a lower head grade.

Table 16-5: Mine Production 2017 (YTD)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	YTD
Mine Cost/t (US$/t)	38.79	51.09	43.42	38.63	51.51	37.71	36.59	37.95	38.08	41.02
Mine Cost/oz Au (US$/oz)	596	687	622	582	674	573	520	540	593	595
Tonnes (t)	30,810	27,110	31,807	30,269	23,859	30,644	33,090	34,034	34,110	275,733
Grade (g/t Au)	2.33	2.61	2.52	2.39	2.70	2.39	2.51	2.50	2.34	2.47
Recovery (%)	87%	89%	86%	86%	88%	86%	87%	87%	87%	87%
Ounces (Au)	2,005	2,015	2,219	2,009	1,823	2,015	2,330	2,391	2,190	18,996
Ounces (Ag)	3,345	3,347	3,354	3,041	2,710	3,249	3,460	3,904	3,703	30,113

Source: GCM, 2017

The mine capital is estimated to be US$429,000 for 2017 with the actual expense through the end of September being US$344,000 as detailed in Section 21.1.

17 Recovery Methods

The Marmato process plant operates at approximately 1,200 t/d and recovers about 87% of the gold and 40% of the silver from ore that averages approximately 2.5 g/t Au and 9.5 g/t Ag. The plant was upgraded in 2016 and the discussions that follow are based on the current configuration of the plant. Figure 17-1 shows the processing facility looking toward the deposit.

Source: GCM

Figure 17-1: Marmato Processing Plant

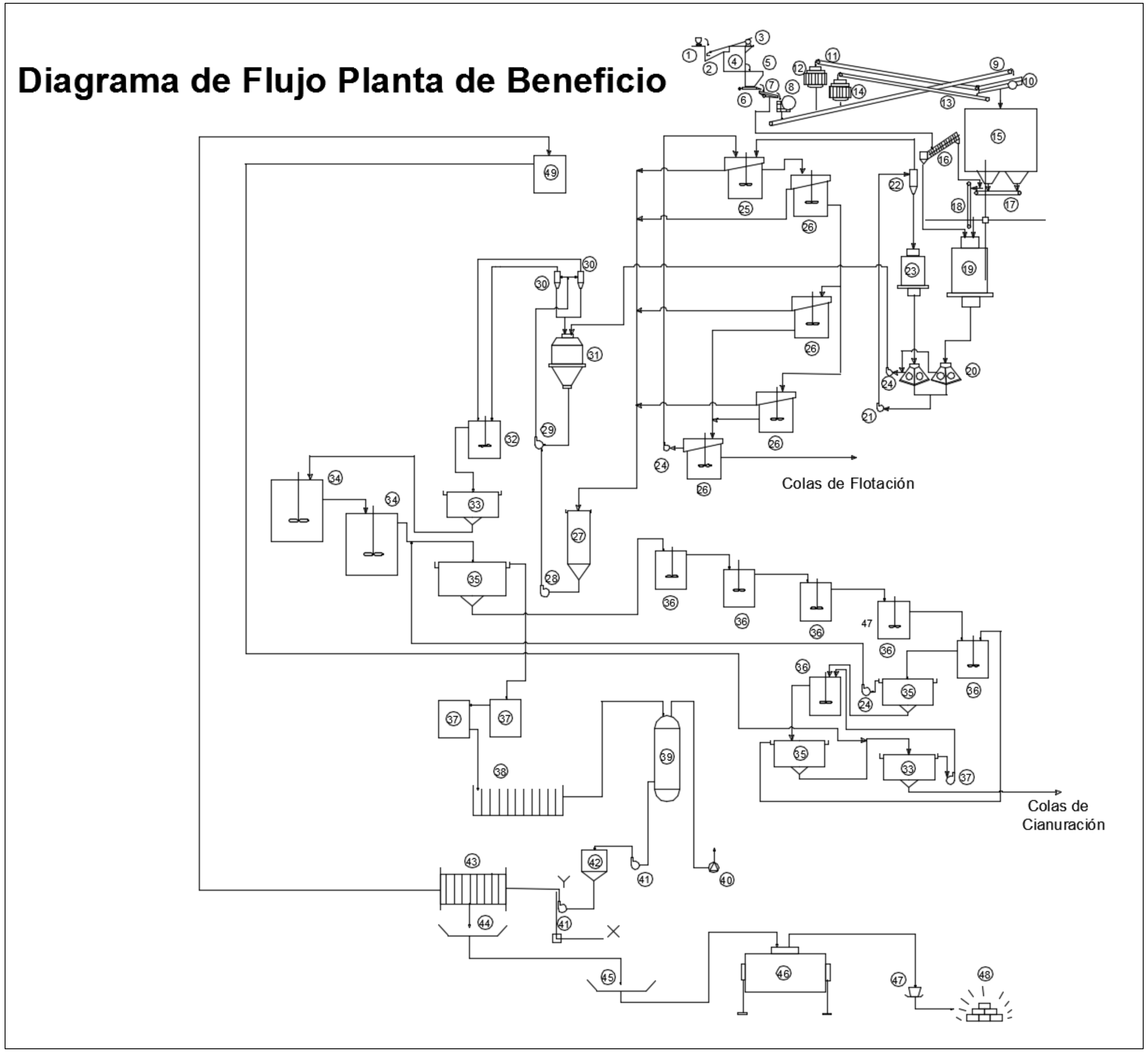
17.1.1 Process Description

The process plant flowsheet includes crushing, grinding, gravity concentration, gold flotation, cyanidation of the flotation concentrate, Merrill-Crowe precipitation and refining of the precipitate and gravity concentrate to produce a final gold/silver doré product. The Marmato processing flowsheet shown in Figure 17-2 and a list of major equipment is shown in Table 17-1.

Table 17-1: Marmato Process Plant Major Equipment List

No	Description	Quantity
1	Mine Rail Cars Capacity 1.5 Ton C / U	
2	Pre-hopper - 100 Ton Capacity	1
3	Winch - 60Hp	2
4	Feed hopper 5m x 7m	1
5	Feed Hopper	1
6	Hydraulic gate feeder	1
7	Vibratory Grizzly - 5 ft x 13 ft (Mesh 5/16 ")	1
8	Primary Jaw Crusher 25" x 40" (125 HP)	1
9	30" conveyor belt	1
10	Vibrating Screen - 20 ft x 8 ft (Upper Mesh 7/8 "Bottom Mesh 7/16")	1
11	Conveyor belt 24" x 14m	1
12	Secondary Crusher - Nordberg Omnicone 1352	1
13	Conveyor Belt - 24" x 46 ft	1
14	Tertiary Crusher - Nordberg 300 Hp	1
15	Fine Ore Hopper - 7m x 5.8m high	1
16	Helical Sorter - 30" x 17ft	1
17	Conveyor Belt - 24" x 23 ft	1
18	Conveyor Belt - 24" x 100 ft (with Arch weigh HP Belt Scale)	1
19	Primary Ball Mill - Allis Chalmers (9 1/2 ft x 14 ft)	1
20	Trapezoidal jig	1
21	Krebs Pump - 6" x 6" (75Hp)	2
22	20" Hydrocyclone	2
23	Secondary Ball mill - 7 1/2 ft x10 ft	1
24	3" x 3" SRL pump	6
25	Circular Flotation Cell - 12 ft x12 ft	1
26	Circular Flotation Cell 10 - ft x10 ft	1
27	Static Thickener - 3.7 m x 10.6 m	1
28	Bredel Pump SPX50	1
29	Wilfley 5k 50Hp Pump	1
30	6" Hydrocyclone	2
31	Hardinge Ball - 7 ft x 5 ft	1
32	Mixer - 12 ft x12 ft	1
33	Thickener - 24 ft x10 ft	1
34	Mixer - 20 ft x 20 ft	2
35	Thickener - 30 ft x 10 ft	1
36	Mixer - 12 ft x 12 ft	6
37	12 ft x 12 ft PLS Tank	2
38	Clarifier Tank	1
39	Deaeration Tower	1
40	10Hp Hydral Vacuum Pump	1
41	Halberg Nowa Pump 25Hp	2
42	Zinc Dust Dosing Cone	1
43	Filter press	2
44	Precipitate Receiving Tray	1
45	Flux Mixing Tray	1
46	Oven for Casting Precipitates	1
47	Ingot	2
48	Gold and Silver Bars	
49	12 ft x 12 ft tank for Barren Solution storage	1
50	SK-80 Flash Flotation Cell	1
51	4" Hydrocyclone	1
52	2m x 2m Cleaner Flotation Cell	2

Source: GMC, 2017



Source: GCM, 2017

Figure 17-2: Marmato Process Plant Flowsheet

17.1.2 Crushing Circuit

Ore from the GCM mining operations is dumped by rail into a hopper where a slusher moves the 500 mm material to a 5 m x 7 m feed hopper that feeds through a 5 ft x 13 ft vibratory grizzly to the 25 inch x 40 inch jaw crusher. The material from the jaw crusher feeds onto a 30 inch conveyor that places material on a 20 ft x 8 ft double-deck vibratory screen. The screen oversize is conveyed to a Nordberg Omicone 1352 secondary cone crusher, which is operated in closed circuit with the vibratory screen. The material retained on the second screen deck (+7/16") is conveyed to the Norberg 300 hp tertiary crusher that is also operated in closed circuit with the vibrating. The screen undersize material (< 12 mm), which is final crushed product, is conveyed the 7.0 m x 5.8 m fine ore bin. The undersize from the vibratory grizzly (5/16 inch) is directed to a helical sorter. The undersize from the helical sorter feeds directly into the primary ball mill. The oversize from the helical sorter is placed on the feed conveyor from the fine ore bin and delivered into the primary ball mill.

17.1.3 Grinding and Gravity Concentration Circuit

The mineralized material is conveyed from the bottom of the fine ore bin to an Allis Chalmers 9½ ft x 14 ft primary ball mill that discharges to a 17 ft^2 jig. The gravity concentrate from the jig is reground, and the jig gravity tailing is pumped to a 20 inch hydrocyclone. The cyclone underflow reports to a 7.5 ft x 10 ft secondary ball mill that then discharges to a second jig concentrator. The cyclone overflow reports to flash flotation with the flotation tailings going back to the secondary ball mill and the flotation concentrate advancing to regrind. The grinding system reduces the size of the material to 80% passing 75µm in the cyclone overflow. The cyclone overflow feeds material to the first flotation cell in the flotation concentrate circuit. Figure 17-3 shows a photograph of the grinding circuit.

Source: GCM, 2017

Figure 17-3: Marmato Processing Grinding Photograph

17.1.4 Flotation and Concentrate Regrind Circuit

The cyclone overflow from the grinding circuit is advanced to the flotation circuit where it is first conditioned with the required flotation reagents and then subjected to one stage of rougher flotation in one 12 ft x 12 ft flotation cell and two 10 ft x 10 ft flotation cells. This is followed by one stage of scavenger flotation in a bank of two 10 ft x 10 ft flotation cells to recover the contained gold values. A total rougher + scavenger flotation retention time of 30 minutes is provided. The scavenger flotation concentrate is upgraded in one stage of cleaner flotation and combined with the rougher flotation concentrate. The combined rougher + scavenger cleaner concentrate, which represents about 7.5 mass percent of the original plant feed is thickened in a static thickener to about 55% solids and reground in a 7 ft x 5 ft Hardinge mill to about 70% minus 44 µm prior to being advanced to the cyanidation circuit. The flotation tails are delivered to an agitated storage tank and then pumped to the underground mine by a positive displacement pump for use as hydraulic backfill for the mining stopes.

17.1.5 Cyanidation and Counter-Current-Decantation (CCD) Circuit

The reground flotation concentrate and gravity concentrate report to a 12 ft x 12 ft agitator where the pH is adjusted to 10.5 with lime and then thickened in a 24 ft x 10 ft thickener. The thickener underflow feeds a two-stage conventional cyanidation circuit, the first stage consisting of two 20 ft x 20 ft agitated leach tanks operated in series at a cyanide concentration of 700 ppm NaCN, which then discharges to a 30 ft x 10 ft thickener. The overflow (rich solution) from that thickener feeds the Merrill-Crowe gold recovery circuit. The underflow of the thickener goes to the second stage of cyanide leaching, which consists of six 12 ft x12 ft agitated leach tanks. The first leach tank of the second stage is operated at a cyanide concentration of 700 ppm NaCN, which is allowed to attenuate to about 400 ppm NaCN during leaching. A total retention time of about 30 hours is provided in the two stages of leaching. Discharge form the second stage of leaching is advanced to the CCD circuit, which consists of three 24 ft x10 ft thickeners and one 30 ft x 10 ft thickener. The underflow from the last thickener feeds the cyanide detoxification system and then is piped to the tailings dam.

17.1.6 Merrill-Crowe Circuit and Refinery

The PLS is processed in the Merrill-Crowe circuit to recover the solubilized gold and silver values from solution. The PLS is first clarified in order to remove any remaining suspended solids. The clarified PLS is then de-aerated to <1 ppm dissolved oxygen in a de-aearation tower operated under vacuum. Zinc dust is then metered into the de-aerated PLS, which serves to precipitate the solubilized gold and silver values from solution. The resulting gold/silver precipitate is filtered in a pressure filter, which is subsequently removed from the filter press and placed in a flux mixing tray where fluxes are added prior to smelting. Approximately 600 kg of flux is blended with 600 kg of precipitate and smelted in a diesel-fired furnace to produce a final doré product.

17.1.7 Tailing Storage Facility

The TSF is discussed in Section 18.2.

17.2 Operational Results

17.2.1 Historical Plant Production

Historical plant production for the period from 2002 to 2011 is summarized in Table 17-2. During this period, tonnes processed increased from 136,098 t (average 373 t/d) to 250,533 t (average 686 t/d). Gold production was variable depending on feed grade and ranged from 18,737 oz in 2002 to a high of 25,975 oz in 2006. More recent production is provided in summary for in Table 17-3.

Table 17-2: Historic Production Summary

Year	Ore (t)	Grade Au (g/t)	Au Produced (oz)
2002	136,098	4.90	18,737
2003	161,383	4.61	20,659
2004	186,330	4.16	21,583
2005	231,540	3.69	23,673
2006	260,717	3.64	25,975
2007	256,848	3.32	22,916
2008	253,617	3.44	24,021
2009	250,638	3.51	24,372
2010	252,136	3.39	23,318
2011	250,553	3.18	22,715

Source: GCM, 2017

Table 17-3: Process Plant Production (2012 through 2016)

Parameter	2012	2013	2014	2015	2016
Mill Cost/t (US$/t)	$15.95	$16.34	$14.32	$11.70	$12.18
Mill Cost/oz Au S$/oz)	$197	$199	$175	$148	$177
Tonnes (t)	268,137	274,190	295,023	303,279	341,308
Grade (g/t)	2.85	2.90	2.85	2.79	2.56
Recovery (%)	88.36%	88.58%	89.05%	87.99%	83.67%
Ounces (oz)	21,717	22,566	24,113	23,954	23,447

Source: GCM, 2017

17.2.2 Current Plant Production

Plant production for the period 2017 (January to September) is summarized in Table 17-4. During this period mined tonnes processed increased from 30,810 t, at an average gold grade of 2.33 g/t Au in January 2017 to 34,110 t at an average gold grade of 2.34 g/t Au in September 2017. Overall gold recovery was relatively constant at about 87%. Reported gold recovery is based on actual refinery gold production. Silver recovery is 35% YTD.

Table 17-4: Marmato Process Plant Production Summary

Month/Period	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	2017 YTD
Plant Cost/t (US$/t processed)	12.09	14.82	13.62	11.92	16.21	12.83	11.68	13.01	12.52	13.17
Plant Cost/oz Au (US$/oz Au)	199	199	195	180	212	195	166	185	195	191
Tonnes (t)	30,810	27,110	31,807	30,269	23,859	30,644	33,090	34,034	34,110	275,734
Daily Production (t/d)	994	968	1,026	1,009	770	1,021	1,067	1,098	1,137	1,135
Au Grade (g/t)	2.33	2.61	2.52	2.39	2.70	2.39	2.51	2.50	2.34	2.47
Plant Au Recovery (%)	87%	89%	86%	86%	88%	86%	87%	87%	87%	87%
Total Au oz Recovered (oz)	2,005	2,016	2,219	2,009	1,823	2,015	2,329	2,391	2,244	19,050
Daily Ounces (Au)	65	72	72	67	59	67	75	77	75	78
Ag Grade (g/t)	8.55	8.97	9.46	9.09	9.49	9.71	9.70	10.34	10.54	9.57
Plant Ag Recovery (%)	40%	40%	35%	33%	37%	34%	34%	35%	32%	35%
Total Ag oz Recovered (oz)	3,345	3,135	3,355	2,922	2,710	3,249	3,460	3,904	3,703	29,785
Daily Ounces (Ag)	108	112	108	97	87	108	112	126	123	123

Source: GCM, 2017

17.3 Process Plant Consumables Usage

Reagent and grinding media consumption for the 2015 and 2016 are summarized in Table 17-5. Reagent usage and consumption are typical of and in the same range as other similar process plants.

Table 17-5: Process Plant Reagent Usage

Consumable	Function	2015 (g/t ore)	2016 (g/t ore)
Flotation Circuit			
Copper Sulfate	Mineral activator	16	19
Aerofroth 65	Frother	21	25
A-131	Collector	1.5	2
Isopropyl Xanthate	Collector	18	21
Aero 404	Collector	5.3	1.3
Thickening Circuit			
Ega 1203	Flocculent	20.6	27
Cyanidation Circuit			
Sodium Cyanide	Lixiviant	385	446
Lime	pH control	663	641
Merrill-Crowe Circuit			
Zinc Dust	Precipitant	31.5	27
Refinery			
Borax	Flux	21	19.5
Soda Ash	Flux	9.6	9
Sodium Nitrate	Flux	14	9.3
Silica	Flux	4	3
Grinding Balls			
3 inch	Primary	49.5	275
2.5 Inch	Primary	214	133
2 inch	Secondary	241	295
1.5 inch	Regrind	152	101

Source: GCM, 2017

17.4 Process Plant Operating Costs

Process Plant Operating Costs for 2015 and 2016 are summarized in Table 17-6. During 2015 plant operating costs averaged US$22.38/t processed, which was equivalent to US$283.35/Au oz produced. During 2016 the process plant operating cost averaged US$22.87/t processed and was equivalent to US$332.85/Au oz produced. Labor, electrical power, and reagents/consumables are the major cost drivers and represent over 50% of the process plant operating costs.

Table 17-6: Marmato Process Plant Operating Costs (2015 and 2016)

	2015			2016		
Cost Area	**US$**	**US$/t**	**US$/oz**	**US$**	**US$/t**	**US$/oz**
Labor	3,378,418	11.14	141.04	3,694,822	10.83	157.58
Laboratory	205,282	0.68	8.57	208,385	0.61	8.89
Electrical power	740,200	2.44	30.90	963,847	2.82	41.11
Reagents and consumables	1,972,790	6.50	82.36	2,404,629	7.05	102.56
Maintenance	149,631	0.49	6.25	168,924	0.49	7.20
Others	340,992	1.12	14.24	363,675	1.07	15.51
Total	**6,787,313**	**22.38**	**283.35**	**7,804,282**	**22.87**	**332.85**
Tonnes	303,279			341,308		
Ounces Au	23,954			23,447		

These cost do not include the royalty cost and do not account for a silver credit.
Source: GCM, 2017

17.5 Process Plant Capital Costs

Planned process plant capital expenditures is going to be of the order of US$386,000 for the year 2017 and US$382,000 for 2018. Most of the identified capital expenditures are for replacement and refurbishment of existing equipment and facilities. SRK is comfortable with the proposed expenditure in the near term, but comments plant capital can vary depending on future changes to the mine plan and throughput rates.

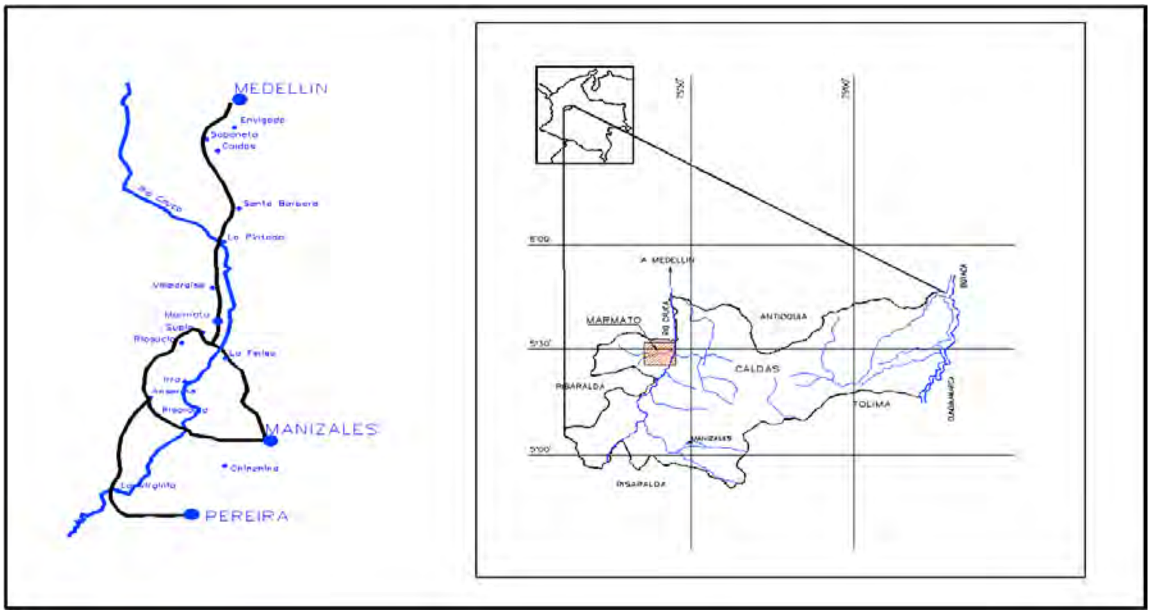
18 Project Infrastructure

18.1 Infrastructure and Logistic Requirements

The project is in the Municipality of Marmato in Caldas. The concessions of the Marmato Project are located on the eastern side of the Western Cordillera (Cordillera Occidental) of Colombia on the west side of the Cauca River.

The Marmato Project is located approximately 125 km south of Medellín, the capital of the department of Antioquia, Colombia. Medellín is the second largest city in Colombia with a population of approximately 2.5 million. The Project is located in the department of Caldas near El Llano.

Figure 18-1 shows the location of the Project.



Source: GCM, 2017

Figure 18-1: Marmato Project Location

Primary access to the site is via the Pan American Highway, Colombia Highway 25. The road is a paved two lane improved highway that is the winds through the mountainous area south of Medellín and then follows the Cauca River to the turn off to the Project. The route from Medellin is via Itaguí (7 km), Caldas (12 km), Alto de Minas (13 km), Santa Barbara (27 km), La Pintada (26 km), La Guaracha del Rayo (32 km), and then a turn onto a secondary road to the community of El Llano that is the community closest to the Project. From El Llano, the road is paved but partially single lane another 2 km to the Project security gate. An improved dirt road continues up the mountain another 4 km to the community of Marmato, where the artesian miners are working the Zona Alta portion of the Project. Approximately 40% of the 1,100 employees currently employed by the Project live in El Llano, with the remainder traveling to work from various communities in the area

The Pan American Highway continues south and east 90 km to another large regional city, Manizales, and then on another 270 km to Bogatá, the capital of Colombia. Air access through international and regional airports is available in Medellín, Manizales, and Bogatá.

Field personnel for the exploration program have been employed from the towns of Marmato and El Llano and neighboring districts. In the long term, personnel current working on the large number of small scale mines and from the surrounding region would be able to supply the basic workforce for any future mining operation.

18.1.1 On-Site Infrastructure

The project has a security checkpoint that provides access to the office and administrative area. The facilities include employee motorcycle parking, meeting area, cafeteria, shop and warehouse, equipment storage yards, compressor station, welding shop, a 500 kW backup generator, processing plant, explosives storage a short distance from the mine that is managed by the military, main power substation and distribution powerlines with motor control centers at key loads. The site has three portals that access the mine workings. A yard that has rail through it allows servicing of the mine ore cars and locomotives.

18.1.2 Energy Supply and Distribution

The project is well served by power infrastructure. Three high tension power lines (230 kV each) belonging to the Colombian national power grid run along the Cauca River valley on the east side of Marmato. A 132 kV substation is located at Marmato which supplies power to the community, mines and surrounding area.

A 10 inch diameter oil and gas pipeline with a capacity of 12,000 barrels of oil per day runs along the Cauca River valley and is part of the national network. This portion of the pipeline connects Buenaventura with Medellin and the hydrocarbon fields in the north and east of Colombia.

18.1.3 Water Supply

Makeup water is supplied from the underground mine through a series of pumps and the plant recycles the majority of the water it uses.

18.1.4 Rail

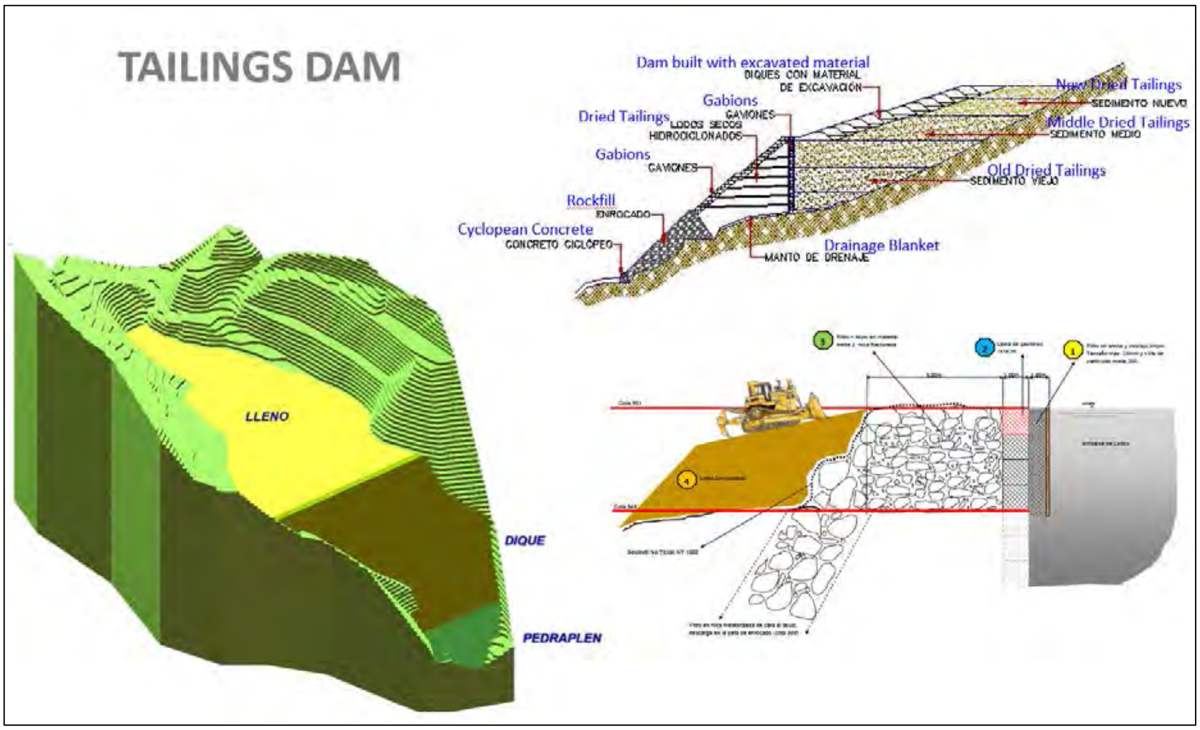
There is an abandoned railway cutting along the east side of the Cauca River opposite Marmato, which previously formed part of a railway network between the Pacific and Atlantic Oceans which ran between Buenaventura and Puerto Berrio on the navigable Magdalena River. The middle section between Medellin and La Felisa (Caldas, 10 km south of Marmato) was completed in 1942 and closed in 1972. Ferrocarriles del Suroeste S. A. (Southwestern Railways) applied for a concession to rebuild this 185 km line between La Felisa and Envigado, near Medellin, in November 2007, at a cost of US$140 million. This would become integrated with the national railway network. Ferrocarriles del Oeste S. A. (Western Railways) were awarded the contract to operate the 499 km Buenaventura to La Felisa railway in November 2007. The concession is in two stages. In July 2009 the 388 km railway between Buenaventura and Cartago and La Tebiada which has been rehabilitated was opened. In the second stage the new concessionaire will take over operation of the 119 km section between Cartago and La Felisa once this has been rebuilt by Tren de Occidente (Western Train). Currently the concession contractor (Western Railway) are in liquidation, so another company would have to develop the rail if needed for the Project. Currently there are no plans to use the rail.

18.1.5 Port

Marmato is 200 km west of the Pacific Ocean and 300 km south of the Caribbean Sea and Atlantic Ocean. The nearest port is Buenaventura on the Pacific Ocean (320 km by the Pan American Highway).

18.2 Tailings Management Area

Tailings are currently stored at a permitted facility located approximately 2 km by road to the southeast of the Project. The TSF consists of a fill area where tailings are decanted in tailings ponds that are created by a gabion and earth embankment. The decanted tailings are then relocated to a secondary storage located nearby and covered for final storage. Figure 18-2 shows the 3D layout and the construction methodology.



Source: GCM, 2017

Figure 18-2: Marmato Tailings Storage 3D and Construction Methodology

The current facility is being filled with a secondary facility available nearby for future expansion. Figure 18-3 shows a google earth view of the current TSF.

Source: GCM, 2017

Figure 18-3: Marmato Existing Aerial View of the Tailings Storage Facility

The decanting process can be seen in Figure 18-4, with the dry tailings material being loaded into small dump trucks for final deposition in the lower sections of the facility. Figure 18-5 shows the final cover of the TSF.

Source: GCM, 2017

Figure 18-4: Marmato Existing Tailings Removal of Dried Tailings

Source: GCM, 2017

Figure 18-5: Marmato Installation of Final TSF Cover

19 Market Studies and Contracts

Doré is produced and sold to 3rd party companies within Colombia. Doré is produced at the site and shipped via helicopter. Market studies are not required at this level of reporting.

20 Environmental Studies, Permitting and Social or Community Impact

Although additional studies are recommended as there has been a change in the management strategies from a potential open pit to underground, there are no other known environmental issues that could materially impact GCM's ability to extract the mineral resources or mineralized material at the site. Section 20 has been excerpted from the 2012 MRE.

SRK recommends that a QP reviews environmental and social matters during the proposed PEA. To date preliminary mitigation strategies have been developed to reduce environmental impacts to meet regulatory requirements and the specifications of the environmental permit.

20.1 Introduction

The mining concessions of the Marmato Project are located on the eastern side of the Western Cordillera of Colombia on the west side of the Cauca River. The target ore body is located within a mountain (Cerro El Burro) with steep slopes and high rainfall occurrence. The area is already subject to extensive small-scale mining activities carried out by artisanal underground methods. The proposed open pit overlies the existing Mineros Nacionales underground mine, which is also owned by GCM.

20.1.1 Environmental and Social Setting

The socio-environmental setting provided below has been derived from work previously conducted at the site by Compañía Minera de C aldas (CMdC), GCM and entities such as CORPOCALDAS, EMPOCALDAS, IDEAM, IGAC, Cenicafé, the Ministry of Environment (MAVDT), and the Municipality of Marmato.

20.1.2 Biophysical Setting

Topography

The eastern half of Colombia, comprising more than half its territory, consists of plains composed of savanna and rainforest, crossed by rivers belonging to the Amazon and Orinoco basins. The northern part, called "Los Llanos" is a s avanna region, mostly in the Orinoco basin (therefore also called Orinoquía). The southern part is covered by the Amazon rain forest, belonging mostly to the Amazon basin and generally called Amazonía. The Andean range stretches from the southwest (Ecuador border) toward the northeast (Venezuela border) and is divided in the Colombian Massif (Macizo Colombiano) in three ranges (East Range, Centre Range and West Range) that form two long valleys created by two rivers, namely the Magdalena and Cauca. At the north and west of the Andes range are coastal plains comprised of the Caribbean plains at the north and the Pacific plains at the west. The Marmato Project is located in the mountains on the west side of the Cauca River.

Climate

The Climate of Colombia is tropical and isothermal as a result of its geographical location near the Equator, presenting regional variations depending on altitude, temperature, humidity, winds and rainfall. Each region maintains an average temperature throughout the year only presenting variables determined by precipitation during the rainy season caused by the Intertropical Convergence Zone.

The climatic zones in the Project area vary with elevation and are defined as hot (>24°C) below 1,000 m in the Cauca River valley; temperate (18°C to 24°C) between 1,000 m and 2,000 m; and cool above 2,000 m (12°C to 18°C). Marmato is situated mostly within the temperate zone where the climate is warm and humid with an annual rainfall of approximately 2,000 mm. Rainfall has a bimodal distribution with the wettest months from March to May and again from September to December. The weather station installed in the camp site recorded an annual rainfall of 2,010 mm for 2007. The town of Marmato has an average temperature of 23°C and rainfall of 1,885 mm (Municipio de Marmato, 2004). The most intense rainfall recorded was 126 mm in five hours. An average annual rainfall of 2,065 mm was recorded at the nearby town of Supía (1,307 m elevation) (Cenicafé, 2006). The annual average temperature is 24°C, with a maximum of 36°C and a minimum of 16°C. The predominant wind direction is from the south to southeast (150° to 210°) and winds are light with a velocity of 2 km/h and a maximum of 20 km/hour. The highest gust of wind recorded in 2007 was 88 km/h.

The air quality information obtained for the site to date indicates that there are no air pollution problems and that the air quality is currently good.

Background Noise

It has been reported that the municipality of Marmato and El Llano have experienced noise problems within the perimeters of both towns due to the mixture of land uses including residential areas, mining exploitation (adits and mills) and/or commercial activity.

Water Resources

Colombia has four main drainage systems: the Pacific drainage, the Caribbean drainage, the Orinoco Basin and the Amazon Basin. The Orinoco and Amazon Rivers mark international boundaries with Colombia, Venezuela and Peru, respectively. The Cauca River is the main river in the region in which the proposed Project will occur.

The water resources, particularly surface water, within close proximity of the Project appears to be highly degraded from water discharge associated with the gold mining processing mills, domestic (sewage discharges) and farm sources (fertilizers, sediments etc.) resulting in the total deterioration of the El Pantano and Cascabel creeks. The main pollutant is the high concentration of suspended solids, although cyanide and selected metals also are high due to ore processing.

Soils

The soil resources in the Project area are mainly affected by the expansion of the farming boundaries which decreases the fertility of the soil, together with the steep slopes and erosion which decrease the viability of the soils. These factors combined with the unmanaged mining activities have generated general instability of the surrounding slopes in certain areas within the municipality, creating unsafe conditions for the inhabitants and those who transit the area.

Ecology

The project area does not appear to support any significant areas of natural vegetation due to clearing for farming purposes. As a result species of flora and fauna of national or international significance are unlikely to be present. Studies conducted to date did not find any ecosystems of ecological importance and established that the existing habitats do not support endangered species. The most prevalent fauna species are birds. However, no species of conservation priority have been identified in the Project area.

20.1.3 Socio-economic setting

Demography

The Project is situated mostly in the Municipality of Marmato in the Department of Caldas. The Municipality of Marmato covers an area of 40.1 km^2 and has a population of 8,175. The Department of Caldas covers an ar ea of 7,291 km² with a population of 1,030,062. Recent influx into the Municipality of Marmato has increased the population to an estimated 10,000. There are several small villages/towns in the larger area (including San Juan, Boquerón, Echandía, Cabras) which may also be impacted upon by mining infrastructure, depending on the exact mine design and infrastructure location.

Geological studies have identified that the Marmato town site is unsafe due to risk of landslides as a result of long term artisanal mining. The government is currently reconstructing the town in an alternative location called El Llano and has started resettling people to the new site. This process is only partially completed. However, the mining project will impact both on the Marmato and El Llano towns as well as on t he villages of San Juan, Boquerón, Echandía, Cabras, and ot her districts (veredas) in the municipality, which may require complete resettlement. The combined waste rock/tailings dumps will cause noise, visual and air pollution for the veredas as well as El Llano. There will be a need to expand El Llano or possibly develop a new town in a different location. This would require significant collaboration between the populace, Medoro, Caldas, Marmato and the Colombian government.

Health

The life expectancy at birth in Colombia is 72.5 years with an infant mortality rate of 21.72 per 1,000 people. In the project area infant mortality is much higher with 368 deaths during birth. Malaria cases in Colombia reach 250 per 100,000 and the adult prevalence rate of HIV-Aids is 0.7%. Amongst the main health risks and c auses of death in the country are heart diseases, violence, lung diseases, diabetes, traffic accidents and cancers.

In the Department of Caldas the birth rate is 6.36 per 1,000 and the mortality rate 4.40 indicating a steady population increase. The main health problems in the Caldas department are acute respiratory infections (related to underground mining), urinary tract infections, diarrhea and parasites. Pollution (cyanide, wastewater and fertilizer and pesticide residues) of the local rivers and underground water as a result of artisanal mining activities, agricultural practices, and lack of waste water treatment, all constitute an important health risk.

The main potential impacts of the project will be in terms of water, noise and air pollution in the towns of Marmato and El Llano.

Economic Activity and Livelihood Strategies

Historically, Marmato has sustained its economy through small scale gold mining, which has provided the main source of income and employment for its inhabitants. Marmato is the largest producer of gold in the department of Caldas and the oldest in the country. Overall, mining in Marmato is carried out in a traditional artisanal fashion. There are both small mining enterprises and legal and illegal artisanal miners.

Marmato counts approximately 1,400 farms, which includes a total of 2,498 ha, 90% of which correspond to small farms of 1 to 5 ha. The main crop is coffee, followed by bananas and to a much *smaller extent maize, sugarcane, tomatoes, and beans (0.17%). Coffee, bananas and sugar cane are the primary cash crops. Marmato has 1,500 ha of pasture, of which 81% are natural pastures. Small numbers of cattle and pigs are kept. Marmato is generally not self-sufficient in basic food products and relies on imports for food security. Trade in Marmato is poorly developed. Goods are mainly imported from Medellin to the north and Pereira to the south through informal trade. The main negative economic impact of the Project will be on the artisanal mining activity as well as on agriculture. There will be a positive impact on trade.*

Infrastructure Facilities

The Project is a three-hour drive south from Medellin, via the Medellin to Cali highway which is part of the Pan American Highway. The route from Medellin is via Itagüí (7 km), Caldas (12 km), Alto de Minas (13 km), Santa Barbara (27 km), La Pintada (26 km), La Guaracha del Rayo (32 km), and turning onto a secondary, partially asphalted road to Marmato (8 km).

There is an abandoned railway cutting along the east side of the Cauca River opposite Marmato. This was once part of a railway network between the Pacific and Atlantic Oceans which ran between Buenaventura and Puerto Berrio on the navigable Magdalena River. The middle section between Medellin and La Felisa (Department of Caldas, 10 km south of Marmato) was completed in 1942 and closed in 1972. Ferrocarriles del Suroeste S. A. (Southwestern Railways) applied for a concession to rebuild this 185 km line between La Felisa and Envigado near Medellin, in November 2007, at a cost of US$140 million. This line would become integrated with the national railway network. Ferrocarriles del Oeste S. A. (Western Railways) were awarded the contract to operate the 499 km Buenaventura to La Felisa railway in November 2007. The contract is in two stages. In July 2009 they started operating the 388 km railway between Buenaventura and Cartago and La Tebiada which has been rehabilitated. In the second stage the new concessionaire will take over operation of the 119 km section between Cartago and La Felisa once this has been rebuilt by Tren de Occidente (Western Train).

20.1.4 Historical Liabilities

The Marmato Project has potential environmental liabilities due to past and current mining activities including:

- *surface disturbance and degradation including deforestation;*
- *ground instability, collapse, landslides affecting mountain slopes and Marmato town;*
- *absence of waste rock dumps and tailings ponds and dumping of waste rock down mountain slopes and into El Pantano and Cascabel creek and of tailings into creeks which drain into the Cauca River;*
- *contamination of water by cyanide, acid drainage, heavy metals and solids. In addition, contamination of water by untreated sewage from the Marmato and El Llano towns and by agricultural chemicals and waste from cultivation of coffee, bananas etc.; and*
- *potential contamination from the Mineros Nacionales operation which has unprotected waste rock dumps and a rudimentary tailings facility which discharges overflow directly into Cascabel creek and subsequently the Cauca River.*

As part of its exploration work at Marmato, CMdC carried out an environmental baseline study in a limited area. The two-year study was initiated in order to determine the environmental baseline for the Marmato area Zona Alta, given the last 470 years of mining activities which have been conducted without any minimum technical or environmental controls. The unrestrained mining activities have led *to the current large scale environmental deterioration which threatens the stability of higher portions of Cerro El Burro above Marmato and the infrastructure and lives of the inhabitants of Marmato. The first report regarding the state of the environment at Marmato was completed in February 2008 (CMdC, 2008).*

20.1.5 Legal, Regulatory and Policy Framework

The following sections provide a summary of the legal framework related to mining in Colombia. Because new regulations are promulgated often due to the rapid development of the mining sector in Colombia, this report section will need to be continuously updated.

Constitution of the Republic of Colombia

The Colombian Constitution of 1991 includes important regulations that relate to mining and the environment:

- *Article 7: The state recognizes and protects the ethnic and cultural diversity of the nation of Colombia.*
- *Article 63: Property for public use, natural parks, communal land of ethnic groups, land stewardship, and archeological heritage are inalienable.*
- *Article 72: The archeological heritage and other cultural property that constitute the national identity belong to the nation and are inalienable.*
- *Article 79: All people have the right to enjoy a healthy environment. The law shall ensure the participation of the community in decisions that may affect their environment.*
- *Article 287: Territorial entities enjoy autonomy in the management of their interests within the limits of the Constitution and the law.*
- *Article 330: Exploitation of natural resources in indigenous territories shall take place without causing harm to the cultural, social, and economic integrity of the indigenous communities. In adopting decisions regarding such exploration, the government shall ensure the participation of representatives of the respective communities.*

Law 99, General Environmental Principles

Law 99 enacted in 1993 created the Ministry of Environment, to manage and conserve the environment and natural resources. This law also created the National Environment System (SINA) and set forth provisions regarding environmental regulation:

- ***Section 1**: Environmental protection and recovery of the country constitutes a joint and coordinated task between the State, the community, Non-Governmental Organizations (NGOs) and the private sector.*
- ***Section 3**: Sustainable development is that which results in economic growth and the improvement of quality of life and well-being, without depleting the renewable natural resource base or impairing the environment or the right of future generations to use it to satisfy their own needs.*
- ***Section 49:** The establishment of industries and the development of any activity that, as per the law and regulations, may seriously deteriorate renewable natural resources or the environment or introduce significant or noticeable changes to the landscape shall require an environmental permit*

- ***Section 57:*** *An EIA shall contain information on the location of the project and the abiotic, biotic and socioeconomic elements of the environment that may suffer damage by the respective work or activity, for which an execution permit is requested, and the assessment of impacts that may occur. Furthermore, it shall also include the design of the impact prevention, mitigation, correction and compensation plans and the environmental management plan of the work or activity.*
- ***Section 69:*** *Any public or private individual or legal entity, without the need to show any legal interest whatsoever, may intervene in the administrative proceedings commenced for the issuance, amendment or cancellation of permits or licenses of activities that affect or may affect the environment or for the application or revocation of penalties resulting from the violation of environmental rules and regulations.*
- ***Section 76:*** *The exploitation of natural resources shall take place without causing harm to the cultural, social and economic integrity of the indigenous and black communities.*

Mining Code in Law 685

Law 685 enacted in 2001 established the Mining Code including environmental aspects.

- ***Section 194:*** *The duty to sustainably manage renewable natural resources and the integrity and use of the environment is compatible and concurrent with the need to rationally promote and develop the use of mining resources as basic components of the national economy and social well-being.*
- ***Section 195:*** *For all mining works and activities developed by concession contract or by a private subsoil land title, environmental management and its costs shall be included in its study, design, preparation and execution, as essential elements to be approved and authorized.*
- ***Section 198:*** *The means and tools to establish and oversee the environmental aspect of mining activities are established by the environmental regulations in force for each step or phase include: Environmental Management Plans, Environmental Impact Assessments, Environmental Permits, licenses or concessions for the use of renewable natural resources, Environmental Guidelines and authorizations in cases in which such instruments are required.*
- ***Section 203:*** *When the renewable natural resources of the explored zone need to be occasionally or temporarily used when carrying out exploration works, such use shall be authorized by the corresponding environmental authority.*
- ***Section 204:*** *EIA. The interested party shall present the EIA of its mining project.*
- ***Section 205:*** *Based on the EIA, the competent authority shall grant or deny the Environmental Permit for the construction, assembly, exploitation, subject matter of the contract, and production and treatment, as well as for the additional exploration activities during the exploitation stage.*
- ***Section 211****: The environmental authority may revoke the Environmental Permit for all or some of the mining operation phases due to the serious or reiterated breach of the environmental obligations of the exploitation company, in accordance with the procedures established in the environmental regulations in force.*

Solid Waste

Resolution 2309 enacted in 1986 defines special waste, identification criteria, treatment and registration. It also establishes compliance, oversight and safety plans.

Resolution 0541 enacted in 1994 regulates the loading, unloading, transport, storage and final disposal of debris, materials, elements, concrete and loose aggregates, construction, demolition and topsoil, soil and subsoil of the excavation.

Law 430 enacted in 1998 issues prohibitive environmental regulations regarding hazardous waste, as well as additional provisions.

Water

Law 373 enacted in 1997 pertains to efficient use of water and water conservation.

- ***Section 1****: states that all regional and municipal environmental plans shall necessarily incorporate a program for the efficient use of water and water conservation including actions pertaining to rendering supply, sewerage, irrigation and drainage services and hydroelectric production, as well as all other water users.*

Decree 1681 established regulations regarding hydrobiological resources.

- ***Section 1:*** *Sets forth objectives to ensure the conservation, promotion and use of hydrobiological resources and the aquatic environment, their continued availability and rational management, as per ecological, economic and social techniques.*

Law 9 enacted in 1979 as the National Health Code.

- *Section 1: The general standards that shall serve as a base for the provisions and regulations needed in order to preserve, remediate and improve the sanitary conditions related to human health. The section includes procedures and measures that shall be adopted for the regulation, legalization and control of discharges of waste and materials that affect or could affect the health conditions of the environment.*
- *Sections 51 to 54: States the requirement to eliminate and prevent pollution in water destined for human consumption.*
- *Sections 69 to 79: states that water intended for human consumption shall be safe for consumption regardless of origin.*

Decree 2105, enacted in 1983 partially regulates Law 9 enacted in 1979 regarding treatment and supply of water for human consumption. Decree 1594, enacted in 1984, regulates the uses of water and liquid waste and includes the regulations on liquid waste dumping.

A new decree drafted in October 2010 (yet to be promulgated) will set discharge water quality standards for point discharges to water bodies in Colombia from precious metal mining, milling, and other processing. This new decree, more than any others, will drive the design of the Marmato Project facilities and the monitoring plan for the project.

Air Quality

Decree 02 enacted in 1982 regulates Title I of Law 09-79 and Decree 2811-74 Health Provisions regarding Air Emissions.

- *Section 73: Obligation of the State to maintain air quality in order to avoid causing disturbances or damage that may interfere with the normal development of species and may affect natural resources.*

Decree 948 enacted in 1995: Regulations for the Protection and Control of Air Quality

- *Section 73: The regulations to ensure air quality are as follows: Air quality or emission level standard; air pollutant emission or discharge standard; noise emission standard; ambient noise standard; offensive odor emission and evaluation standard. Each regulation shall establish the standards or permissible emission limits for each pollutant, with the exception of the offensive odor evaluation standard which shall establish the thresholds of tolerance as a result of statistical determination.*
- *Section 18: Pollution Source Classification. Air pollution sources may include: a) stationary sources, and b) mobile sources.*
- *Section 72: The air emissions permit is granted by the competent environmental authority through an administrative order so that an individual or public or private legal entity may generate air emissions within the permissible limits established in the respective environmental regulations. The permit shall only be granted to the owner of the work, company, activity, industry or establishment that produces the emissions.*

Resolution 601 enacted in 2006 establishes the Air Quality or Emission Level Standard for the entire national territory as a reference.

- *Section 4: Maximum permissible levels are referentially established for criteria pollutants which shall be calculated with the geometric mean for PST and the arithmetic mean for all other pollutants.*
- *Section 10: The concentration and exposure time under which the exceptional states of Prevention, Warning and Emergency shall be declared by competent environmental authorities are established herein.*

Resolution 909 enacted in 2008 establishes the regulations and standards for the allowable emission of pollutants into the atmosphere from stationary sources and issued other provisions.

- *Section 2: This resolution establishes the regulations and standards for the allowable emission of pollutants into the air from stationary sources, adopts emission measurement procedures for stationary sources and regulates clean technology reconversion agreements.*
- *Section 3: The provisions hereof are established for all industrial activities, external combustion equipment, incineration facilities and cremation furnaces.*

Resolution 910 enacted in 2008

Section 1: This resolution establishes the maximum permissible levels of pollutant emissions that mobile land sources shall comply with, and regulates the requirements and certifications to which vehicles and other mobile sources are subject to, regardless of whether they are imported or manufactured nationally; other provisions are also adopted.

Plants and Wildlife

Executive Order 1608 enacted in 1978 regulates the preservation, conservation, restoration, and promotion of wildlife.

- *Section 1: This decree is based on the National Code of Renewable Natural Resources and Environmental Protection insofar as wildlife is concerned and thus regulates the activities that are related to this resource and its products.*

Law 2 enacted in 1959: Forest Reserves and Soil and Water Protection

- *Section 1: In order to develop forestry and protect the soil, water and wildlife, forest reserve zones, comprised within the boundaries set forth in this law for each national forest, are established as “Protected Forest Areas” and “Forests of General Interest”, as per the classification.*

Decree 622 Enacted in 1977: National Natural Parks

- *Section 1: This decree contains the general regulations applicable to the group of areas with exceptional value for national heritage that, due to their natural characteristics and in the interest of the inhabitants of the nation, are reserved and declared in one of the types of defined areas.*

Decree 1667 enacted in 2002: Inclusion of Wetlands in the List of Wetlands of International Importance

Law 388 Enacted in 1997: Land Use Planning regulates the use of soil in Colombian territory.

Offenses and Penalties

Law 1333 enacted in 2009: Environmental Penalty Procedures

- *Section 211: The State has the legal authority to impose penalties in environmental issues, which it exercises without causing prejudice to the legal sphere of competence of other authorities through the Ministry of the Environment, Housing and Territorial Development, the Regional Autonomous Corporations, the Sustainable Development Corporations and the Environmental Units of the large urban centers.*
- *Article 5: Offenses are considered, in environmental issues, as any act or omission that constitutes a violation of the regulations contained in environmental provisions and acts issued by environmental authorities. The perpetration of damage to the environment shall also constitute an environmental offense under the same conditions that the Civil Code and the supplementary legislation establish to define general tort liability, namely: the damage and the event resulting from the negligence or intentional misconduct and the causal relationship between the two. When these elements are determined, an environmental administrative penalty shall be imposed, notwithstanding the tort liability that the event may cause for third parties.*
- *Article 40: The penalties mentioned in this section shall be imposed as main or accessory penalties upon the party responsible for the environmental violation. The following penalties shall be imposed upon the offender of the environmental regulations one or more of the following penalties, in accordance with the seriousness of the violation: 1) Daily fines up to five-thousand legal monthly minimum wages, 2) Temporary or permanent closure of the establishment, construction or service, 3) Revocation or expiry of the environmental permit, authorization, concession, license or registration, 4) Demolition of the work at the cost of the offender, 5) Permanent confiscation of specimens, exotic wild species, products and byproducts, elements, means or tools used to perpetrate the offense, 6) Restitution of specimens of wild fauna and flora species, and 7) Community work as per the conditions established by the environmental authority.*

Environmental Permitting

Decree 1220 enacted in 2005 regulates Title VIII of Law 99 enacted in 1993 with respect to environmental permits.

- *Section 3: The environmental permit shall implicitly include all the permits, authorizations and/or concessions for the use, development and/or production of the renewable natural resources required for the development and operation of the project, work or activity. The environmental permit shall be obtained before commencing the project, work or activity. No project, work or activity shall require more than one environmental permit.*
- *Section 4: The authorization granted by the competent environmental authority for works and activities related to the mining exploitation and hydrocarbon projects.*
- *Section 5: Obtaining the environmental permit constitutes a precondition to exercise the rights arising from the permits, authorizations, concessions and licenses issued by authorities other than environmental authorities.*
- *Section 6: The environmental permit shall be granted for the service life of the project, work or activity and shall cover the construction, assembly, operating, maintenance, decommissioning, abandonment and/or termination stages.*
- *Section 7: Only the projects, works and activities listed in Sections 8 and 9 hereof shall require environmental permits.*
- *Section 8: Sphere of Competence of the Ministry of the Environment, Housing and Territorial Development. The Ministry shall exclusively grant or deny the environmental permit for the following projects, works or activities: The mining exploitation of:*
    - *Coal: When the projected exploitation is greater than or equal to 800,000 tons/year*
    - *Construction materials: When the projected ore exploitation is greater than or equal to 600,000 tons/ year*
    - *Metals and gemstones: When the projected exploitation of removed material is greater than or equal to 2,000,000 tons/year*
    - *Other ores: When the projected ore exploitation is greater than or equal to 1,000,000 tons/year*
- *Section 9: Sphere of Competence of Regional Autonomous Corporations. Regional Autonomous Corporations, Sustainable Development Corporations, Large Urban Centers and environmental authorities created by means of Law 768 enacted in 2002 shall grant or deny the environmental permit for the following projects, works or activities that may be executed in their jurisdiction.*

20.1.6 International Law

International Treaties and Conventions

The principal conventions of which the country is a signatory include those related to greenhouse gas emissions such as climate change and ozone layer protection, the transboundary movement of hazardous wastes, the protection of biodiversity, plants and animals and sites of national cultural significance.

Table 20-1 below summarizes the international treaties than have been endorsed by the Colombian Government.

Table 20-1: International Environmental Treaties Endorsed by Colombia

Topic	*Convention*		*In force in Colombia*
	Title	*Date*	
Climate change and the ozone layer	*United Nations Framework Convention on Climate Change*	*1995*	*1995*
	Kyoto Protocol to the United Nations Framework Convention on Climate Change	*2001*	*2005*
	Montreal Protocol on Substances that Deplete the Ozone Layer	*1994*	
Hazardous chemicals, waste and pollution	*Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*	*2001*	*2001*
	Stockholm Convention on Persistent Organic Pollutants	*2009*	*2008*
Desertification	*International Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa*	*1997*	*1997*
Biodiversity and the protection of plants and animals	*Convention on Biological Diversity*	*1995*	
	Cartagena Protocol on Biosafety to the Convention on Biological Diversity	*2003*	*2003*
	Convention on International Trade in Endangered Species of Wild Fauna and Flora	*1981*	*1981*
Cultural heritage	*Convention concerning the Protection of the World Cultural and Natural Heritage*	*1992*	

Source: GCM, 2017

20.1.7 Project Financing Requirements

Lender-specific requirements for financing international mining projects represent internationally acceptable standards and industry practices in the area of environmental and social sustainability, with the aim of ensuring projects employ socially responsible and sound environmental management practices.

Project financiers play a major role in the development and enforcement of international sustainable development principles and standards through the conditioning of their loans. This conditionality comes in two forms: (1) the use of SEIAs to screen projects in advance of approval; and (2) imposition of operating conditions and requirements on projects to promote sustainable development.

The first requirement of lenders is an SEIA report to enable them to evaluate if environmental and social risks have been appropriately identified and addressed. A number of lenders have agreed on an approach to this assessment process, which is discussed further below. Should a loan be agreed, additional development, construction or operational requirements may be imposed on the project by means of conditions attached to the loan.

It is likely that any lender will appoint an independent reviewer to evaluate the SEIA process undertaken and the results obtained. Ongoing independent review, throughout the life of the loan agreement, may also be required. Depending on the lender involved, the SEIA documentation (or a summary thereof) may have to be formally disclosed on the relevant lender' websites.

The World Bank Group ("WBG"), and its private sector component the International Finance Corporation ("IFC"), have been at the forefront of the development of lender-specific requirements. These lender requirements are captured in a number of documents, which include:

- *Equator Principles;*

- *IFC Performance Standards; and*
- *IFC/WBG EHS guidelines.*

Equator Principles

The Equator Principles were developed in June 2003, by a group of leading private banks and the IFC. As of September 2010, 68 financial institutions have adopted the Equator Principles representing about 85% of the project finance transactions globally (http://www.equator-principles.com/).

The principles are regarded as the financial industry's benchmark for the determination, assessment and management of social and environmental risk with the intention of ensuring projects are developed, operated and closed in a socially responsible manner and reflecting sound environmental management practices. The Equator Principles generally relate to projects with a value of more than USD10 million. Categorization of projects is required on the basis of environmental criteria. Category definitions are as follows:

- *Category A: Projects with the potential for significant adverse impacts which are diverse, irreversible or unprecedented.*
- *Category B: Projects with limited potential adverse impacts which are few in number, generally site-specific, largely reversible and readily addressed through mitigation measures.*
- *Category C: Projects which have minimal or no potential impacts.*

For Category A and B projects, the project proponent must undertake a social and environmental assessment that considers, in an integrated manner, the potential social (including labor, health and safety) and environmental risks and impacts of the project.

IFC Performance Standards

The IFC Performance Standards on Social and Environmental Sustainability (IFC Performance Standards), which were published in April 2006, are recognized as being the most comprehensive standards available to international finance institutions working within the private sector. The IFC initiated a review and update of the Performance Standards in September 2009. It is anticipated that this process will take approximately 18 months, with an updated framework which came into effect in mid 2011.

The IFC Performance Standards establish the importance of an integrated assessment to identify the social and environmental impacts, risks and opportunities of projects, along with effective community engagement. They establish requirements to avoid, reduce, mitigate or compensate for negative impacts on people and the environment, and to improve conditions where appropriate. The IFC Performance Standards are matched with corresponding Guidance Notes, which provide guidance on the requirements contained in the standards and on good sustainability practices to help clients improve project performance.

The individual standards are titled:

PS 1 Social and Environmental Assessment and Management Systems: *Provides guidance on the environmental and social management system process, including impact assessment, community engagement, management planning and monitoring.*

PS 2 Labor and Working Conditions: *Particular emphasis is placed on fair treatment, health and safety of workers.*

PS 3 Pollution, Prevention and Abatement: *Provides guidance on preventing or minimizing pollution risks.*

PS4 Community Health, Safety and Security: *Covers project-related activities such as infrastructure and equipment safety, environmental and natural resource issues and emergency preparedness and response in case of the broader community.*

PS 5 Land Acquisition and Involuntary Resettlement: *Covers compensation and benefits for displaced persons, community consultation, grievance mechanism, resettlement planning and implementation to ensure appropriate displacement of people where required in collaboration with governments.*

PS 6 Biodiversity Conservation and Sustainable Natural Resource Management: *Assesses the significance of project impacts on all levels of biodiversity for critical, natural and modified habitats to protect and conserve biodiversity, and minimize conversion or degradation unless there are no feasible alternatives. Any conversion or degradation should be mitigated with the aim of managing renewable natural resources in a sustainable manner.*

PS 7 Indigenous Peoples: *Provides guidance on the avoidance of adverse impacts on indigenous communities and promotes effective communication.*

PS 8 Cultural Heritage: *Provides guidance on the protection of cultural heritage and items of archaeology significance.*

World Bank Group & IFC Environmental, Health and Safety Guidelines

Minimum standards for certain activities are laid out in the IFC/WBG's Environmental, Health and Safety ("EHS") Guidelines. The key guidelines expected to be applicable to the Marmato Project are:

- *General Environmental, Health and Safety Guidelines;*
- *Mining;*
- *Water and Sanitation;*
- *Waste Management Facilities;*
- *Railways; and*
- *Health Care Facilities.*

Voluntary Standards

The following voluntary international standards represent industry-specific examples of Good International Industry Practice (GIIP), which are likely to be relevant to the Project:

- *International Council on Mining and Project Development Framework (http://www.icmm.com/);*
- *International Cyanide Management Code (ICMI) for the Manufacture, Transport and Use of Cyanide in the Production of Gold (http://www.cyanidecode.org/);*
- *Voluntary Principles Rights (http://www.voluntaryprinciples.org/); and*
- *"Good Practice: Sustainable Metals Sector"*

20.1.8 Anticipated Environmental and Social Impacts

This section provides an indication of the anticipated environmental and social impacts associated with the Marmato Project, highlighting those which are considered to be of a significant nature. It should be recognized that limited background environmental or social information exists for the potentially *affected project area and much of the available information is in Spanish. are at a scoping level and therefore could change in terms of the type, nature and severity and additional impacts could emerge during the characterization and assessment of environmental and social features of the site and the mining and processing approaches for the project. Table 20-2 is intended to provide an indication of the likely impacts (positive and negative) that could be expected from a mining development of this nature.*

Table 20-2: List of Anticipated Impacts

Aspect	***Potential Impact***
Geology	*Sterilization of a future exploitable ore body*
Topography	*Potential intrusive effect on the visual environment due to establishment of mine related infrastructures, changes to topography, removal of vegetation and changes in land use (such as grazing to mining)*
Soil	*Degradation and/or loss of soil resulting in reduced land capability*
	Restricted land use capability of project area as a result of mining
Air Quality	*Increase in nuisance and health risks to workers and local residents due to increase in ambient dust concentrations (PM10 & TSP)*
	Health risk to workers and local villages due to increases in ambient gas concentrations (SO_2, NO_x and Volatile Organic Compounds)
	Dust generation resulting in reduced visibility leading to increased potential for hazards/accidents
	Smothering of natural vegetation from dust settlement resulting in vegetation impacts
	The influence of mine generated greenhouse gas emissions on atmospheric processes
	Mobilization of soils due to erosion process leading to sedimentation of local drainage pathways potentially affecting site drainage
Surface Water	*Contamination of local drainage pathways resulting in localized water quality impacts due to mine related pollution (runoff from dumps and stockpiles containing suspended particulate matter, and pollution caused by cyanide, hydrocarbons, reagents/solvents)*
	Tailings dam failure due to poor design/installation and or operational management leading to contamination of surface water resources and human exposure (community health & safety)
	Change in the natural hydrological regime of affected catchment areas resulting in potential changes to the distribution and availability of clean surface water run-off for natural systems.
Groundwater	*Contamination of groundwater resources as a result of acid or metal rich seepage from mine residues, waste disposal sites, effluent storage facilities, underground fuel tanks and on-site sewage systems effecting its suitability for use by others*
	Drawdown of the groundwater table affecting the hydrogeological regime and availability of water for natural systems and agricultural activities
	Potential pit lake formation following closure of mine. Possible impact of pit lake water on the downstream groundwater quality
Noise	*Disturbance of sensitive receptors along the transport routes*
	Increase in background ambient noise levels due to the mine causing disturbance to site workers and nearby residents
	Potential damage to on-site and off-site structures due to vibrations from blasting
	Loss of habitat due to mining disturbances particularly with respect to aquatic habitats
Ecology	*Loss of biodiversity within the project area due to mining disturbances*
	Displacement of natural fauna due to disturbance from mining activities, vehicles and influx of people to the area
	Loss of sense of place due to visual impacts from mining operations (dust, noise, land form changes, restricted access, etc.)
Socio-economic	*Direct and indirect employment and business opportunities and training, leading to improved local and economy.*
	Loss of assets, resources and livelihoods of the local population. The main loss will be access to artisanal mining and dwellings, but also loss of agricultural land, grazing land, other natural resources, loss of communal social infrastructure and access routes between villages and loss of access to clean water (main impact)
	Influx of people attracted by jobs and mine related activities increasing pressure on local resources and services

Aspect	Potential Impact
	Sudden decrease in demand for workers and services, after completion of construction phase, leading to increase in unemployment and slowing down of local economy
	Impact of mine operations and demographic changes (influx) leading to potential deterioration in community health and increase in social pathologies
	Mine closure leading to retrenchment, slowing down of economy and social pathologies
	Social investment leading to improved infrastructure and quality of life

Source: GCM, 2017

From a biophysical perspective the main impacts are associated with the polluting potential of the combined waste rock/tailings facilities. The extreme nature of these facilities represents significant potential to pollute groundwater and surface water if not properly designed, constructed, operated and closed. The combined waste rock/tailings facilities will be c omprised of well-mixed materials compacted to a dry bulk density of 1.90 t/m^3 with terminal (end) embankment slopes of between 2H:1V and 2.5H:1V.

If the underground mining option is utilized, a tailings storage facility with an embankment height of approximately 350 m, storing up to 30 million cubic meters (Mm^3) of tailing would be constructed. The World Commission on Dams classifies dams between 5 and 15m high that have a reservoir volume of more than 3 Mm^3 as large dams. Major lenders such as the IFC are signatories to World Commission on Dams. The proposed tailings dam would therefore qualify as a large dam and would require a detailed study of the environmental, ecological and social impacts.

In terms of socio-economic impacts, the need for full resettlement of the town of Marmato as well as some nearby villages (veredas) and the adjacent agricultural land is a major impact. The need for resettlement is caused by the proximity to the open pit and large rock waste dumps.

The Project will require the resettlement process from Marmato to El Llano currently being executed by the Colombian government to be expedited. GCGC has ruled out the possibility of a new location for the creation of a town to accommodate the residents of both Marmato and El Llano. Therefore, the expanded El Llano will need to provide sufficient social infrastructure for the current population and be able to accommodate a potential influx of labor. The town will also need to provide access to replacement agricultural and pasture land for those who will have lost access to land taken by the Project. In order to execute a r esettlement process compliant with IFC standards a R esettlement Action Plan will need to be developed. This will include a census of all affected people, a fair compensation strategy developed with all stakeholders, identification of a host area, urban planning of the host area and a monitoring system to monitor the impacts of the resettlement plan.

A second major impact will be the loss of access to artisanal mining. This will require a census of current artisanal miners, indication of numbers of legal and illegal miners and the development of appropriate compensations strategies for different categories.

A third potential major impact will be the influx of labor attracted by the mining project, potentially leading to conflicts with local people, social and community health problems (communicable diseases, water and pollution related diseases) and stress on local infrastructure. An influx management strategy will need to be developed as well as a community health plan and a community development plan.

It is envisaged that the social impacts will be significant and complex and there will be a need for an intensive stakeholder engagement strategy. This will involve the identification of all the national, regional and local stakeholders, the development of appropriate stakeholder engagement strategies *for the different stakeholder groups and regular stakeholder meetings and engagements. Social management personnel will need to be put in place at an early stage.*

The project will bring a significant change to the local and regional social context, with increase in employment opportunities, development of local and regional business and general economic development. The closure of the mine will have an important negative impact unless a closure plan is developed from an early stage.

20.1.9 Waste Rock Characterization Program

A waste rock and tailings characterization program is currently being undertaken by Knight Piésold Consulting. The program's goal is to estimate the fraction of waste that is potentially acid producing and also quantify potential leachate chemistry and element release rates. This test work program, as outlined in the original proposal, broadly consists of two phases of test work. A breakdown of the test work programs is provided in Table 20-3.

Table 20-3: Summary of Proposed ARD Characterization Test Work

Summary of Test Work (n = number of samples)	Acid Base Accounting (ABA)	Net Acid Generation (NAG)	Synthetic Precipitation Leaching Procedure (SPLP)	Kinetic Test Work (Humidity Cells)	Kinetic Test Work (Field Cells)
Phase 1 Program					
Waste Rock	30	30			
Construction Material		5	3		
Tailings		2			
Phase 2 Program					
Waste Rock	75	75		10 -12	10 -12
Construction Material			6		
Tailings	1	1			

Source: GCM, 2017

***Phase 1 Program**- This program provides information to identify impacts that will likely need mitigation measures that can be incorporated into the PFS engineering design. This involves a series of Acid Base Accounting (ABA), Net Acid Generation (NAG) and Synthetic Precipitation Leaching Procedure (SPLP) tests (contact tests) being conducted on waste rock samples, construction material (low sulfide waste rock) samples and tailings samples.*

***Phase 2 Program**– This provides information for the feasibility study engineering design and environmental permitting: This phase will use the same general program outlined in Phase 1 for testing more rock samples for improved accuracy of the material characterization. Sample selection will be guided from the results from the phase 1 test work. Phase 2 also includes a series of kinetic test works on a subset of 12 samples. This kinetic test work will provide rates of reaction for the tested materials. These samples for kinetic test work will be split into smaller laboratory scale humidity cells and to larger field humidity cells, located at the Marmato site. These cells will be run for minimum 26 weeks or until acid production. Using the data from both programs a prediction of water quality from each waste type identified will be developed.*

SRK Comments on ARD Work proposal

***Sample collection** – It is proposed that the sample size collected be ≤ 2 kg within the pit shell area. Depending on the degree of variability this quantity of material may not give sufficient representation of the spatial areas or the material type the sample is meant to be characterizing. The mining methods will most likely involve mining out 10 m high benches in a series of 2 to 3m working benches. The sampling scale should be on this order of magnitude per discrete sample. Mention is given to drill cuttings as small as 0.1 kg being used as "bulk" samples. Although it is true 0.1 kg is sufficient sample to conduct ABA and NAG test work, this amount of material should be used under the knowledge that it is part of a much larger sample representative of that material type and spatial area. Also, the use of previously mined waste for use in the humidity cell test work should be approached with caution if the end purpose is to determine "time to acid production". As any exposed material has likely undergone some weathering this may cause cells to turn acidic prematurely. Insufficient information is available to SRK at present to judge whether the number of samples taken will offer a representative profile of the lithologies across the prospect. Sample lists along with a block model breakdown of waste rock lithologies are needed to make this assessment.*

***Test work** – The ARD characterization protocols described in this study, ABA and NAG specifically, are established protocols used in the mining industry to characterize the acid producing potential of geological materials. However, the protocol described for the ABA test work could be updated to more current methodologies. The SPLP contact test, used to determine metal leaching behavior, is not a contact test specifically designed for mine waste. The liquid to solid ratio, 20:1, used in the SPLP can provide too high a dilution factor for many trace/heavy metals when analyzed using standard analytical detection methods. In addition, a limited number of samples are to undergo SPLP test work to characterize the metal release from low-sulfide construction material. SRK believes the contact test work should be expanded to incorporate a greater portion of the total samples collected for this ARDML study. As observed in the SRK geotechnical study, the waste rock has intermittent horizons where significant weathering has occurred. Weathering like this can lead to in situ sulfide oxidation with the formation of soluble reaction products (e.g. jarosite, arseniosiderite) which as well as generating acidity, can often release detrimental constituents when dissolved. For this reason, it is recommended that an expanded program of contact tests (SPLP) is pursued to quantify the soluble metal fractions present in the waste rock.*

A fundamental use for the geochemical data collected as part of this study will be the generation of predictive hydro-geochemical models. No technical details were provided as to how this will be approached.

An environmental mineralogical study of a s election of representative samples could aid in characterizing the sulfide occurrence. Acid potential accounted for in ABA and NAG test work are often encapsulated in non-reactive silicates.

Knight Piésold gives mention to the fact the pit wall may be acid generating and as such more samples should be evaluated in order to confirm this. Although outside the current scope of work, geochemical modelling would naturally follow this characterization work.

Potential for ARD based on Review of Geology

Gold mineralization occurs in veinlets in a series of dacite porphyries hosted in a schist country rock. Mineralization occurs across the porphyry and in the surrounding schist. Although the gold *mineralization is described as occurring in sulfide rich veinlets, sulfide is also present disseminated in the surrounding porphyry rocks.*

Sulfide mineralization consists of the minerals pyrite, pyrrhotite, arsenopyrite, sphalerite, chalcopyrite, gold, galena, marcasite and polybasite in order of abundance (Bedoya, 1998). Of these minerals only galena does not generate acid when oxidized. Three main stages occur; these are a coarse euhedral pyrite, then sphalerite ± chalcopyrite and gold followed by some tectonism and late stage fine pyrite with calcite and chlorite. The vein mineralization and dacites contain trace amounts of carbonate (calcite). There is little other buffering capacity other than silicates.

Gold is associated with sulfides but there is not a direct correlation of gold grade with the amount of sulfides. Some previous petrographic studies indicate that gold was deposited in a l ate stage of mineralization which may explain the poor correlation with sulfide percentage. . This implies that not all sulfide will report to the tailings as processing waste and significant proportions of mined sulfide will ultimately end in waste.

20.1.10 Plan of Study for SEIA Program

This section provides a brief overview of the overall and technical approach which could be applied to the Marmato Project SEIA process including baseline characterization, impact assessment and management planning, as well as scheduling of activities for the project phases. The intention of the Plan of Study (PoS) is to outline an approach to international SEIA process for the purposes of project financing in accordance with the requirements of the IFC guidelines to achieve Equator Principle compliance.

Overall Approach

The envisaged program of the SEIA with reference to the overall project development is shown schematically in Figure 19-1 [not shown] *and comprises a number of phases (a preliminary project schedule is provided in Appendix 3). The program indicates that even within the SEIA process the phases will often occur in parallel and iteratively to ensure that the overall project program and objectives are met within the desired timeframe and budget. The proposed SEIA phases for the Marmato Project are based on the Terms of Reference provided for the Marmato Project by the Colombian Environmental Ministry in April 2010 and are as follows:*

1.0: Introduction and Environmental and Social Scoping Study;

2.0: Description of the Project;

3.0: Characterization of the Project Area (Baseline Social and Environmental Studies);

4.0: Demand, Use, and Exploitation of Natural Resources;

5.0: Social and Environmental Impacts Evaluation;

6.0: Zonification of Social and Environmental Management of the Project;

7.0: Social and Environmental Management Plan;

8.0: Social and Environmental Monitoring;

9.0: Contingency Plan; and;

10.0: Closure and Restoration Plan.

The SEIA process will incorporate studies and reports based on a detailed project description, the proposed mining and associated infrastructure design drawings, and other technical data from the investigations carried out by the appointed design consultant. Timely delivery of this information during the SEIA process is considered critical to the identification and consideration of potential social and environmental impacts of the project.

The main objectives of the SEIA process for the Marmato Project are listed below:

- *identify issues and concerns regarding the proposed project that need to be addressed.*
- *identify national, international and corporate management requirements which the project must satisfy;*
- *gather baseline information to describe the affected environment and communities;*
- *undertake a stakeholder engagement process, enabling stakeholders to make a contribution to the design and location of the mine infrastructure, identify potentially significant biophysical, socio-economic and health and safety impacts;*
- *assess whether the project will result in any unacceptable impacts to physical, biological, socio-economic and cultural/archaeological resources of Colombia and design mitigation and management measures where necessary to control the significance of impacts;*
- *develop a framework environmental and social management system which sets out key management and monitoring objectives for the life of the mine and which can be further developed into operational plans by the client and any contractors involved;*
- *assess and provide feedback on selected project alternatives as part of the feasibility phase;*
- *inform corporate and technical decisions by providing recommendations as to whether or not the development of the project should proceed; and*
- *promote environmentally and socially sustainable development.*

20.1.11 Baseline Studies

The baseline assessment process for the Marmato Project SEIA should focus on gathering environmental and socio-economic baseline information and obtaining an in-depth understanding of the affected environment. Table 20-4 provides an indication of the likely baseline and specialist impact assessment studies required for the project based on the MAVDT Terms of Reference.

Table 20-4: Baseline Studies

Waste Characterization
Geology and Geomorphology
Soils and Land Capability
Geotechnology
Hydrology
Hydrogeology
Water Quality
Water Use
Climate
Ambient Air Quality
Background Noise
Flora
Fauna
Viewscapes
Socio-economics
Demographics
Health
Archaeology and Cultural Resources
Resettlement Census

Source: SRK, 2012

The baseline specialist study should be undertaken in accordance with detailed terms of reference developed prior to the commencement of the baseline work. The general objectives of a physical, biophysical and socio-economic baseline assessment study are to:

- *provide an overview of existing available literature relevant on the physical, biophysical and social characteristics of the project area (international, national, regional and local context);*
- *outline the methodology used to undertake the study (sampling, analysis and assessment tools);*
- *provide a description of the existing environment and/or social setting (baseline conditions);*
- *provide a statement on the conservation importance of each component of the environment;*
- *identify sensitive natural and human receptors for possible project activities; and*
- *benchmark the baseline conditions of the project area against recognized in-country and international guidelines and standards.*

A significant amount of baseline data and information is already available for the area from GCGC and its predecessors as well as local, departmental, and federal agencies. A summary of the data and additional baseline data collection recommendations are presented in the NI 43-101 report entitled "entitled "Technical Report on the Marmato Project in Colombia", effective date July 1, 2011.

20.1.12 Development of Management Systems and Monitoring Program

The development of social and environmental management and monitoring systems is closely linked to the impact assessment process and is required to mitigate negative impacts, optimize positive impacts and assess ongoing performance. Management and monitoring are ongoing activities that will continue throughout the life of the project. As with any management system, it is a cyclical system involving regular review to evaluate its effectiveness.

At the SEIA stage, a framework environmental and social management system will be developed and documented. This may involve the development of supporting action plans where required. The *framework will describe the overall management system and address how the action plans will be implemented, including resources, training, equipment and management structure. The action plans will address the actions necessary, timeline for implementation (due date or frequency), specific resource requirements, assessment criteria, and will identify relevant responsibilities. The management program will also include a Stakeholder Engagement Plan (SEP) to guide future consultations with the community throughout the life of the project, a Resettlement Action Plan (RAP), a Water Management Plan (WMP), a Closure Plan, and a monitoring program for environmental aspects of the project. All of these plans are typically lumped together by the Ministry of Environment in an Environmental Action Plan (PMA in Spanish) which is part of the mining license.*

20.1.13 Conclusions

In general the Marmato Project represents the potential for significant adverse environmental and social impacts which are diverse. Some of these impacts may be irreversible or unprecedented even with mitigation. It is considered that extensive assessment of the physical, biophysical and socio-economic features of the area are required and careful planning of project infrastructure should occur.

<u>Environmental Issues</u>

From a biophysical perspective the main impacts are associated with the polluting potential of the waste rock dumps and tailings facility. The large size of these facilities represents significant potential to pollute groundwater and surface water if not properly designed, constructed, operated and closed.

If the underground mine option is selected, the proposed tailings dam would probably be classified as a large dam and would require a detailed study of the environmental, ecological and social impacts. ARD and metal leaching from waste rock, tailing and construction rock characterization have been done. Without these data it is difficult to definitively predict the water quality from any leachate the geological or processing waste would produce. In light of the geology there is a distinct probability ARD and metal leaching will occur from waste rock and tailings at the Marmato Project if the material is disposed of without proper mitigation systems being in place. These data are also required to judge the quality of a post-closure pit lake which is also an issue that should be addressed.

<u>Social Issues</u>

The main social impact is the need for resettlement of the town of Marmato to the El Llano area, as well as other resettlement in the areas of the mine facilities and infrastructure. Resettlement will cause loss of dwellings and livelihoods of the current residents. The Project may also cause an influx of people into the area increasing the need for social infrastructure and services. A comprehensive Resettlement Action Plan will be required to ensure that affected people are not worse off as a result of the Project and that potential influx of people is managed.

21 Capital and Operating Costs

21.1 Capital Cost Estimates

GCM undertakes a capital budget process each year and the board of directors approve a capital budget. SRK reviewed the approved 2017 capital budget. The 2018 capital budget is currently in review by GCM management and will be approved in December 2017. The Marmato Project capital budget is US$1,036,000 for 2017. The actual spend through the first three quarters is US$914,000. The budget is broken down into subcategories including mining, processing plant, and TSF. Unbudgeted items are also reported.

The mining capital is approximately 42% of the total capital budget. The mine capital budgets and actuals are summarized in Table 21-1.

Table 21-1: Marmato Project Mine 2017 Capital Budget and Actual (Actual for 9 months)

Item	2017 Annual Budget ($US)	Total 9 Months YTD Actual (US$)
Personnel Elevator	40,000	6,000
Mine Equipment (Scoops, Locomotives, Ventilation Fans, Jackleg Drills)	259,000	238,000
Rail Cars	36,000	35,000
Mine Pump System Optimization	21,000	8,000
Spare Mine Hoist	7,000	7,000
Level 21 Pump System (pumps, excavations, and piping)	29,000	25,000
Geho Sand Pump, New Hydraulic Backfill Piping	38,000	25,000
Total Mining Capital	**$430,000**	**$344,000**

Source: GCM, 2017

The processing plant capital budgets and actuals are summarized in Table 21-2. The processing capital is 37% of the total capital budget. A two-phase plant expansion was conducted in 2017 that was 68% of the total processing plant capital budget.

Table 21-2: Marmato Project Processing Plant 2017 Capital Budget and Actual (Actual for 9 months)

Item	2017 Annual Budget ($US)	Total 9 Months YTD Actual (US$)
300 HP Short Head Cone Crusher	29,000	40,000
Reinforce Crusher Bridge Crane	40,000	7,000
Install Flotation Cell	33,000	19,000
Build a 30 ft Thickener	33,000	-
Install 300 Hp Blower	10,000	11,000
Plant Expansion Phase I and Phase II	241,000	261,000
Metallurgical Lab Improvements	-	45,000
Total Processing Plant Capital	**386,000**	**383,000**

Source: GCM, 2017

The Marmato TSF has a 2017 capital budget of US$220,000 that is 21% of the total capital budget. Table 21-3 shows the budget summary.

Table 21-3: Marmato Project Tailing Storage Facility 2017 Capital Budget and Actual (Actual for 9 months)

Item	2017 Annual Budget ($US)	Total 9 Months YTD Actual (US$)
Water Pumping from Tailings Facility	45,000	22,000
Vacuum Drum Filter	84,000	59,000
Dry Dam Construction	91,000	20,000
Total Tailings Facility	**220,000**	**101,000**

Source: GCM, 2017

The Project has had some unbudgeted capital expenses that are summarized in Table 21-4. The total unbudgeted capital is US$141,000 and a salvage credit of US$54,000 has been recognized in the first three quarters of 2017. The unbudgeted capital is the equivalent of 14% of the total 2017 capital budget.

Table 21-4: Marmato Unbudgeted 2017 Capital Items (Actual for 9 months)

Item	2017 Annual Budget ($US)	Total 9 Months YTD Actual (US$)
Multipurpose Court	-	22,000
Camp Rooms	-	54,000
Motorcycle Parking	-	12,000
Non-lethal Gun	-	2,000
Computer Equipment	-	5,000
Large Excavator	-	13,000
Centrifugal Pump	-	31,000
Mavic Drone	-	2,000
Total Unbudgeted	**-**	**141,000**
Salvage/ Disposals		**(54,000)**

Source: GCM, 2017

21.2 Operating Cost Estimates

GCM is an operating entity with costs for the last 5 years summarized in Table 21-5. The major components of the costs are labor at 43% of the total operating cost followed by reagents and consumables at 27% of the total operating cost.

Table 21-5: Marmato Project Operating Cost by Cost Area

Cost Area	2012			2013			2014			2015			2016		
	US$	**US$/t**	**US$/oz**	**US$**	**US$/t**	**US$/oz**	**US$**	**US$/t**	**US$/oz**	**US$**	**US$/t**	**US$/oz**	**US$**	**US$/t**	**US$/oz**
Labor	11,299,411	42.14	520.3	11,335,944	41.34	502.4	10,516,688	39.22	436.15	9,216,567	30.39	384.8	10,338,473	30.29	440.93
Laboratory	214,423	0.80	9.9	222,061	0.81	9.8	235,572	0.80	9.77	205,282	0.68	8.6	208,385	0.61	8.89
Electrical Power	2,141,826	7.99	98.6	2,089,384	7.62	92.6	2,076,129	7.04	86.10	1,682,273	5.55	70.2	2,190,561	6.42	93.43
Reagents and Consumables	7,357,803	27.44	338.8	6,559,882	23.92	290.7	6,339,646	21.49	262.92	5,444,824	17.95	227.3	6,524,251	19.12	278.26
Maintenance	538,173	2.01	24.8	372,455	1.36	16.5	311,509	1.06	12.92	317,070	1.05	13.2	371,145	1.09	15.83
Others	6,766,094	25.23	311.6	5,487,519	20.01	243.2	5,129,823	17.39	212.74	4,198,161	13.84	175.3	4,351,370	12.75	185.58
Total	**28,317,729**	**105.61**	**1,303.9**	**26,067,246**	**95.07**	**1,155.2**	**24,609,367**	**83.42**	**1,020.59**	**21,064,177**	**69.45**	**879.4**	**23,984,183**	**70.27**	**1022.92**

Source: GCM, 2017

The overall cost per tonne of ore processed (Table 21-6) and cost per ounce Au produced (Table 21-7) are provided for reference.

Table 21-6: Marmato Project Unit Operating Cost per Tonne Processed by Cost Area (US$/tonne processed)

Area	2012	2013	2014	2015	2016
Mine	58.20	51.88	47.24	39.88	39.31
Plant	15.95	16.34	14.32	11.70	12.18
Planning	4.79	4.72	4.11	3.62	3.60
Support Areas Operation	14.40	11.95	8.54	6.21	7.44
Royalties and Considerations	12.26	10.18	9.21	8.05	7.77
Cost of Production	**105.61**	**95.07**	**83.42**	**69.46**	**70.29**

Costs do not have the Ag credit applied and are therefore overstated.
Source: GCM, 2017

Table 21-7: Marmato Project Unit Operating Cost per Ounce Au Recovered by Cost Area (US$/oz Au recovered)

	2012	2013	2014	2015	2016
Mine	729.77	630.56	577.93	502.09	576.85
Plant	198.49	198.59	175.22	143.38	175.92
Planning	59.66	57.34	53.29	49.86	52.80
Support Areas Operation	158.53	133.95	101.21	82.51	98.27
Royalties and Considerations	156.59	134.72	112.93	101.55	119.10
Cost of Production	**1303.05**	**1155.16**	**1020.59**	**879.40**	**1022.94**

Costs do not have the Ag credit applied and are therefore overstated.
Source: GCM, 2017

Table 21-8 shows the mine operating costs for 2015 and 2016.

Table 21-8: Mineros Nacionales Mine Operating Costs (2015 and 2016)

Cost Area	2015			2016		
	US$ (000's)	US$/t	US$/Au oz	US$ (000's)	US$/t	US$/Au Oz
Labor	5,838	19.25	243.72	6,644	19.47	283.35
Electrical Power	942	3.11	39.33	1,227	3.59	52.32
Reagents and Consumables	3,472	11.45	144.95	4,119	12.07	175.70
Maintenance	672	2.21	28.04	634	1.86	27.06
Other	1,170	3.86	48.83	792	2.32	33.79
Total	**$12,094**	**$39.88**	**$504.87**	**$13,416**	**$39.31**	**$572.22**
Ore Tonnes	303,279			341,308		
Au Ounces Produced	23,954			23,447		

Source: GCM, 2017

Table 21-9 shows the processing plant operation costs for 2015 and 2016.

Table 21-9: Mineros Nacionales Process Plant Operating Costs (2015 and 2016)

Cost Area	2015			2016		
	US$ (000's)	US$/t	US$/Au oz	US$ (000's)	US$/t	US$/Au oz
Labor	527	1.74	22.00	601	1.76	25.64
Laboratory	205	0.68	8.57	208	0.61	8.89
Electrical Power	740	2.44	30.90	964	2.82	41.11
Reagents and Consumables	1,476	4.87	61.60	1,818	5.33	77.53
Maintenance	343	1.13	14.34	351	1.03	14.99
Other	258	0.84	10.77	215	0.63	9.18
Total	**$3,549**	**$11.70**	**$148.18**	**$4,157**	**$12.18**	**$177.34**
Ore Tonnes	303,279			341,308		
Au Ounces Produced	23,954			23,447		

Source: GCM, 2017

Table 21-10 shows all combined operation costs for 2015 and 2016.

Table 21-10: Mineros Nacionales Operating Costs (2015 and 2016)

Cost Area	2015			2016		
	US$ (000's)	US$/t	US$/Au oz	US$ (000's)	US$/t	US$/Au oz
Mine	12,094	39.88	504.87	13,416	39.31	572.22
Process plant	3,549	11.7	148.18	4,157	12.18	177.34
Planning and Operations	2,982	9.83	124.49	3,769	11.04	160.76
Royalties and Considerations	2,441	8.05	101.92	2,652	7.77	113.09
Silver by-product credits	-480	-1.58	-20.03	-519	-1.52	-21.66
Total	**$20,586**	**$67.88**	**$859.43**	**$23,475**	**$68.78**	**$1,001.75**
Ore Tonnes	303,279			341,308		
Au Ounces Produced	23,954			23,447		

Source: GCM, 2017

21.2.1 Basis for Operating Cost Estimates

GCM utilized their production reporting system in conjunction with the accounting system to accumulate the production and cost data as is typical with an operating Project. The information is published in daily, monthly, and annual reports.

22 Economic Analysis

The Issuer falls under the producing issuer category and generates more than CA$30 million in revenues. However, since the 2012 MRE, the Issuer has felt it is prudent to change their approach given the current market conditions, shifting from a large-scale, low-grade, open pit operation as previously conceived, to a smaller-scale, higher-grade underground mining operation. In addition, GCM intends to implement SRK's contract mining model to incorporate production from the ancestral and artisanal miners working within GCM titles.

As a result, the economic analysis provided in the 2012 MRE is no longer current and should not be relied upon. The Company plans to present a revised PEA during 2018.

23 Adjacent Properties

There are no properties or other operating mines with NI 43-101 compliant resources adjacent to Marmato.

24 Other Relevant Data and Information

SRK has detailed all the relevant data as it pertains to the updated Mineral Resources.

This Technical Report provides an update on the Mineral Resource at Marmato. In the current gold market, GCM feels it is prudent to change their approach for the Marmato Project, shifting from a large-scale, low-grade open pit operation as previously conceived, to a smaller-scale, higher-grade underground mining operation. The Project currently has a number of small-scale and one commercial-scale operating mine using underground mining methods. This Technical Report describes the current mining and processing methods, but the reader is cautioned that this report should not be considered a preliminary economic assessment (PEA), for the Project, and the previous study, as it considered open pit mining, is not relevant to the proposed changes.

SRK has recommended that GCM commence work on preparing a PEA for the underground option, which has commenced, but will require further investigation and is estimated for completion in 2018. The current options will continue during this time period and are therefore summarized in this Technical Report.

SRK has recommended that GCM commence work on preparing a PEA for the underground option, which has commenced, but will require further investigation, with view of release during 2018. The current options will continue during this time period and are therefore summarized in this report.

25 Interpretation and Conclusions

25.1 Property Description and Ownership

The Company currently own sufficient ground to operate and explore all the currently defined Mineral Resources. In the Zona Alta area with the Company owned license a number of small scale operations exist. GCM are investigating implementation of a contractor miners based model as used by the Company at the GCM Segovia operations, if agreements can be reached

25.2 Geology and Mineralization

SRK used the 3D solids (and interval selections) created in Leapfrog® to code the drillholes to differentiate between mineralization and waste, and undertook statistical and geostatistical analyses on the composited data, as constrained by the modelled wireframes. High-grade internal domains have been used to reduce the risk of mixing and over smoothing of the highly skewed grade distribution.

Gold mineralization occurs in veins and veinlets with dominant NW and WNW trends. The deposit mainly comprises sulfide-rich veinlets and veins composed of quartz, carbonate, pyrite, arsenopyrite, Fe-rich sphalerite (marmatite), pyrrhotite, chalcopyrite and electrum in the epithermal upper zone, and quartz, pyrrhotite, chalcopyrite, bismuth minerals and free gold in the mesothermal lower zone.

SRK considers the change in the mineralization style between the higher epithermal (Gold-silver mineralization is mainly hosted by a sheeted pyrite±sphalerite) style of mineralization to the deeper mesothermal veinlet (pyrrhotite±chalcopyrite) style mineralization to be important. The latest drilling has confirmed the presence of the Marmato Deeps style mineralization but further drilling will be required to confirm the grade continuity prior to more detailed mining studies.

Further drilling and study of the changes will be required to increase the understanding and confidence in the geological model to aid estimation to higher levels of confidence (Indicated and Measured).

25.3 Status of Exploration, Development and Operations

Limited new drilling has been completed since the 2012 Mineral Resource, with the exception of the confirmation of the Deeps style mineralization, other drilling has mainly related to grade control requirements by the mine.

GCM have started the process of capturing the historical channel sampling databases from the Mineros Nacionales Mine and completed a number of the main structures. This has significantly increased the size of the underground channel data and aided in providing better controls on the geological modelling of the vein domains.

SRK completed a validation exercise on the electronic database provided, where potentially erroneous data exists in the database SRK has accounted for these areas during the classification process. SRK has reviewed all QAQC information available and has deemed the assay database to be in line with industry best practice and therefore deemed it acceptable for the determination of Mineral Resource Estimates.

25.4 Mineral Processing and Metallurgical Testing

The current system is processing the ore consistent with the historical production. No detailed metallurgical test work has been completed on the Deeps Zone mineralization to understand potential variation in recoveries compared to the current mined material. Test work will be required to confirm the potential for economic extraction. As more Deeps Zone material is fed into the plant as exposure becomes available on Levels 20 – 21, the operator should monitor plant performance to determine if additional test work on the upper portions of the Deeps Zone is required to optimize plant performance.

25.5 Mineral Resource Estimate

SRK is of the opinion that the Mineral Resource Estimate has been conducted in a manner consistent with industry best practices and that the data and information supporting the stated mineral resources is sufficient for declaration of Measured, Indicated and Inferred classifications of resources.

- The 2017 Mineral Resource Estimate is based on some 240,855 m of diamond drilling and cross-cut sampling (primarily diamond drilling), completed up to March 25, 2012.
- SRK reviewed GCM sampling and assaying procedures and considers these to be reasonable and to meet generally accepted practices for advance stage exploration projects and are suitable to support resource estimates;
- SRK has generate a new vein model to account increased detail of vein locations via the capture of selected underground channel data from Mineros Nacionales;
- GCM has confirmed the presence of the mineralization within the Marmato Deeps domain to an Inferred level of confidence. SRK notes that there is still limited understanding of the differences between the typical veinlet style mineralization seen in the upper portions of the deposit and the increased grades at depth.
- Limited drilling has been completed to date and SRK has limited the Inferred mineral resource at depth where the drill spacing is considered too wide for confidence in the geological continuity. Infill drilling will be required to increase the confidence in both the geological and grade continuity before material can be considered as Indicated or higher;
- All boundaries have been treated as hard boundaries, and further work on the local scale via underground mapping and closed spaced channel sampling will be required to better understand the transition between the domains;
- Data quantity and quality has been of sufficient level to inform a geostatistical analysis to inform the current Mineral Resource estimate;
- SRK has defined the current Mineral Resource based on cut-off grade of 1.2 g/t Au and 1.9 g/t Au for the porphyry/deep mineralization and the veins respectively;
- The lack of industry-standard “as-built” data delineating mined areas has some limitations on the current estimate, and confidence via more detailed survey of sub-level locations and raises would improve confidence;
- Mineral resources are classified as Measured and Indicated Mineral Resources and as Inferred Mineral Resources; and
- The current lack of a grade control block model (which is updated on a monthly or quarterly basis), results in difficulty to complete accurate reconciliation between the updated Mineral Resource estimate and the current mining activities. SRK would recommend the Company investigate improving the use of localized short-term planning models, which would improve

the understanding of the short scale variation in grade, and improve the potential to monitor the current estimates.

25.6 Mineral Reserve Estimate

No Mineral Reserves have been defined for the Project, SRK would consider the next stage in the process would be a complete a PEA on the current Mineral Resource to assess the potential within the current mine and the potential mining methods for the Marmato Deeps.

25.7 Mining Methods

The mine is operating using a cut and fill stoping method which is appropriate for the mine geology, geometry and type of mineral. The near-term mine plan will continue in the same manner.

25.8 Recovery Methods

The plant is fully built out and functional. Recent expansion projects are in place and recoveries have improved to the current level of 87% consistent with past performance. The reduction in head grade that the processing plant is experiencing to confirm that the plant performance is maintained.

25.9 Project Infrastructure

The project has a mature and functioning infrastructure. The ongoing activities at the TSF should continue to be monitored to assure that the operating plan is being implemented effectively.

25.10 Environmental Studies and Permitting

GCM currently are mining the deposit via Mineros Nacionales which is permitted for commercial production.

No detailed environmental review has been completed since the previous report, the conclusions and recommendation at the time are summarized in Section 20.1.13. Since the time of the study the focus of the Project is now to increase output via underground mining methods and therefore the implications on the environmental and social studies will likely change and therefore be required to be reviewed.

25.11 Capital and Operating Costs

The mine operating and capital cost programs are in place and functioning. A forward-looking plan with backup should be a part of a PEA program that is recommended.

25.12 Economic Analysis

The mine is currently in operation. The Issuer falls under the producing issuer category and generates more than CAD$30 million in revenues. The changes in the mineralization style could impact on the long-term economics of the Project, but further infill drilling, geotechnical and metallurgical studies will be required to test the economic benefits.

26 Recommendations

26.1 Recommended Work Programs

In relation to the required improvements to data quality, SRK recommends the following:

- Infill drilling using underground drill-rigs on the Marmato Deeps to at minimum at 100 x 100 m sample spacing, with suggested infill to 50 x 50 m in the upper portions, near the current mining levels. The Deeps material is all Inferred in the current estimate;
- GCM have developed an exploration drilling plan of approximately 80 holes for approximately 19,500 m of drilling. All drilling will be completed using underground diamond drillholes from drilling stations on Level 20 and Level 21 of the current operation. GCM have sub-divided the program into three main sub-categories which includes
    - Upper Levels: Infill to tight drill spacing in the upper levels (designed to test grade continuity over a shorter range and potentially define Indicated Mineral Resources);
    - Transitional Levels: Infill within the current defined Inferred Mineral Resource to increase the knowledge in the geological and grade continuity, plus test for strike extension to the known mineralization;
    - Deep Levels: Drilling design to test the base of the current Inferred Mineral Resource and potentially increase the limit of the inferred downdip.
- SRK comments that the current proposed drilling budget is reasonable and that testing the depth extensions maybe difficult from the current drilling locations, and that revisions within the current drilling program as the program advances maybe required. The current drilling budget and proposed program are shown in Table 26-1 and Figure 26-1;
- SRK recommends that further geologic drilling should also include density measurements, and geotechnical logging to aid any future studies. be conducted to further develop the geologic knowledge of the Deeps area and to further develop the resource, as there are only four drillholes in the zone currently.;
- SRK suggests additional metallurgical studies for the Deeps area material begin immediately, and prior to the PEA, so as to provide the basis for flowsheet development/confirmation and to provide recoveries for use in the study
- Continual updates by GCM geologist of the 3D interpretation of all mining development and stoped areas;
- Continuation of the data capture and verification channel sampling at the Mineros Nacionales Operations to further increase the geological confidence in the associated block estimates;
- SRK recommends minor adjustments to the way channel samples are recorded in the database to avoid some of the limitations in the current geological model processing to ensure the process is optimized as new data comes available; and
- SRK recommends the Company look towards the use of localized short-term planning models to improve the understanding of the short scale variation in grade, and improve the potential to monitor the current estimates. These short-term models should include results from the infill underground drilling areas and adjustments to the high-grade domain boundaries;

SRK recommends the following additional considerations in relation to the required technical work required to increase the confidence in other technical areas:

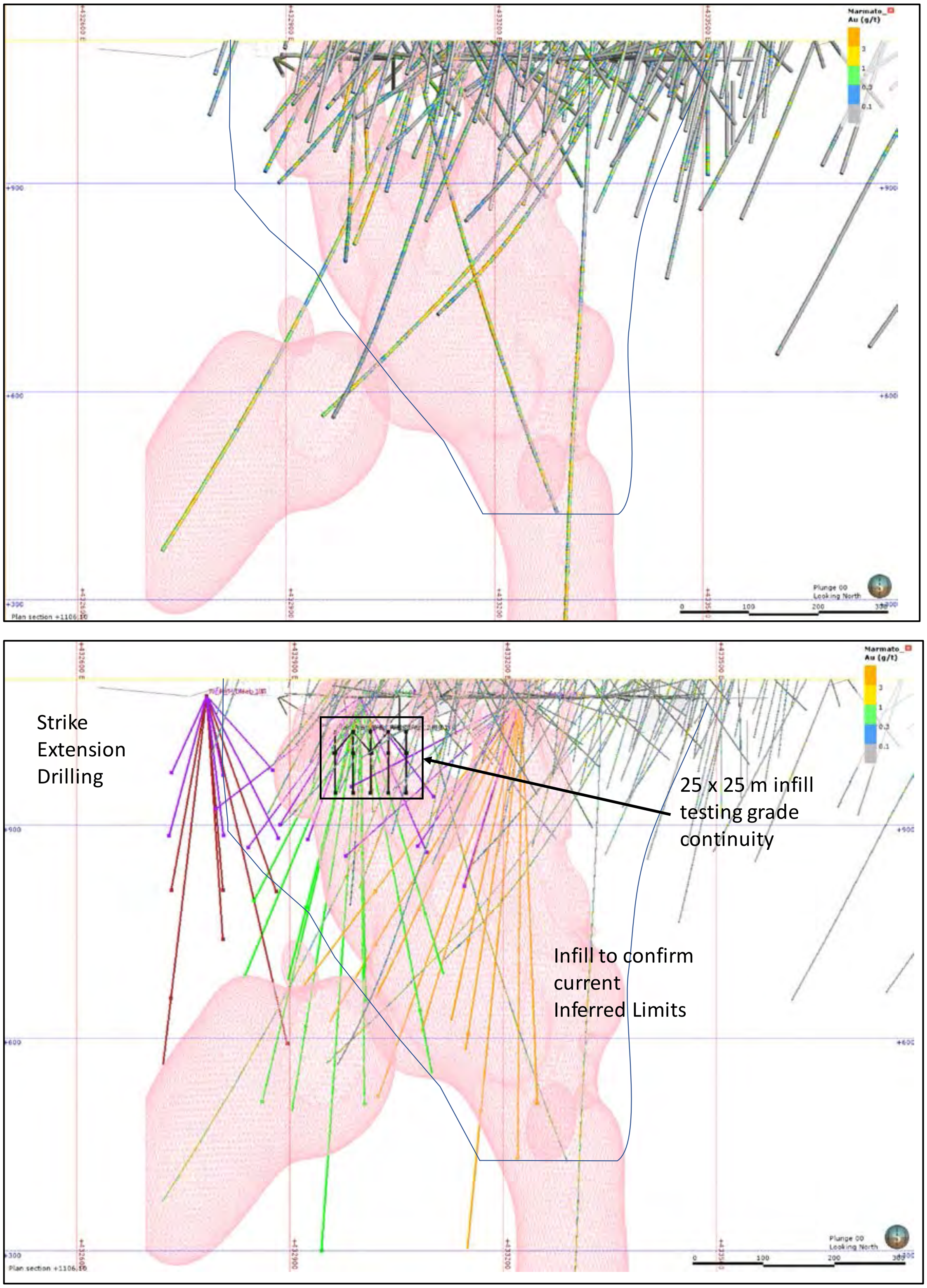
- Produce an updated underground mining and geotechnical study;

- Complete a hydrogeology and hydrology review for the Deeps Zone to a PEA level; and
- Review environmental/social status for impact on declaration of future Mineral Reserves.

Table 26-1: Summary of GCM proposed drilling budget

Deeps Zone Target	Count	Sum (m)
Deeps Zone (Upper)	38	2,630
Deeps Zone (Transition)	16	4,540
Deeps Zone (Deep)	26	12,385
Subtotal	**80**	**19,555**

Source: GCM 2017



Source: SRK, 2017

Figure 26-1: Summary of GCM proposed drilling program for Marmato Deeps Zone

26.2 Recommended Work Program Costs

Table 26-2 *summarizes the costs for recommended work programs to advance the knowledge of the deposit and increase the confidence in the grade estimates of the Deeps Zone.*

Table 26-2: Summary of Costs for Recommended Work

Discipline	**Program Description**	**Cost (US$)**	**No Further Work is Recommended Reason:**
Property Description and Ownership	Completion of documentation to confirm extension to life of mine	0	In Progress
Geology and Mineralization	Infill Drilling on Deeps Zone to convert portion from Inferred to Indicated, and to increase the confidence in the estimates at depth to at minimum Inferred levels 80 holes designed for 19,500 m	3,500,000	
Mineral Processing and Metallurgical Testing	Additional test work on the Marmato Deeps Zone to confirm recovery assumptions	150,000	
Complete a Preliminary Economic Assessment on the Project	Complete an engineer study to a PEA level to confirm potential for economic extraction inclusive of the Marmato Deeps Zone	350,000	
Total US$		**$4,000,000**	

Source: SRK, 2017

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28 Glossary

The Mineral Resources and Mineral Reserves have been classified according to CIM (CIM, 2014). Accordingly, the Resources have been classified as Measured, Indicated or Inferred, the Reserves have been classified as Proven, and Probable based on the Measured and Indicated Resources as defined below.

28.1 Mineral Resources

A **Mineral Resource** is a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction. The location, quantity, grade or quality, continuity and other geological characteristics of a Mineral Resource are known, estimated or interpreted from specific geological evidence and knowledge, including sampling.

An **Inferred Mineral Resource** is that part of a Mineral Resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity. An Inferred Mineral Resource has a lower level of confidence than that applying to an Indicated Mineral Resource and must not be converted to a Mineral Reserve. It is reasonably expected that the majority of Inferred Mineral Resources could be upgraded to Indicated Mineral Resources with continued exploration.

An **Indicated Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of Modifying Factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade or quality continuity between points of observation. An Indicated Mineral Resource has a lower level of confidence than that applying to a Measured Mineral Resource and may only be converted to a Probable Mineral Reserve.

A **Measured Mineral Resource** is that part of a Mineral Resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of Modifying Factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation. A Measured Mineral Resource has a higher level of confidence than that applying to either an Indicated Mineral Resource or an Inferred Mineral Resource. It may be converted to a Proven Mineral Reserve or to a Probable Mineral Reserve.

28.2 Mineral Reserves

A **Mineral Reserve** is the economically mineable part of a Measured and/or Indicated Mineral Resource. It includes diluting materials and allowances for losses, which may occur when the material is mined or extracted and is defined by studies at prefeasibility or feasibility level as appropriate that include application of Modifying Factors. Such studies demonstrate that, at the time of reporting, extraction could reasonably be justified.

The reference point at which Mineral Reserves are defined, usually the point where the ore is delivered to the processing plant, must be stated. It is important that, in all situations where the reference point is different, such as for a saleable product, a clarifying statement is included to ensure that the reader is fully informed as to what is being reported. The public disclosure of a Mineral Reserve must be demonstrated by a prefeasibility study or feasibility study.

A **Probable Mineral Reserve** is the economically mineable part of an Indicated, and in some circumstances, a Measured Mineral Resource. The confidence in the Modifying Factors applying to a Probable Mineral Reserve is lower than that applying to a Proven Mineral Reserve.

A **Proven Mineral Reserve** is the economically mineable part of a Measured Mineral Resource. A Proven Mineral Reserve implies a high degree of confidence in the Modifying Factors.

28.3 Definition of Terms

The following general mining terms may be used in this report.

Table 28-1: Definition of Terms

Term	Definition
Assay	The chemical analysis of mineral samples to determine the metal content.
Capital Expenditure	All other expenditures not classified as operating costs.
Composite	Combining more than one sample result to give an average result over a larger distance.
Concentrate	A metal-rich product resulting from a mineral enrichment process such as gravity concentration or flotation, in which most of the desired mineral has been separated from the waste material in the ore.
Crushing	Initial process of reducing ore particle size to render it more amenable for further processing.
Cut-off Grade	The grade of mineralized rock, which determines as to whether or not it is economic to recover its gold content by further concentration.
Dilution	Waste, which is unavoidably mined with ore.
Dip	Angle of inclination of a geological feature/rock from the horizontal.
Fault	The surface of a fracture along which movement has occurred.
Footwall	The underlying side of an orebody or stope.
Gangue	Non-valuable components of the ore.
Grade	The measure of concentration of gold within mineralized rock.
Hangingwall	The overlying side of an orebody or slope.
Haulage	A horizontal underground excavation which is used to transport mined ore.
Hydrocyclone	A process whereby material is graded according to size by exploiting centrifugal forces of particulate materials.
Igneous	Primary crystalline rock formed by the solidification of magma.
Kriging	An interpolation method of assigning values from samples to blocks that minimizes the estimation error.
Level	Horizontal tunnel the primary purpose is the transportation of personnel and materials.
Lithological	Geological description pertaining to different rock types.
LoM Plans	Life-of-Mine plans.
LRP	Long Range Plan.
Material Properties	Mine properties.
Milling	A general term used to describe the process in which the ore is crushed and ground and subjected to physical or chemical treatment to extract the valuable metals to a concentrate or finished product.
Mineral/Mining Lease	A lease area for which mineral rights are held.
Mining Assets	The Material Properties and Significant Exploration Properties.
Ongoing Capital	Capital estimates of a routine nature, which is necessary for sustaining operations.
Ore Reserve	See Mineral Reserve.

Term	Definition
Pillar	Rock left behind to help support the excavations in an underground mine.
RoM	Run-of-Mine.
Sedimentary	Pertaining to rocks formed by the accumulation of sediments, formed by the erosion of other rocks.
Shaft	An opening cut downwards from the surface for transporting personnel, equipment, supplies, ore and waste.
Sill	A thin, tabular, horizontal to sub-horizontal body of igneous rock formed by the injection of magma into planar zones of weakness.
Smelting	A high temperature pyrometallurgical operation conducted in a furnace, in which the valuable metal is collected to a molten matte or doré phase and separated from the gangue components that accumulate in a less dense molten slag phase.
Stope	Underground void created by mining.
Stratigraphy	The study of stratified rocks in terms of time and space.
Strike	Direction of line formed by the intersection of strata surfaces with the horizontal plane, always perpendicular to the dip direction.
Sulfide	A sulfur bearing mineral.
Tailings	Finely ground waste rock from which valuable minerals or metals have been extracted.
Thickening	The process of concentrating solid particles in suspension.
Total Expenditure	All expenditures including those of an operating and capital nature.
Variogram	A statistical representation of the characteristics (usually grade).

28.4 Abbreviations

The following abbreviations may be used in this report.

Table 28-2: Abbreviations

Abbreviation	Unit or Term
%	percent
°	degree
µm	micron or microns
2D	two dimensional
3D	three dimensional
A	ampere
AA	atomic absorption
AAS	atomic absorption spectrophotometer
Ag	silver
Au	gold
CA$	Canadian Dollar
CCD	counter-current decantation
CIL	carbon-in-leach
CIP	carbon-in-pulp
cm	centimeter
EIA	En
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
FA	fire assay
ft	foot (feet)
ft^2	square foot (feet)
g	gram
g/t	grams per tonne
ha	hectares
hp	horsepower
IDW	Inverse Distance Squared
IFC	International Finance Corporation

kA	kiloamperes
kg	kilograms
km	kilometer
km^2	square kilometer
koz	thousand troy ounce
kt	thousand tonnes
kt/d	thousand tonnes per day
kt/y	thousand tonnes per year
kV	kilovolt
kW	kilowatt
L	liter
LHD	Long-Haul Dump truck
LoM	Life-of-Mine
m	meter
m^2	square meter
m^3	cubic meter
masl	meters above sea level
mm	millimeter
Moz	million troy ounces
Mt	million tonnes
NGO	non-governmental organization
NI 43-101	Canadian National Instrument 43-101
NN	nearest neighbor
OK	ordinary kriging
oz	troy ounce
PEA	preliminary economic assessment
PLS	Pregnant Leach Solution
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
QP	Qualified Person
RC	rotary circulation drilling
RoM	Run-of-Mine
RQD	Rock Quality Description
sec	second
t	tonne (metric ton) (2,204.6 pounds)
t/d	tonnes per day
t/y	tonnes per year
TSF	tailings storage facility
TSP	total suspended particulates
US$	United States Dollar
V	volts
W	watt
y	year

Appendices

Appendix A: Certificates of Qualified Persons

SRK Consulting (U.S.), Inc.
Suite 600
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F: 303.985.9947

denver@srk.com
www.srk.com

CERTIFICATE OF QUALIFIED PERSON

I, Benjamin Parsons, MSc, MAusIMM (CP), do hereby certify that:

1. I am a Principal Consultant (Resource Geology) of SRK Consulting (U.S.), Inc., 1125 Seventeenth Street, Suite 600, Denver, CO, USA, 80202.
2. This certificate applies to the technical report titled, "NI 43-101 Technical Report, Updated Mineral Resource Estimate, Marmato Project, Colombia" with an Effective Date of June 16, 2017 (the "Technical Report").
3. I graduated with a degree in Exploration Geology from Cardiff University, UK in 1999. In addition, I have obtained a Masters degree (MSc) in Mineral Resources from Cardiff University, UK in 2000 and have worked as a geologist for a total of 17 years since my graduation from university. I am a member of the Australian Institution of Materials Mining and Metallurgy (Membership Number 222568) and I am a Chartered Professional.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Marmato property on August 17, 2017 and inspected the underground levels 17 – 20 and reviewed the latest drilling intersections. I visited the Marmato property on March 12 to 14, 2012 conducting an underground inspection and reviewed the latest drilling intersections.
6. I am responsible for geological model and associated mineral resource estimate, environmental and permitting Sections 2 through 12, 14, 20, 23, 24, 27, 28 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101
8. I have had prior involvement with the property that is the subject of the Technical Report. The nature of my prior involvement was in preparation of the NI43-101 Mineral Resource Estimate dated August 3, 2012, and the previous NI 43-101 Mineral Resource Estimate dated September 4, 2011.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 20th Day of November 2017.

"Signed" *"Sealed"*

Benjamin Parsons, MSc, MAusIMM (CP) [#222568]
Principal Consultant (Resource Geology)

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CERTIFICATE OF QUALIFIED PERSON

I, Eric Olin, MSc, MBA, RM-SME do hereby certify that:

1. I am a Principal Process Metallurgist of SRK Consulting (U.S.), Inc., 1125 Seventeenth Street, Suite 600, Denver, CO, USA, 80202.
2. This certificate applies to the technical report titled, “NI 43-101 Technical Report, Updated Mineral Resource Estimate, Marmato Project, Colombia” with an Effective Date of June 16, 2017 (the “Technical Report”).
3. I graduated with a Master of Science degree in Metallurgical Engineering from the Colorado School of Mines in 1976. I am a Registered Member of The Society for Mining, Metallurgy and Exploration, Inc. I have worked as a Metallurgist for a total of 40 years since my graduation from the Colorado School of Mines. My relevant experience includes extensive consulting, plant operations, process development, project management and research & development experience with base metals, precious metals, ferrous metals and industrial minerals. I have served as the plant superintendent for several gold and base metal mining operations. Additionally, I have been involved with numerous third-party due diligence audits, and preparation of project conceptual, pre-feasibility and full-feasibility studies.
4. I have read the definition of “qualified person” set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a “qualified person” for the purposes of NI 43-101.
5. I did not visit the Marmato property.
6. I am responsible for metallurgical, process and recovery Sections 13, 17 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 20th Day of November 2017.

“Signed” *“Sealed”*

____

Eric Olin, MSc, MBA, RM-SME [# 4119552RM]
Principal Process Metallurgist

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CERTIFICATE OF QUALIFIED PERSON

I, Jeff Osborn, BEng Mining, MMSAQP, do hereby certify that:

1. I am a Principal Consultant (Mining Engineer) of SRK Consulting (U.S.), Inc., 1125 Seventeenth, Suite 600, Denver, CO, USA, 80202.
2. This certificate applies to the technical report titled, "NI 43-101 Technical Report, Updated Mineral Resource Estimate, Marmato Project, Colombia" with an Effective Date of June 16, 2017 (the "Technical Report").
3. I graduated with a Bachelor of Science Mining Engineering degree from the Colorado School of Mines in 1986. I am a Qualified Professional (QP) Member of the Mining and Metallurgical Society of America. I have worked as a Mining Engineer for a total of 32 years since my graduation from university. My relevant experience includes responsibilities in operations, maintenance, engineering, management, and construction activities.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Marmato property on August 22 and 23, 2017 and inspected the underground and surface facilities, including the tailings storage facility, as well as the core shack area.
6. I am responsible for project infrastructure Section 18 and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 20th Day of November 2017.

"Signed" *"Sealed"*

____

Jeff Osborn, BEng Mining, MMSAQP [01458QP]
Principal Consultant (Mining Engineer)

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CERTIFICATE OF QUALIFIED PERSON

I, Fernando Rodrigues, BS Mining, MBA, MMSAQP, do hereby certify that:

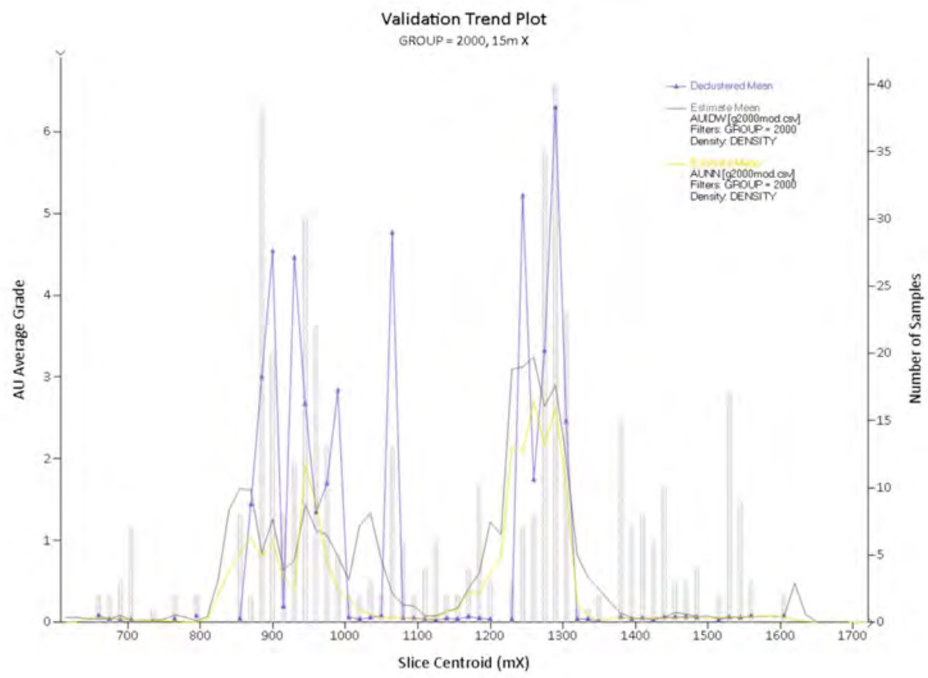
1. I am Practice Leader and Principal Consultant (Mining Engineer) of SRK Consulting (U.S.), Inc., 1125 Seventeenth Street, Suite 600, Denver, CO, USA, 80202.
2. This certificate applies to the technical report titled, "NI 43-101 Technical Report, Updated Mineral Resource Estimate, Marmato Project, Colombia" with an Effective Date of June 16, 2017 (the "Technical Report").
3. I graduated with a Bachelors of Science degree in Mining Engineering from South Dakota School of Mines and Technology in 1999. I am a QP member of the MMSA. I have worked as a Mining Engineer for a total of 18 years since my graduation from South Dakota School of Mines and Technology in 1999. My relevant experience includes mine design and implementation, short term mine design, dump design, haulage studies, blast design, ore control, grade estimation, database management.
4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.
5. I visited the Marmato property on August 22 and 23, 2017 and inspected the underground and surface facilities, including the tailings storage facility, as well as core shack area.
6. I am responsible for mining, mineral reserve estimate, capital and operating costs, economic and Sections 15, 16, 19, 21, 22, and portions of Sections 1, 25 and 26 summarized therefrom, of this Technical Report.
7. I am independent of the issuer applying all of the tests in section 1.5 of NI 43-101.
8. I have not had prior involvement with the property that is the subject of the Technical Report.
9. I have read NI 43-101 and Form 43-101F1 and the sections of the Technical Report I am responsible for have been prepared in compliance with that instrument and form.
10. As of the aforementioned Effective Date, to the best of my knowledge, information and belief, the sections of the Technical Report I am responsible for contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 20th Day of November 2017.

"Signed" *"Sealed"*

Fernando Rodrigues, BS Mining, MBA, MMSAQP [01405QP]
Practice Leader and Principal Consultant (Mining Engineer)

Appendix B: Swath Plots - Detailed Validation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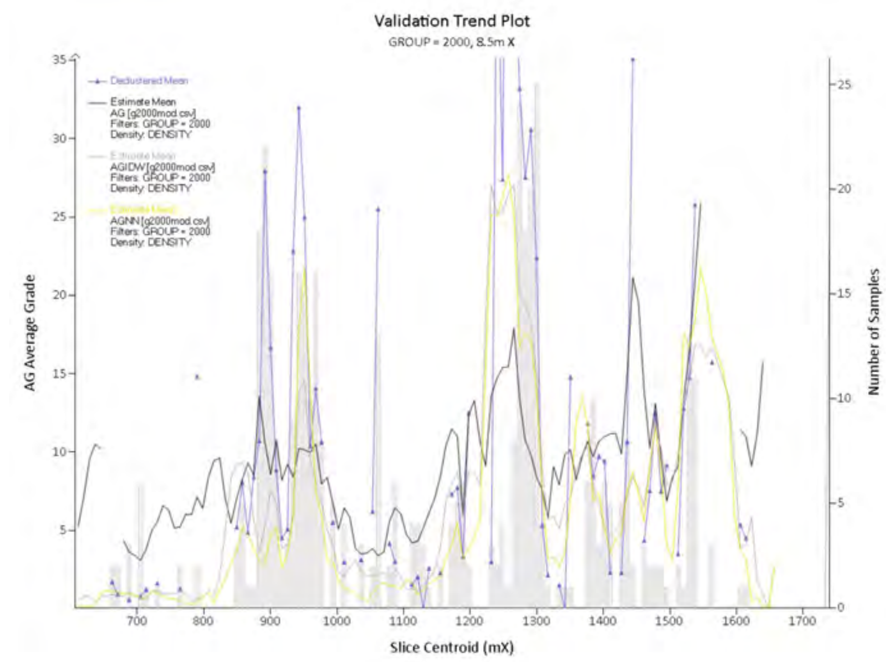
Slice Centroid (mX)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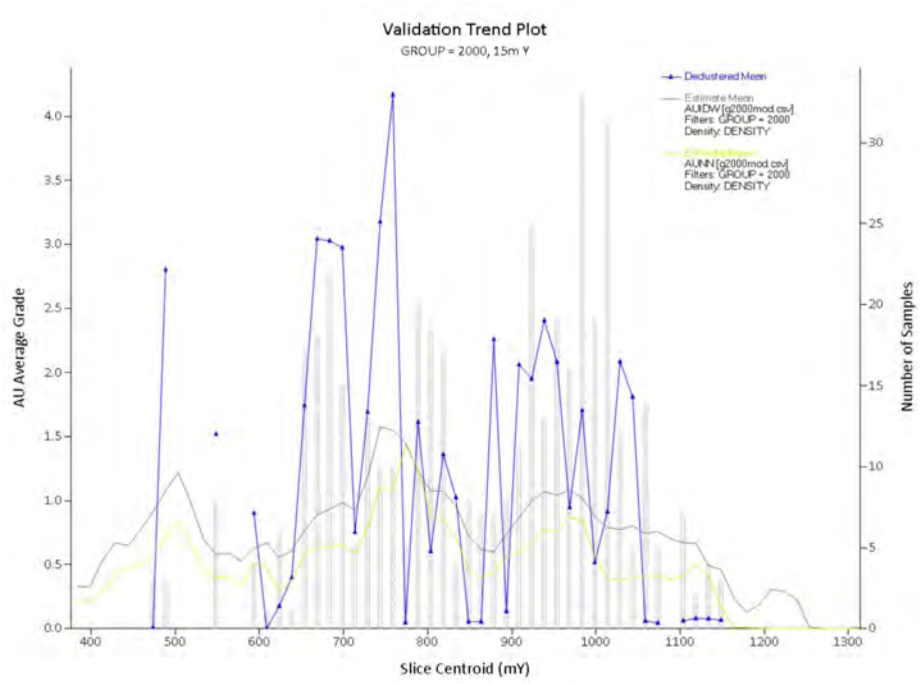
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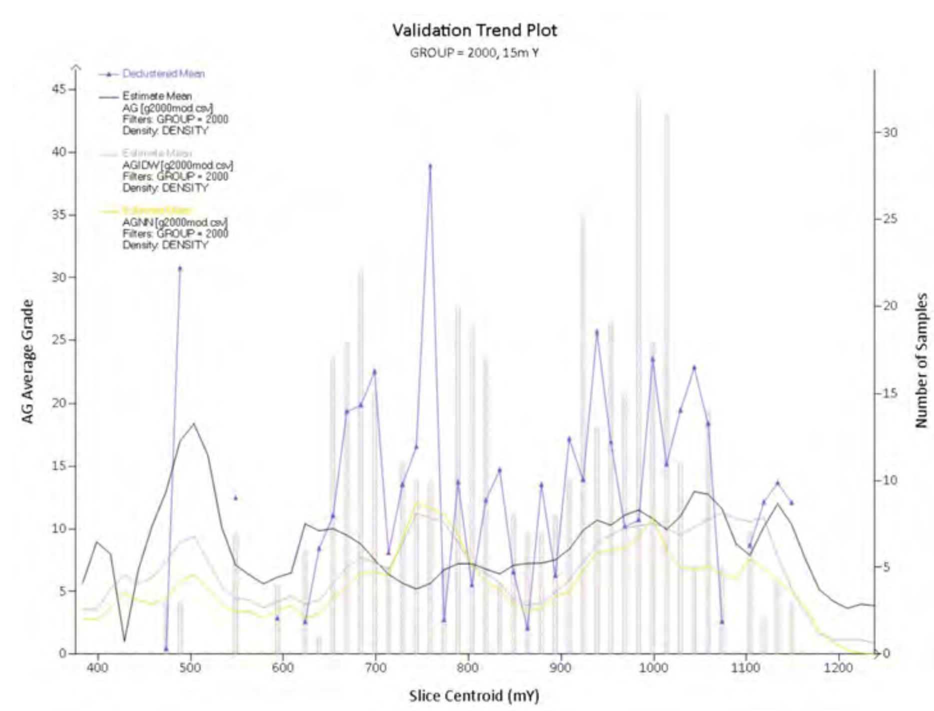
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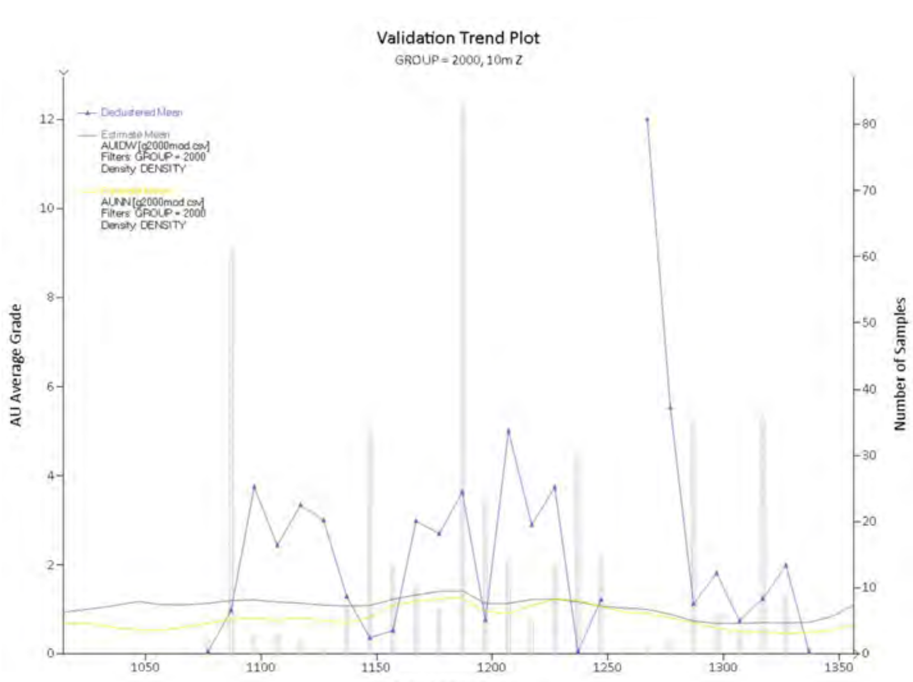
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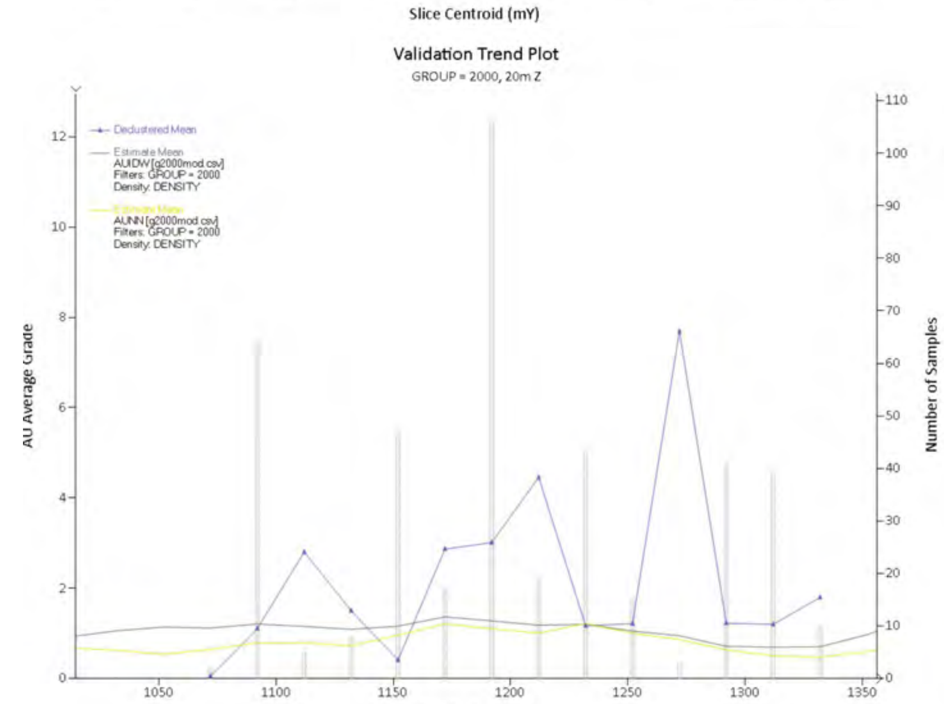
Number of Samples
Slice Centroid (mZ)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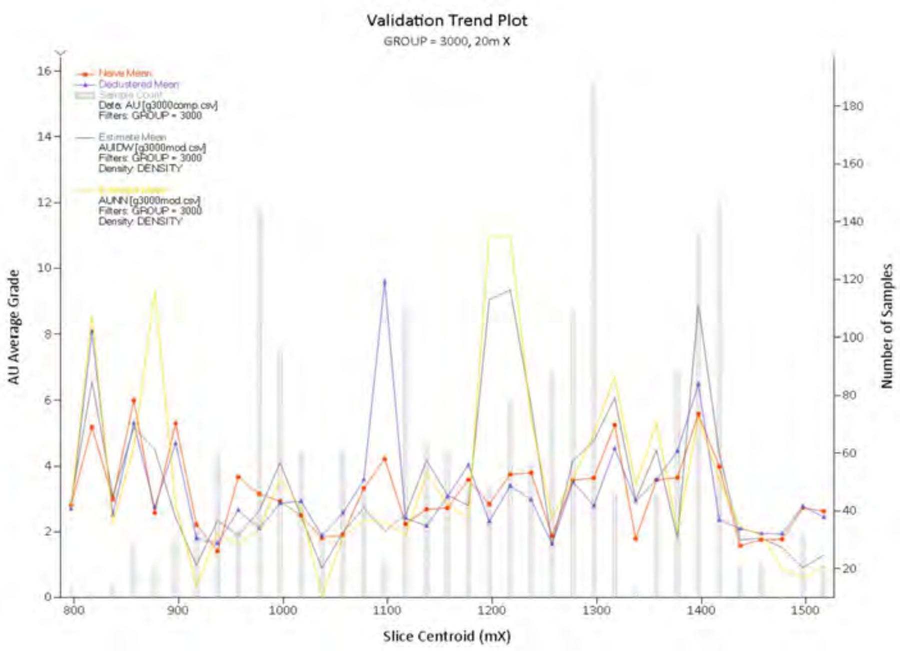
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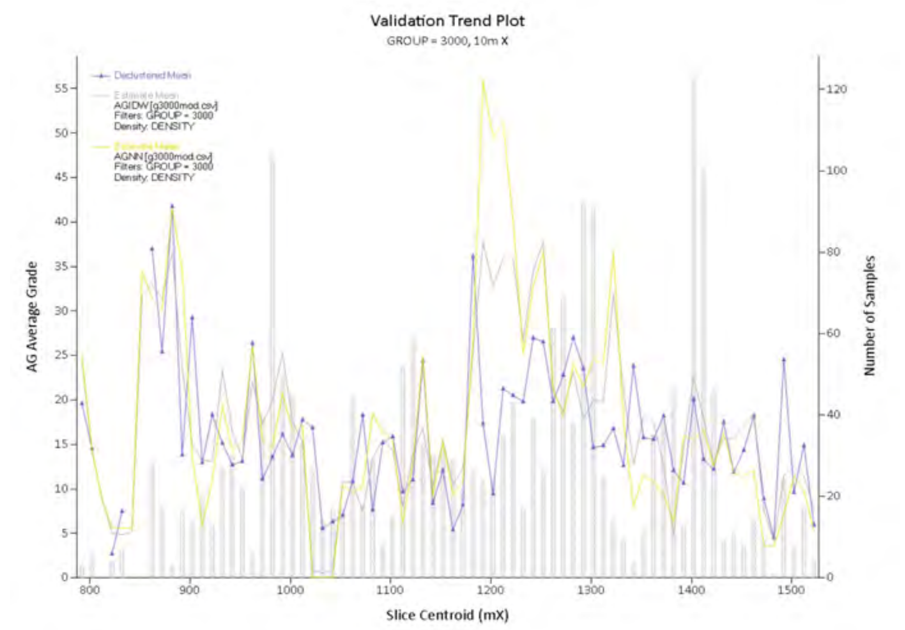
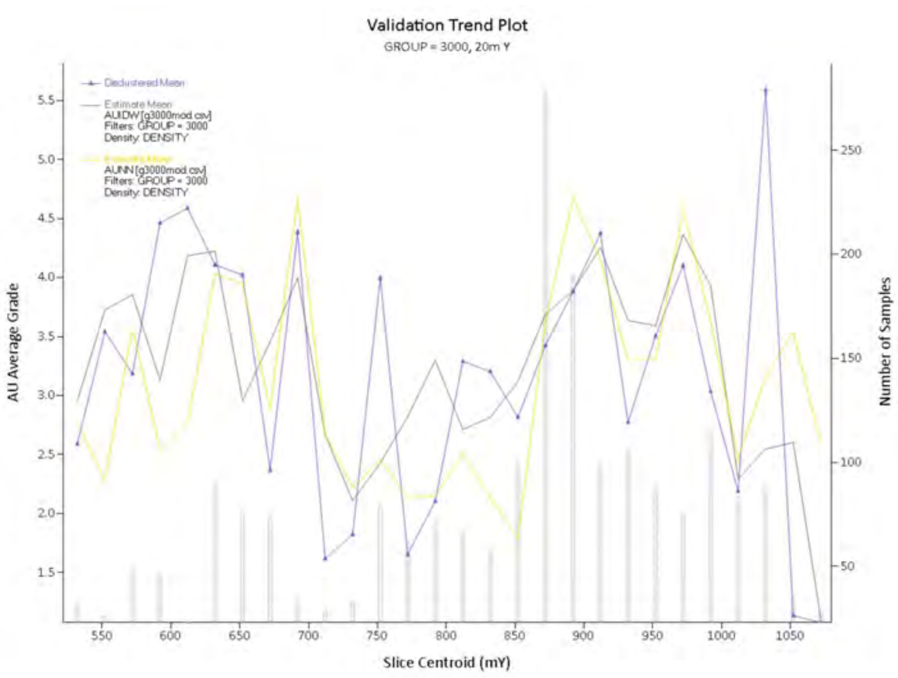
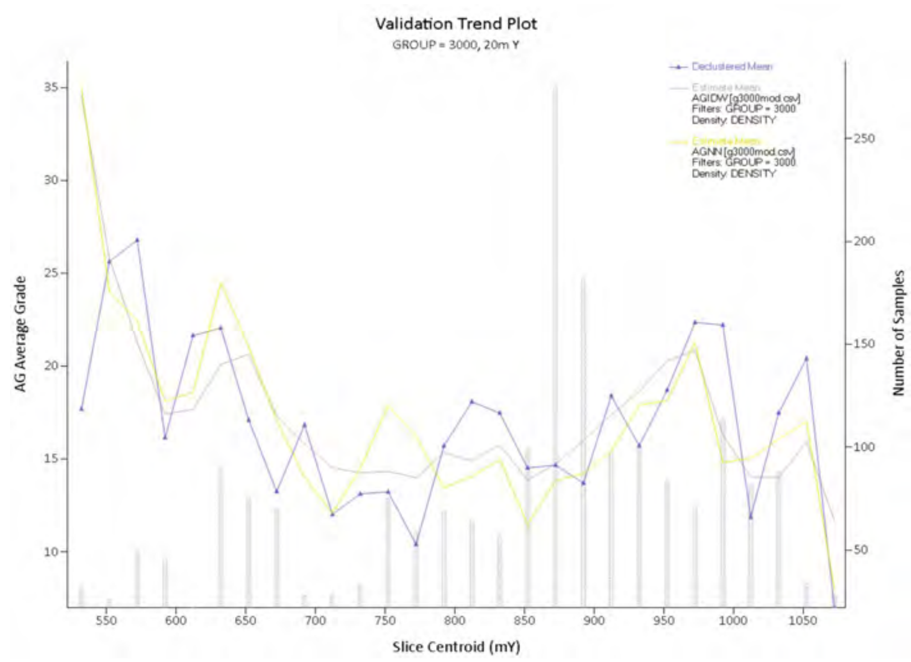
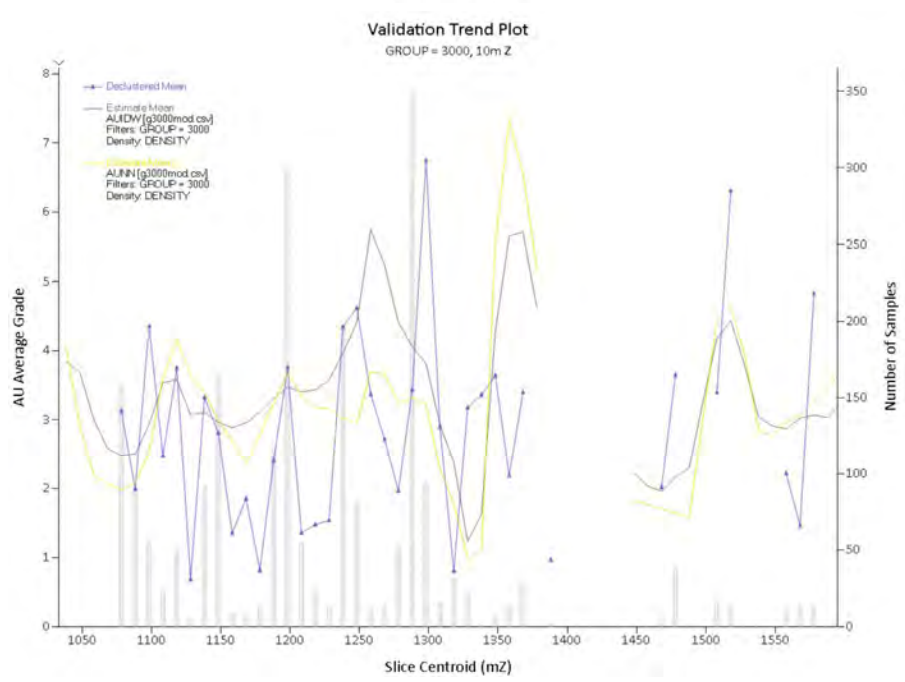
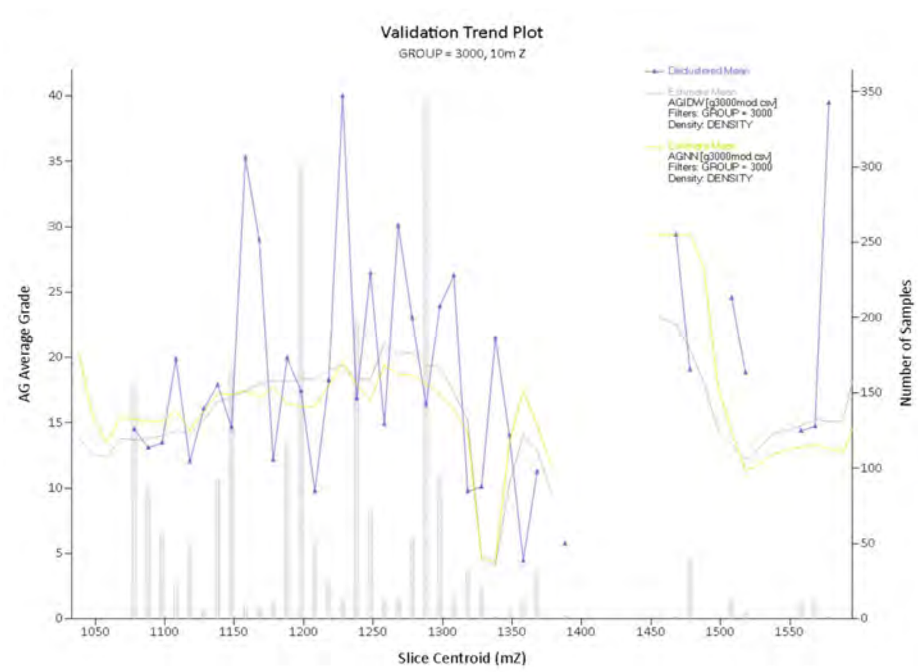
Density: DENSITY
AU Average Grade
Number of Samples
Slice Centroid (mX)

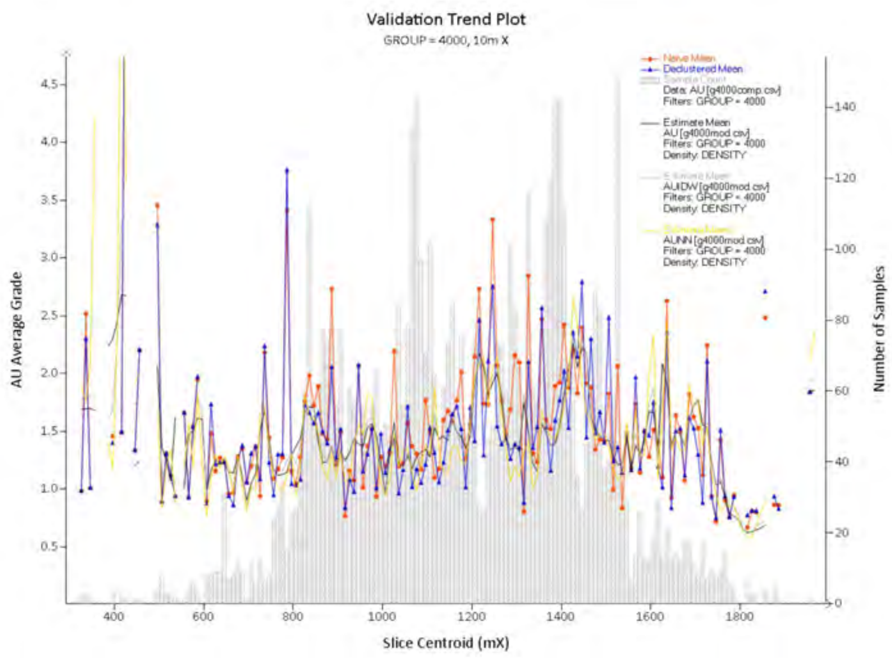

Validation Trend Plot
GROUP = 3000, 10m X
Declustered Mean
Estimate Mean
AGIDW [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
AGNN [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
AG Average Grade
Number of Samples
Slice Centroid (mX)

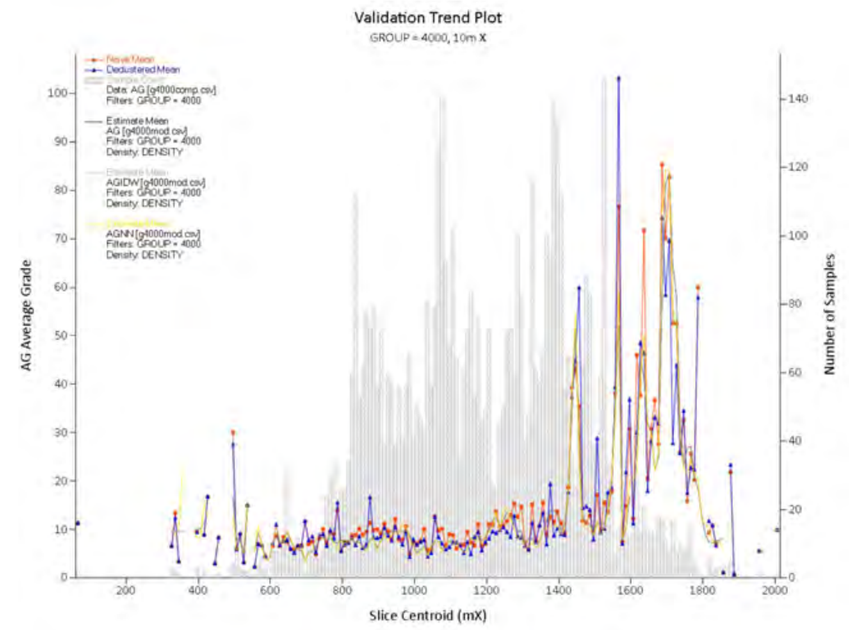

Validation Trend Plot
GROUP = 3000, 20m Y
Declustered Mean
Estimate Mean
AUIDW [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
Estimate Mean
AUNN [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
AU Average Grade
Number of Samples
Slice Centroid (mY)

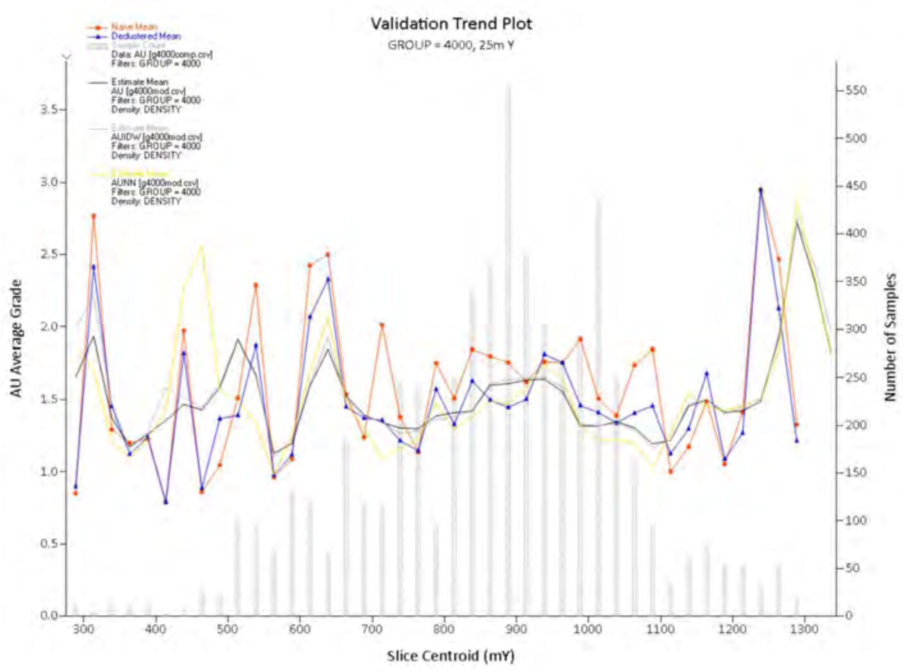

Validation Trend Plot
GROUP = 3000, 20m Y
Declustered Mean
Estimate Mean
AGIDW [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
Estimate Mean
AGNN [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
AG Average Grade
Number of Samples
Slice Centroid (mY)

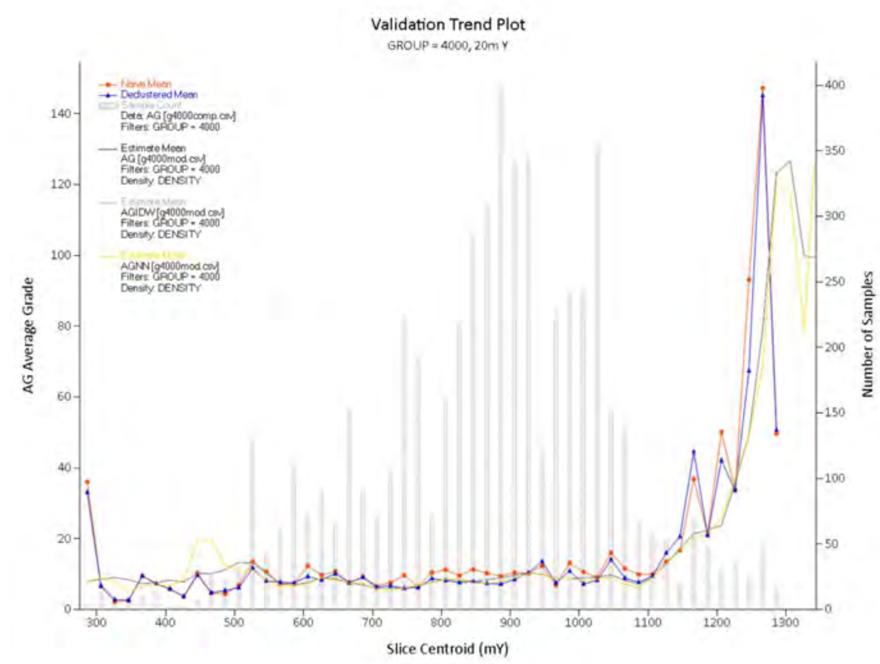

Validation Trend Plot
GROUP = 3000, 10m Z
Declustered Mean
Estimate Mean
AUIDW [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
Estimate Mean
AUNN [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
AU Average Grade
Number of Samples
Slice Centroid (mZ)

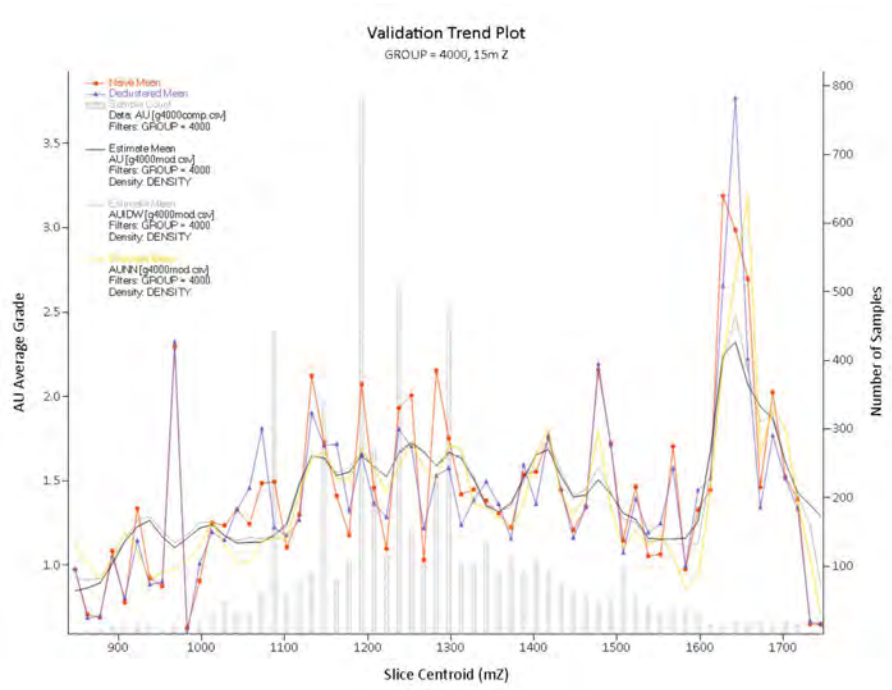

Validation Trend Plot
GROUP = 3000, 10m Z
Declustered Mean
Estimate Mean
AGIDW [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
Estimate Mean
AGNN [g3000mod.csv]
Filters: GROUP = 3000
Density: DENSITY
AG Average Grade
Number of Samples
Slice Centroid (mZ)

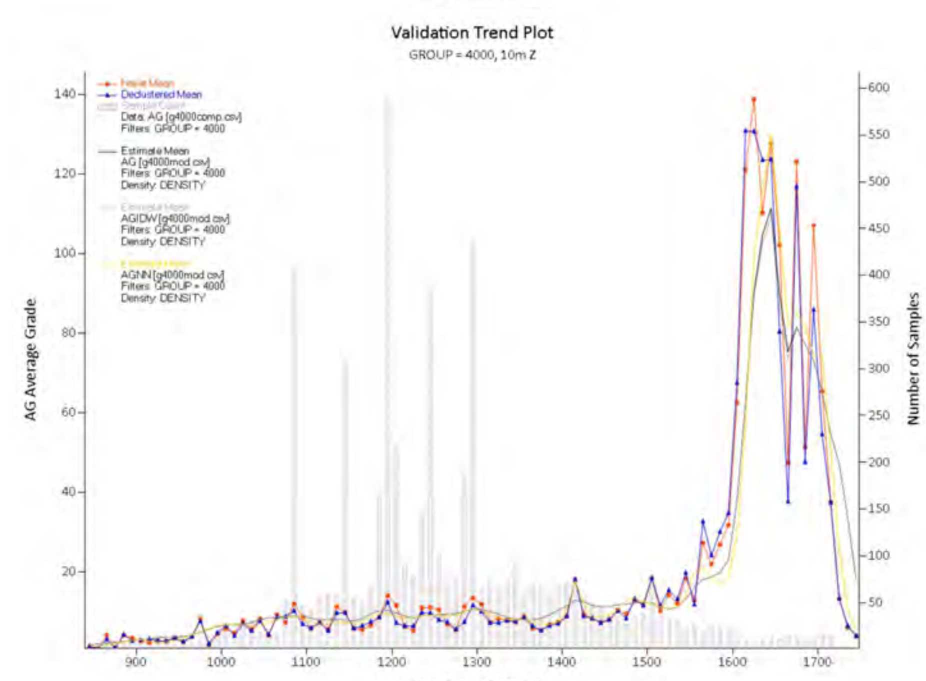

Validation Trend Plot
GROUP = 4000, 10m X
Naive Mean
Declustered Mean
Sample Count
Data: AU [g4000comp.csv]
Filters: GROUP = 4000
Estimate Mean
AU [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AUIDW [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AUNN [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
AU Average Grade
Number of Samples
Slice Centroid (mX)

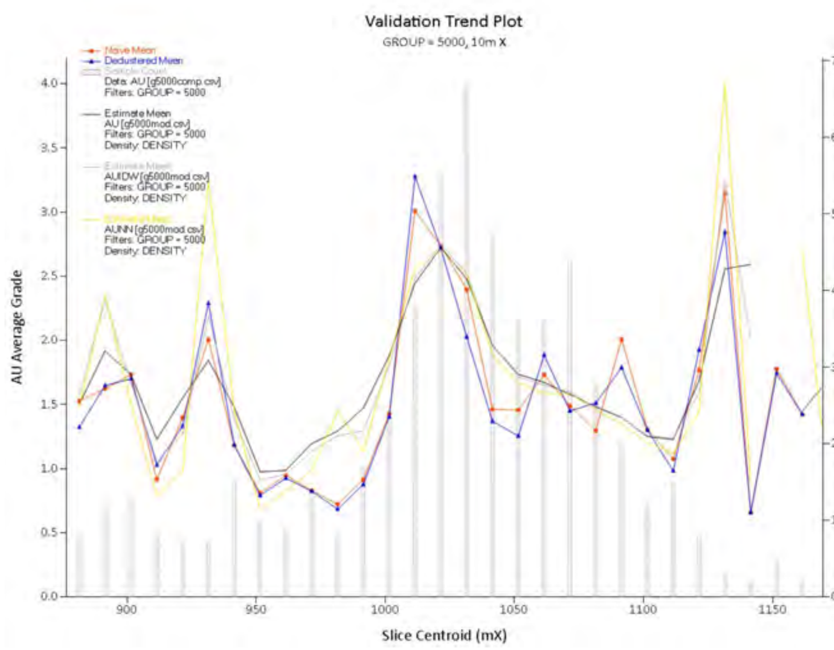

Validation Trend Plot
GROUP = 4000, 10m X
Naive Mean
Declustered Mean
Sample Count
Data: AG [g4000comp.csv]
Filters: GROUP = 4000
Estimate Mean
AG [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AGIDW [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AGNN [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
AG Average Grade
Number of Samples
Slice Centroid (mX)

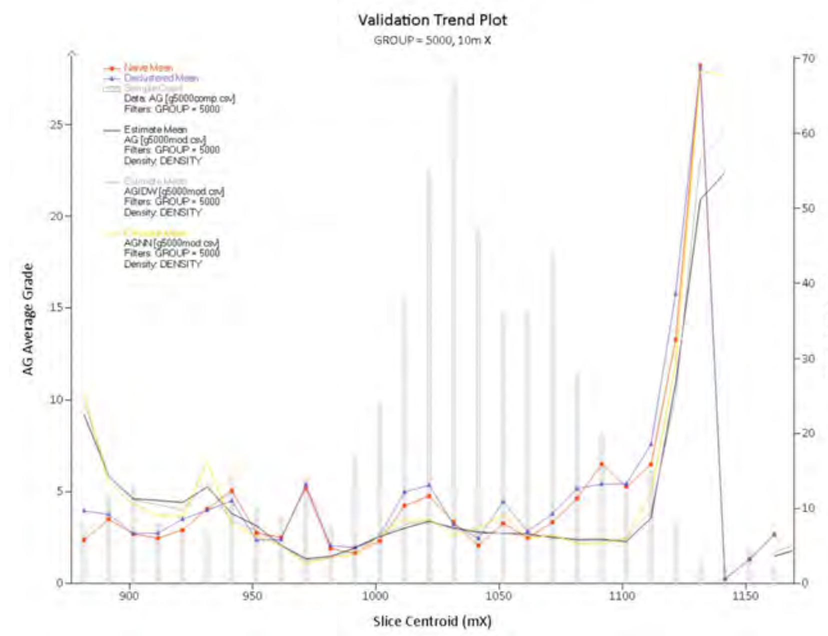

Validation Trend Plot
GROUP = 4000, 25m Y
Naive Mean
Declustered Mean
Sample Count
Data: AU [g4000comp.csv]
Filters: GROUP = 4000
Estimate Mean
AU [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AUIDW [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AUNN [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
AU Average Grade
Number of Samples
Slice Centroid (mY)

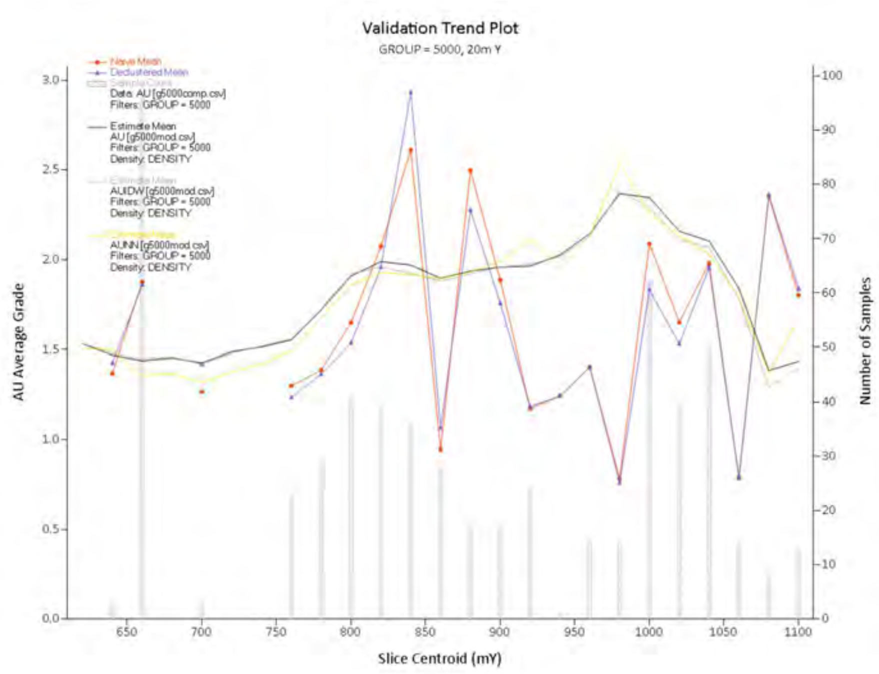

Validation Trend Plot
GROUP = 4000, 20m Y
Naive Mean
Declustered Mean
Sample Count
Data: AG [g4000comp.csv]
Filters: GROUP = 4000
Estimate Mean
AG [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AGIDW [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AGNN [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
AG Average Grade
Number of Samples
Slice Centroid (mY)

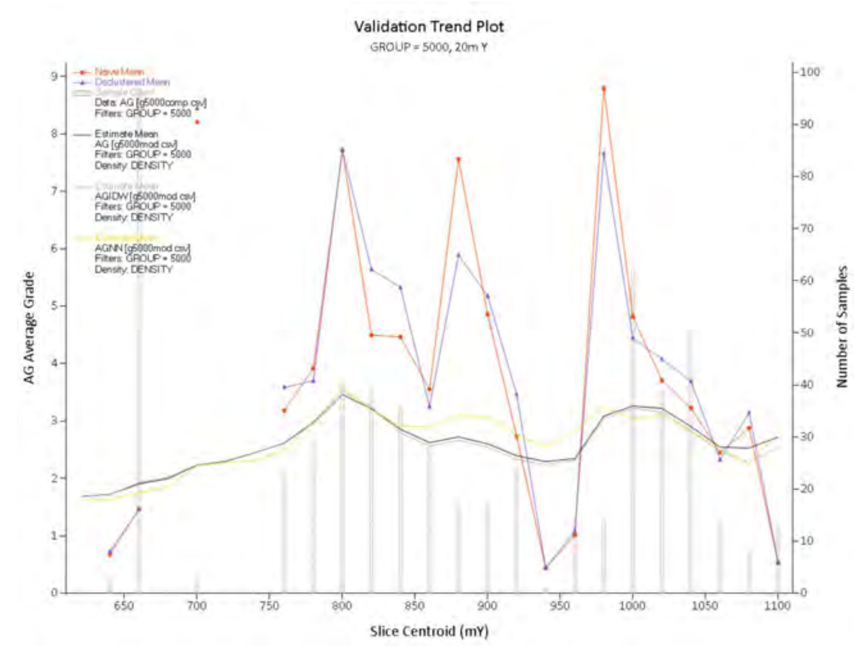

Validation Trend Plot
GROUP = 4000, 15m Z
Naive Mean
Declustered Mean
Sample Count
Data: AU [g4000comp.csv]
Filters: GROUP = 4000
Estimate Mean
AU [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AUIDW [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AUNN [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
AU Average Grade
Number of Samples
Slice Centroid (mZ)

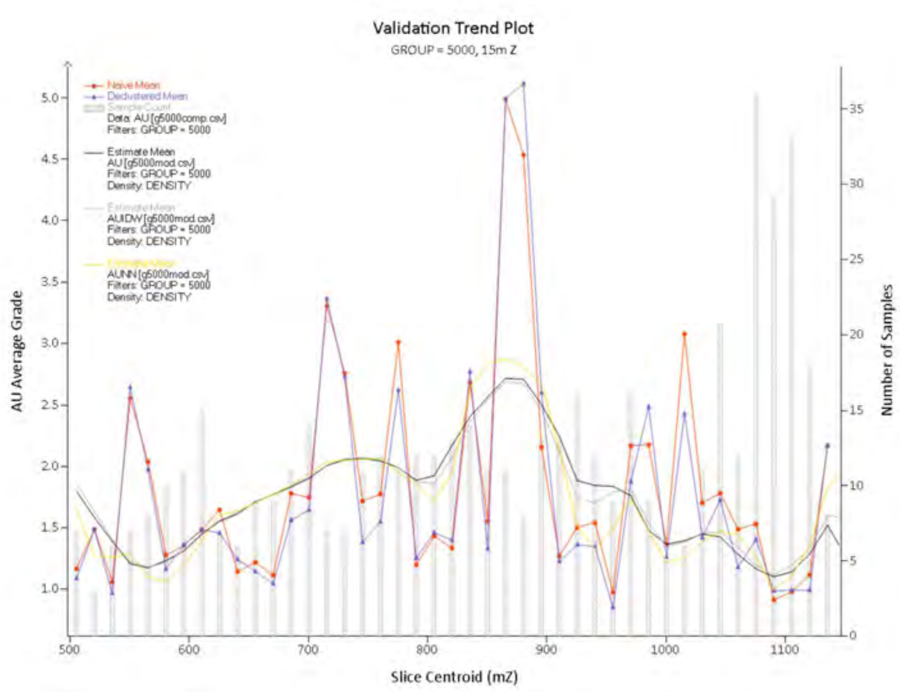

Validation Trend Plot
GROUP = 4000, 10m Z
Naive Mean
Declustered Mean
Sample Count
Data: AG [g4000comp.csv]
Filters: GROUP = 4000
Estimate Mean
AG [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AGIDW [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
Estimate Mean
AGNN [g4000mod.csv]
Filters: GROUP = 4000
Density: DENSITY
AG Average Grade
Number of Samples
Slice Centroid (mZ)

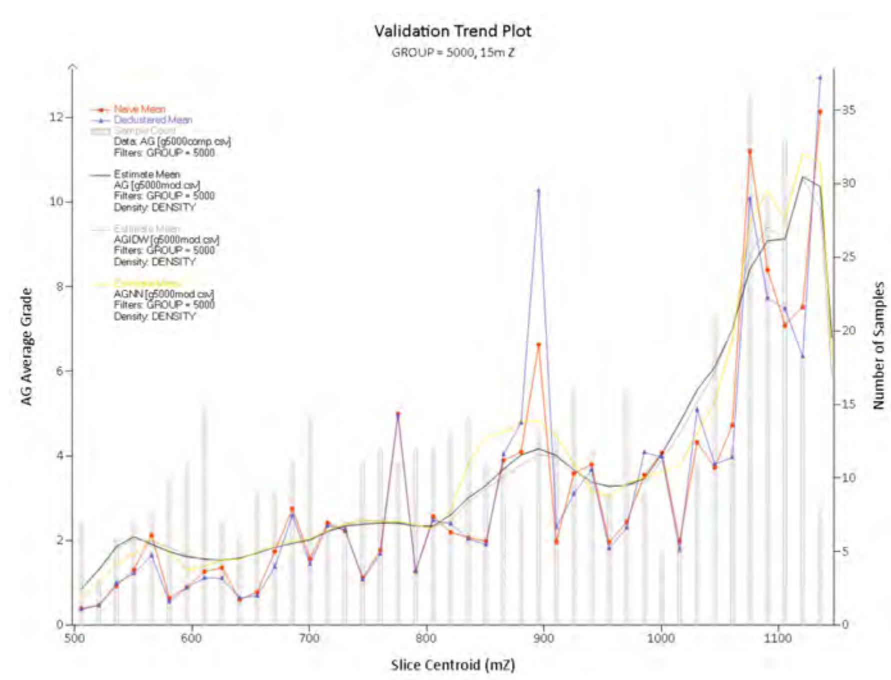

Validation Trend Plot
GROUP = 5000, 10m X
AU Average Grade
Number of Samples
Slice Centroid (mX)


Validation Trend Plot
GROUP = 5000, 10m X
AG Average Grade
Number of Samples
Slice Centroid (mX)


Validation Trend Plot
GROUP = 5000, 20m Y
AU Average Grade
Number of Samples
Slice Centroid (mY)


Validation Trend Plot
GROUP = 5000, 20m Y
AG Average Grade
Number of Samples
Slice Centroid (mY)


Validation Trend Plot
GROUP = 5000, 15m Z
AU Average Grade
Number of Samples
Slice Centroid (mZ)


Validation Trend Plot
GROUP = 5000, 15m Z
AG Average Grade
Number of Samples
Slice Centroid (mZ)