Material Information Summary

A Material Information Summary pursuant to ASX Listing Rules 5.8 and 5.9 is provided below for the Haile Gold Mine (HGM) resource and reserve estimates. The Assessment and Reporting Criteria in accordance with JORC Code 2012 is presented in Appendix 1.

1.1 Haile Mineral Resource

1.1.1 Material Assumptions for Mineral Resources

The open pit resource estimate is reported at a 0.45g/t cut off within a pit shell optimised on Measured, Indicated and Inferred Resources at a US$1,500/oz gold price. The underground resource is reported at a 1.17g/t cut-off

The HGM project is the only operating gold mine in the Carolina Slate belt and commenced processing ore in December 2016 with the first gold pour occurring on the 20th of January 2017. The mine is currently in the production ramp up phase.

1.1.2 Geology and Geological Interpretation

Hundreds of gold deposits are located along a northeasterly trend that extends from eastern Georgia to Virginia, known as the Carolina Slate Belt. Four of these deposits have been mined since the 1980's. All are now inactive except for OceanaGold's Haile gold mine. Many of these deposits are located at or near the contact between felsic volcanics and sedimentary dominated sequences.

The genesis of Haile and Ridgeway deposits is controversial – with debate centred around whether mineralisation is primarily of sea-floor exhalative origin, or related to later epi or meso-thermal fluid systems. Mineralisation is broadly stratiform in mostly folded metasediments, and is commonly silicified and pyritic. Hydrothermal breccias containing well bedded clasts, silicification fronts cross-cutting bedding, and multiple phases of silicification point towards the mineralisation being post depositional.

At HGM the gold mineralisation occurs along a regional corridor which runs from the west-southwest to the east-northeast. Based on current information, the known corridor is approximately 1km wide and over 3.4km long. Within that corridor, mineralized zones range in strike from northeast-southwest to east-west and dip at variable angles and directions. The observed dip ranges from 25° at the western end of the project to steeply southeast dipping at the eastern end of the known trend. In several areas, multiple mineralised zones exist.

Most of the mineralisation at HGM is restricted to laminated metasiltstone units of the Richtex Formation. The gold mineralised zones within the laminated metasediments can vary in distance from the metavolcanic contact, and can appear at different stratigraphic levels within the metasediments.

1.1.3 Sampling and Sub-Sampling

Both Reverse Circulation (RC) and Diamond Core sampling are used.

Reverse Circulation drilling has been used at HGM from 1970's until 2011. RC assay samples were wet RC drilled in predominately 1.5 metre intervals using a cyclone and rotary splitter to collect a 9 to 14kg sample into a sample bag. At the end of the shift the samples are taken to the sample storage area for drying. Geological logging of RC chips is completed at the drill site.

The RC samples are assigned sample numbers, dried, weighed, and split through a Jones riffle splitter to produce roughly a 2.7kg sample which is submitted to either Kershaw Mineral Lab (KML) in Kershaw South Carolina or AHK Geochem (AHK) in Spartanburg South Carolina for further processing. The coarse reject is stored on site.

Diamond core is either HQ or NQ and is transported from the drill site to the core shed where it is geologically and geotechnically logged, photographed, and measured for sampling. Diamond core samples are assigned unique sample numbers and cut along the long axis of the core using a core saw or putty knife. Sample lengths are typically 1.5m unless dictated to by significant geological or mineralisation contracts in the core. Remaining half cut core is retained onsite.

The half-cut core samples are then delivered to either KML or AHK laboratories for assay.

1.1.4 Sample Analysis Methods

At AHK the samples were dried at 65ºC and crushed to 80% passing 2mm. From this a 250gm sample was obtained using a riffle splitter and pulverised to 90% passing 150 mesh. The pulverised sample was split to 125gm with one sample sent to AHK Lab in Fairbanks Alaska for fire assay of a 30gm aliquot with Atomic Absorption finish and the second sample retained at lab. Coarse rejects were returned to Haile.

At KML the samples were dried at 93ºC and crushed to 80% passing 2mm. From this a 450gm sample was obtained using a riffle splitter and pulverised to 85% passing 140 mesh. The pulverised sample was then split to 225gm with one sample retained by the lab for 30gm aliquot fire assay with Atomic Absorption finish and the remaining pulp and coarse rejects returned to Haile.

Blanks and standards were inserted at Haile, and check assays are submitted to a second lab on a regular basis.

The AHK laboratory is an independent laboratory. The KML laboratory is owned and operated by OceanaGold.

1.1.5 Drilling Techniques

The open pit resource estimate comprises approximately 72% RC and 28% diamond core fire assays, whereas the underground estimate is based almost entirely on diamond core fire assays.

RC samples are collected from a rotary splitter at the drill rig. Splitter ratios range from eight to 17% and rock density ranges from 2.04 to 2.78. Consequently, sample weights can range from 6.3 to 14.2kg. 75% of the measured sample weights fall within this range.

1.1.6 Data Verification

The existing Haile drill hole data base was verified by IMC in late 2010 and the results published in the Technical Report titled “Haile Gold Mine Project, NI43-101 Technical Report Feasibility Study” dated 10 February 2011, and subsequent versions of the document.

In 2011 John Marek of IMC conducted a verification of drilling completed between October 2010 and November 2011 on behalf of Romarco Minerals Inc. and concluded that the fire assay data from this drilling campaign was fit for purpose.

In 2016 a further data verification exercise was completed on the 2016 Horseshoe prospect drilling program and concluded that the fire assay data from this drilling campaign was fit for purpose.

RC samples have been checked by paired sample comparison to closely spaced DDH samples and no sample bias issues have been detected.

Diamond core recoveries average 97% and there is no observed relationship between core recovery and grade.

No factoring is applied to the laboratory reported fire assay results.

1.1.7 Estimation Methodology

The drill hole spacing at Haile is variable, but typically between 30m x 30m and 50m x 50m. For the open pit, a block model of 10mE x 10mN x 5mRL, sub-blocked to 5mE x 5mN x 2.5mRL was constructed based on the proposed mining method. Geologic surfaces of the five primary rock types were interpreted and wire framed from drill logs by the HGM geology team. These were then used to code geology into the block model.

The gold mineralisation at Haile is strongly associated with silicification and the percentage of pyrite. These three variables were combined into a set of indicators and three mineralisation indicator shells generated. Prior to compositing top cuts were selected using the raw composites at approximately the 99.9 percentile. The indicator shells were then ordinary kriged for gold, silver, carbon and sulphur for using 2.5m bench composites from the respective indicator shells. Four kriging passes were run with each run using a larger search distances.

For the underground resource, a block model of 5mE x 5mN x 5mRL, rotated clockwise by 60º to align with mineralisation was constructed. Estimation is constrained within a mineralisation indicator shell constructed at a cut-off grade of 1.25g/t. Data is composited to 3m after top-capping at 70g/t. The constraining envelope contains a level of internal dilution considered appropriate to the complexity of mineralisation and scale of mining. Grade estimation of gold, sulphur and carbon is by ordinary kriging.

1.1.7 Resource Classification

The open pit resource estimate is classified primarily on the basis of drill hole spacing.

Measured = 4 or more drillholes in search range with distance to composites ≤ 50% variogram range (avg dist 40m).
Indicated = 2 or more drillholes in search range with distance to composites < 100% variogram range (avg dist 80m).
Inferred = 1 or more drillholes in search range with distance to composites between 100% and 200% of variogram range.

The above classification protocol is considered by the Competent Person to be appropriate for quarterly/medium and long term planning for mining the deposit.

The underground resource estimate is also classified primarily on the basis of drill-hole spacing and sampling geometry, since all other supporting data is of good quality. A wire frame solid was constructed around the areas where the majority of the blocks were estimated in the first or second pass of the estimation which had an average search distance of less than 10 meters and 15 meters respectively. These wireframe solids were used to assign the Indicated Mineral Resource classification. All blocks outside of the Indicated wireframes were classified as Inferred Mineral Resources.

1.1.8 Cut-off Grade

Mineral Resources are reported using a cut-off grade of 0.45g/t for open pit and 1.17g/t for underground. These cut-offs were calculated based on actual and anticipated costs, prices and recoveries.

1.1.9 Mining and Metallurgical Methods, Parameters and Other Modifying Factors

OceanaGold has commenced open pit mining at Haile and is currently in the ramp up phase. Mining is with conventional open cut mining methods (drill, blast, load and haul) using 5m benches in ore and 10m bench in waste.

Underground stopes are sized at 25mH x 15mW x 30mL. A single decline will access long hole open stoping panels, 75% of which will be back-filled with cemented aggregate, with the remainder (secondary) back-filled with loose aggregate

The Haile processing plant is a conventional circuit with re-grind and leaching of flotation concentrate and tailings. Processing includes grinding, flotation, cyanide leach, carbon handling and a refining facility. Extensive metallurgical test work has been completed and based on the results received to date OceanaGold does not anticipate any significant metallurgical issues.

Geotechnical studies for the open pit and underground have been completed, and OceanaGold does not anticipate any significant geotechnical issues.

Specific gravities for all the rock types have been obtained from half cut core and the averages for each rock type have been coded to the block models.

Some of the waste at HGM is acid generating rock and will be stored in lined storage facilities and the seepage from the facility treated before release. As the project matures there is potentially to store acid generating material in the depleted pits below the water table after mixing with lime. Non-acid generating rock will be stored adjacent to the pit in conventional waste rock stacks.

HGM holds all of permits necessary to construct, operate and close the project based on the life of mine planning. HGM is of the view that should additional reserves be located it has sufficient expertise to extend or gain new permits necessary extend the HGM project life.

HGM is wholly on private land owned or controlled by HGM.

The Haile Project is located in an area that is highly populated, therefore a good infrastructure exists. The project is adjacent to a state highway and there is a very large, skilled workforce nearby.

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JORC CODE, 2012 EDITION – TABLE 1, HAILE GOLD MINE PROJECT

1.1 Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	Both Reverse Circulation (RC) and Diamond Drilling (DDH) have been used for the resource estimates at Haile. This section describes the sampling procedures applied to both data collection techniques. Historical drilling prior to 2007 accounts for approximately 30% of the data. The sample procedures applied to the historic drilling (i.e. drilling prior to Romarco Minerals Inc.) at Haile were not well documented. However, IMC has completed a statistical comparison between the historic information and the recent drilling to provide verification of the reliability of the historic drilling. Romarco has been drilling at the Haile project since 2007. The techniques described in this section reflect the procedures applied by Romarco and OceanaGold during the period up to 2017. Bruce van Brunt, Technical Services Manager for Haile Gold Mines, the competent person for this section, has reviewed the sample preparation, analysis, and security utilized by HGM and finds the procedures to be proper for determination of Ore Reserves and Mineral Resources. <u>Reverse Circulation Drilling</u> The reverse circulation drilling at Haile typically uses 16 cm drill bits. The RC rigs are equipped with a cyclone and a rotary splitter. Most RC drilling at Haile is in wet conditions. Water injection is typically 15 to 19 ltr/min above the water table and decreases to 4 ltr/min when groundwater is encountered. Sample sizes are generally between 9 and 14 kg dry mass. The standard size reflects a 15 to 20% split of the total drilled volume. Drill intervals are predominately of 1.5m length. Wet samples are bagged, drained and allowed to settle (aided by flocculent) before being transported to a storage facility for initial drying. . Lithological chip samples are retained in chip trays, labelled with the drill hole number and depth intervals in permanent marker. RC drilling has not been conducted at Haile since 2011.

Criteria	JORC Code Explanation	Commentary
		Diamond Drilling Diamond core drilling is by wireline methods and generally utilizes HQ and NQ size core 6.35cm and 4.8cm core. Core is transferred from the core barrels to plastic core boxes at the drill rig by the driller. Core orientation is not utilized other than for specific geotechnical programs. Core is broken as required to completely fill the boxes. Drill intervals are marked on the core boxes and interval marker blocks are labelled and placed in the core box. Whole core is transported to the sample preparation area by Oceanagold personnel. **On Site Sample Preparation** RC Samples The reverse circulation sample bags from the truck are transferred to the Haile sample handling facility where they are prepared for shipment to a lab. RC samples are prepared at either the Kershaw Mineral Lab (KML) in Kershaw, SC or the AHK Geochem (AHK) preparation facility in Spartanburg, SC. Samples follow one of two paths: 1) Some samples are weighed and sample number tags added to the bags. The samples are poured through a Jones riffle splitter to reduce the size to roughly 2.7 kg for shipment to the sample lab. Coarse rejects are kept in their original sample bags and stored on site on pallets. 2) Alternatively, samples are staged at the Haile site and placed in containers for direct shipment to KML or AHK. Core Samples At the core logging facility, the core is cleaned, measured and photographed. Geotechnical and geologic logging is completed on the whole core. Rock Quality Data (RQD) and core recovery are recorded as part of the geotechnical suite of data for all core holes. Holes drilled since September 2016 also record hardness, joint condition rating and fracture frequency

Criteria	JORC Code Explanation	Commentary
		The logging geologist assigns the sample intervals and sample numbers prior to core sawing. Sample lengths are typically 1.5m and are defined based on geology in potentially mineralized areas. Sample lengths range in size from 0.3 to 3m. Core is either sawed or split with a putty knife if soft. The saw or knife is cleaned between each sample. A brick or barren rock sample is sawed with the diamond saw between intervals to minimize cross-contamination. The cooling water for the saw is not recycled. All core is sawed in half along the core axis. Half core is collected in a sample bag with unique sample ID and the other half is retained in the core box for future logging or test work. Split core is delivered to the sample preparation facilities. Core is prepared at the either the Kershaw Mineral Lab (KML) facility in Kershaw, South Carolina or at the AHK Geochem preparation facility in Spartanburg, South Carolina. **Off Site Sample Preparation** The AHK sample preparation and assay facility is independent of HGM. The KML sample preparation and assay facility is owned and operated by the Haile Gold Mine. <u>AHK Geochem (AHK)</u> Once the samples arrive at AHK in Spartanburg, the following procedures were applied: Sample Preparation 1) Inventory and log samples into the laboratory LIMS tracking system 2) Print worksheets and envelope labels 3) Dry samples at 65.5 degrees C 4) Jaw crush samples to 80% passing 2 mm 5) Clean the crusher between samples with barren rock and compressed air 6) Split sample with a riffle splitter to prepare the sample for pulverizing 7) Pulverize a 250 gm sample to 90% passing 150 mesh (0.106 mm) 8) Clean the pulveriser between samples with sand and compressed air 9) Ship about 125 gm of sample pulp for assay 10) Coarse rejects are returned to Haile for storage 11) The 125 gm reserve pulps are stored at the AHK facility in Spartanburg with a seal. They represent an independent chain of custody sample library. Sample pulps were shipped to the AHK Laboratory in Fairbanks, AK for analysis. <u>Kershaw Mineral Laboratory (KML)</u> Once the samples arrived at KML, the following procedures are applied:

Criteria	JORC Code Explanation	Commentary
		Sample Preparation 1) Inventory and log samples into the laboratory LIMS tracking system 2) Print worksheets and envelope labels 3) Dry samples at 93 degrees C 4) Jaw crush samples to 70% passing 10 mesh (2 mm) 5) Clean the crusher between samples with barren rock and compressed air 6) Split sample with a riffle splitter to prepare the sample for pulverizing 7) Pulverize a 450 gm sample (+/- 50 gm) to 85% passing 140 mesh (0.106 mm) 8) Clean the pulveriser between samples with sand and compressed air 9) Approximately 225 gm of pulp sample is sent for fire assay 10) Coarse rejects and reserve pulps are returned to Haile for storage. Sample pulps from KML were analysed at KML. Check assays in for mineralized intervals were sent to ALS Minerals in Reno for third party check assays.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	Drilling at the Haile property commenced in the 1970's and has continued intermittently to the present by several different companies. Drilling used for resource estimation purposes is almost entirely by reverse circulation or diamond coring. Within the fire assayed data, 28% of the holes are core and 72% are RC. There are very few fire assays (301) that are from air track drilling and "doodle bug" as recorded in the data base. They amount to 0.2% of the data base and are not a significant sample set. The reverse circulation drilling at Haile typically uses 16 cm drill bits. Diamond core is HQ and NQ. As at July 29, 2016, there was a total of 4301 drill holes in the data base totalling 598,276m of drilling. However, not all of this drilling was used for resource estimation within the block model. Some additional drilling has been completed on the property since the July 2016-time period. That information has not been incorporated into the resource model or into the determination of Mineral Resources or Ore Reserves. Property, permit, and other constraints are such that the additional drilling would not constitute a material change to the Mineral Resources or Ore Reserves. A total of 19,513 m of additional drilling in 42 holes has been added to the resource, mostly infill resource drilling of Horseshoe deposit, All available drilling for the open pit and underground resources has been incorporated into resource estimates and has been posted on Oceanagold's website.
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery*	Core recoveries were measured at the core shed by the logging geologist. Core recoveries average 97%. There is no observed relationship between core recovery and grade.

Criteria	JORC Code Explanation	Commentary
	and ensure representative nature of the samples. • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	RC samples are collected from a rotary splitter at the drill rig. Splitter ratios range from 8 to 17% and rock density used in the model ranges from 2.04 to 2.78 spg. Consequently, sample weights can range from 6.3 to 14.2 kg. 75% of the measured sample weights fall within this range. The dry weight of each sample is recorded at the Haile sample preparation facility. Because of the variable split proportions used (not recorded), there is no direct relationship between the sample weight and sample recovery and no specific calculation of sample recovery. After drying and weighing, the samples are subsequently further split down to yield a 2.7 kg sample for dispatch to the laboratory. The RC samples have been checked by paired sample comparison to closely spaced DDH samples. No systematic bias was revealed.
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	Core logging is completed on site by staff geologists at Haile Gold Mine. Geotechnical and geologic logging is completed on the whole core. Rock Quality Data (RQD) and core recovery are recorded as part of the geotechnical suite of data. All core intervals are photographed. Limited intervals have structural orientation measurements for bedding, foliation and veins. RC chips are logged by the staff geologists from samples that are sieved from the coarse rejects. Representative chip samples are stored in plastic chip trays on 1.5m intervals. All logging, which is qualitative, is recorded in Excel files with a separate file for each drill hole. The logged information is stored on site and backed up periodically. All drilled intervals are logged. Logging fields include rock type, color, grain size, structure, alteration, redox, mineralogy and comments.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Refer to sampling techniques section or the Quality of Assay data section for more detail. • Half core samples are taken, either by saw, or if too soft, cut by knife. • RC samples are rotary split under water injection • It is believed that preparation for both the diamond core and RC samples is appropriate. • The RC drilling procedures as discussed in sampling techniques were put in place to optimise sampling during water injection (flocculent, careful draining of samples, rotary splitting etc.) • Oceanagold has consistently been sending pulps and duplicates to an outside third party laboratory. It is believed that the sample sizes are adequate. Although coarse gold has been observed in drill core, it is not common and not representative of the mineralization that will be processed. Mr.

Criteria	JORC Code Explanation	Commentary
		van Brunt is of the opinion that the sample sizes and procedures are standard methods for deposits of this type.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.*	The Mineral Resources and Ore Reserves at Haile are based on fire assay of a 30 gm aliquot for gold with Atomic Absorption finish. For additional detail refer to the sample preparation section. Blanks and standards are inserted by Haile, and check assays are submitted to a second lab on a regular basis. The Haile drill hole data base was verified by IMC in late 2010 and the results published in the Technical Report titled "Haile Gold Mine Project, NI43-101 Technical Report Feasibility Study" dated 10 February 2011, and subsequent versions of the document. The following discussion focuses on verification of the drilling, sampling, and assaying completed from October 2010 thru 16 November 2011. The verification of the late 2011 data when added to the historic data base constitutes the complete data base used in the assembly of the block model and corresponding Mineral Resource estimate. The data base verification at Haile utilized the following major steps: 1) A check of the Haile data base against assay certificates from the laboratory. 2) A statistical analysis of the quality control data that is collected by Romarco and their assay laboratory. 3) A comparison of Romarco drilling and assay information versus closely spaced historic information. (see the Verification Section) 4) A comparison of diamond drilling versus reverse circulation drilling (see the Verification Section) The approach presented above is to verify that the Romarco data is reliable based on the quality control information that is collected with the data. Once that is established, the applicability of the historic information is established by a nearest neighbour statistical analysis of old versus Romarco drilling (See the Verification Section). **Romarco Data Verification** The verification of the Romarco drill hole data was completed in two iterations: a) Drilling completed by Romarco during the period of 2007 through October 2010 of which 94% was collected during 2009 and 2010 (referred to as 2010 Data Verification). b) Drilling completed by Romarco between October 2010, and November 2011 (referred to as 2011 Data Verification).

Criteria	JORC Code Explanation	Commentary
		The two periods reflect the support work behind public statements of Mineral Resources and Ore Reserves that were published during late 2010 and then updated in late 2011. Summaries of the two verification exercises are included here. 2010 Romarco Data Verification The following checks were applied to the 2007 – Oct 2010 Romarco data by John Marek of IMC. References to work by IMC were completed by or under the responsible charge of John Marek. 1) A comparison of certificates of assay from the laboratory versus the Romarco computerized data base to check the reliability of data entry. 2) Statistical analysis of the standards samples that are inserted by Romarco for analysis by the assay lab. 3) Statistical analysis of the blank samples that are inserted by Romarco for analysis by the assay lab. 4) Statistical analysis of the internal duplicates that are selected by the Alaska Laboratory assay lab as an internal check. 5) Statistical analysis of the check samples that are submitted by Romarco to a third party laboratory. No material problems in data entry, Romarco inserted QC samples, internal duplicates selected by Alaska Laboratories, or the external third party laboratory check sampling were detected. John Marek and IMC conclude that the Haile data base at that date was reliable for the determination of Mineral Resources and Ore Reserves. 2011 Romarco Data Verification The following checks were applied to the October 2010 to November 2011 Romarco data by John Marek of IMC. 1) A comparison of certificates of assay from the laboratory versus the Romarco computerized data base to check the reliability of data entry. 2) Statistical analysis of the standards samples that are inserted by Romarco for analysis by the assay lab. 3) Statistical analysis of the blank samples that are inserted by Romarco for analysis by the assay lab. 4) Statistical analysis of the check samples that are submitted by Romarco to a third party laboratory. No material problems in data entry, Romarco inserted QC samples, or the external third party laboratory check samples were detected. John Marek and IMC conclude that the Haile data base at that date was reliable for the determination of Mineral Resources and Ore Reserves.

Criteria	JORC Code Explanation	Commentary
		Early drilling by Cyprus and Piedmont applied cyanide soluble methods to the assay intervals. Much of this effort was directed at measuring the cyanide amenability of the ore to heap leach processing. IMC completed a comparison between the cyanide data in the historic database and fire gold assays where they both existed for the same assay interval. There are 9,417 intervals where both cyanide and fire assay data exist. Within those pairs, the cyanide data averages about 67% of the fire assay results. Statistical hypothesis tests do not support commingling of the data. As a result, IMC chose to ignore the cyanide data within the historic data base and apply fire assay information only to the determination of Mineral Resources and Ore Reserves previously . John Marek of Independent Mining Consultants, Inc. (IMC) acted as the Competent Person for the data verification and determination of Mineral Resources at that time. <u>Horseshoe 2016 Data Verification</u> Horseshoe data were verified for the 2016 drill program with QAQC standards and blanks review and a check of assays, collars and downhole surveys. No significant issues were identified. This includes a 5% check of assays and a 100% check of collar coordinates and downhole surveys.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	IMC completed a nearest neighbour comparison of old drilling versus new drilling on a 6.1m composite basis in order to gain comfort with the historic drilling at Haile. The entire data base of Romarco drilling was used in this analysis rather than just the 2011 component. The procedure was as follows: 1) Drill hole data was composited to 6.1m down hole intervals 2) Drill holes were tagged with the company that drilled them. In this case, Romarco drilling versus all previous drill holes. 3) The data was sorted so that old samples that were within a specified distance of the Romarco composites were selected and paired with the Romarco composite data. 4) Only metasediments and saprolite were used in the analysis as they represent the majority of the ore. 5) The result is a paired data set where statistical tests can be applied to check that the data represents the same population. The table below summarizes the results of the statistical hypothesis tests for composites spaced 15.2m (50 ft) apart or less. The distance represents 1.5 model blocks. Table 1: Old Drilling versus New Drilling, Statistical Comparison

	Hypothesis Tests

Criteria	JORC Code Explanation	Commentary

Sample Separation (m)	Number of Pairs	New Mean gm/t	Old Mean Gm/t	T Test	Paired-T	Binomial	KS
15.2m	878	0.686	0.823	Pass	Pass	Pass	Pass

The hypothesis tests listed above all indicate that the data could represent the same population with 95% confidence. The purpose of each test is:

T-Test Comparison of sampled mean values
Paired-T Comparison of differences between pairs of samples
Binomial Test that errors are unbiased
KS Komologorov-Smirnoff test on the overall population

This test did not apply a sort on drill type so that both RC and DDH holes are in the comparison. The comparison of RC vs DDH will be addressed below.

Diamond Drilling vs RC Drilling

The data base at Haile consists of a mix of diamond drilling (DDH) and reverse circulation drilling (RC). IMC has compared the results of these two drill methods to ascertain whether or not they are biased relative to one another.

A similar procedure was applied as outlined in the previous section. The 6.1m composites were coded by drill type, even if both methods were used in the same hole. For example, there are several holes where the top portion was RC drilled, cased, and then deepened with DDH methods.
A nearest neighbour analysis was completed with sample spacing's of 7.6m and 15.2m. Table 2 summarizes the results.

Table 2: DDH Drilling versus RC Drilling, Statistical Comparison

				Hypothesis Tests			
Sample Separation (m)	Number of Pairs	DDH Mean Gm/t	RC Mean Gm/t	T Test	Paired-T	Binomial	KS
7.6m	504	.891	.857	Pass	Pass	Fail	Pass
15.2m	1277	.891	.857	Pass	Pass	Fail	Pass

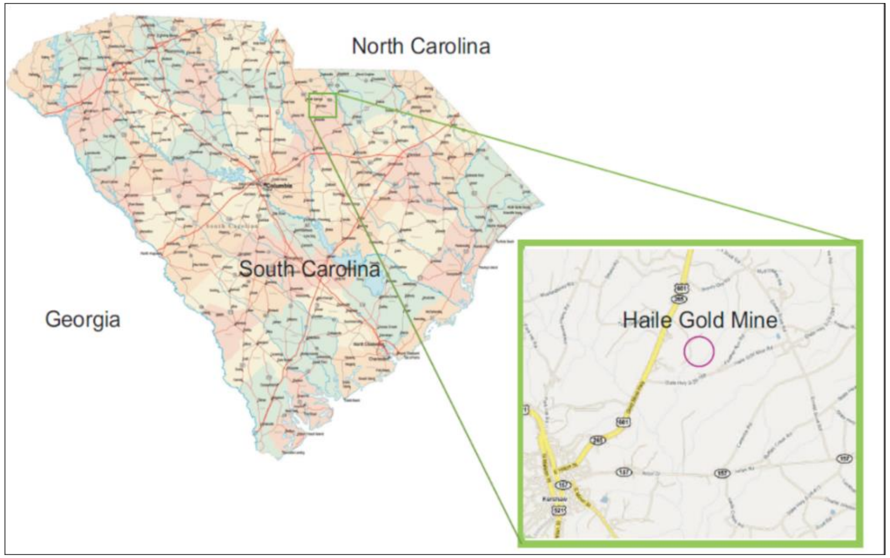
The results indicate that there is no observed bias between the two sampling methods.
Two Horseshoe assay studies were conducted in November 2016 to compare KML vs ALS Tucson assays. Key findings were:

Criteria	JORC Code Explanation	Commentary
		1. KML is 10% lower for AuAA values than ALS for 259 Horseshoe sample pairs in the 0.5-3 g/t range (R^2=0.73); AA results from KML predate digestion changes implemented in October 2016. 2. KML is 5% lower for AuFA values than ALS for 253 Horseshoe samples pairs in the 0-53 g/t range (R^2=0.90). Assays >100 g/t Au (n=18) show poor correlation when comparing KML to ALS results, likely due to the presence of coarse gold and difficulty in achieving assay precision. Statistical variance from these studies for AuAA vs AuFA comparisons (n=512) between KML and ALS Tucson indicate that the KML lab is 5-10% low, or conversely that the ALS lab is 5-10% high. KML adjusted their AA dilution process in late October to achieve better fit with expected values. There were no adjustments to the data as they are considered within reasonable limits.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	Drill hole collars are currently surveyed with differential GPS with sub-centimetre accuracy. The historic Amax and early Romarco holes were surveyed by a South Carolina licensed surveyor using conventional ground methods. Frequent check surveys have been completed during the project. The drill hole locations and the project coordinate system are South Caroline State Plane Coordinates NAD 27 North. Drilling completed by Haile since RC hole number 1502 and all DDH holes since hole number 289 have received down hole surveys on 15m increments. That amounts to 32% of the RC holes, 100% of the core-tail holes, and 89% of the diamond drill holes within the database have down-hole surveys. Since all of the surveyed drill holes deflect to the southeast, the Haile staff has developed an algorithm as a function of depth to adjust the down-hole survey of the historical drill holes to reflect their likely deviation toward the southeast from the collar orientation. The foliation dip at Haile is to the northwest. Consequently, the drill hole deviation generally turns perpendicular to the foliation dip. Topographic control has been established to a high level of precision. Resource estimation and mine planning relied on contour maps with 0.6m contour intervals.
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve*	Drill hole spacing is not a simple calculation at Haile because many holes are angle holes and down hole deflections occur during the drilling process. Several angle holes were often drilled from a single position. Estimation of block confidence was based on statistical parameters and the number of drill hole composites within the search radius. The drill hole spacing is variable, but typically 30m x 30m to 50m x 50m for Measured and Indicated Resources. Average Drill Spacing for Inferred = 82m.

Criteria	JORC Code Explanation	Commentary
	estimation procedure(s) and classifications applied. • *Whether sample compositing has been applied.*	Drill hole data was composited to 6.1m (20ft) composites prior to block grade estimation. Additional discussion is included within the Section on Mineral Resources.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	The Haile gold mineralisation is not a vein deposit. The orientation of the mineralisation generally parallels the foliation of the host metasediments. The metasediments have variable dip that ranges between 20 to 60 degrees to the north-northwest. The majority of mineralisation dips 30-50 degrees to the north-northwest. Drilling orientation ranges from vertical to SE-bearing angles to intercept mineralisation. Several holes have been drilled to the northwest to confirm orientation of mineralisation, and in some areas where metasediments dip to the southeast. All drill holes deviate and self-align perpendicular to the north-northwest dipping foliation and mineralisation. There is no evidence of orientation-related sample bias at Haile.
Sample security	• *The measures taken to ensure sample security.*	All drill hole samples are transported from the drill rigs to the Haile Gold Mine sample prep facility by Oceanagold personnel. Access to the property is limited and controlled. When samples are shipped, to the lab, the sample manifests are checked by the lab and the receipt of all samples are confirmed. During off-shift hours, a Deputy Sherriff is on site providing security for the site and sample storage facility.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	The Haile data base and resource model have been reviewed by 3rd parties in several iterations. Those reviews were proprietary and IMC does not have access to the results. Mr. van Brunt is not aware of any suggested changes that may have resulted from the 3rd party reviews. During 2016, the Romarco Minerals database was translated to OceanaGold's standard AcQuire database platform. Where available, original source assay and survey data were used for the AcQuire translation. The data base that was used for this resource estimate was transferred from this Exploration AcQuire database on July 29, 2016.

1.2 Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	**Property Location** The Haile property site is located 4.8km (3mi) northeast of the town of Kershaw in southern Lancaster County, South Carolina, Lancaster County lies in the north-central part of the state. The Haile Gold Mine is approximately 27.4 km (17 mi) southeast of the city of Lancaster, the county seat, which is approximately 48.3 km (30 mi) south of Charlotte, North Carolina. The approximate geographic centre of the property is at 34° 34' 46" N latitude and 80° 32' 37" W longitude. The mineralized zones at Haile lie within an area extending from South Carolina state plane coordinates 2136300 E to 2142300 E, and from 573700 N to 576300 N, (1927 North Datum).  (Source: State-Maps.org and Google Maps, 2014) Figure 1: General Location Map of the Haile Gold Mine **Ownership** Following a Plan of Arrangement completed on October 1st, 2015 between Romarco Minerals Inc and OceanaGold Corporation, Haile Gold Mine Inc. (HGM) is a wholly owned subsidiary of OceanaGold Corporation. References in this document to OceanaGold refer to the parent company together with its subsidiaries, including HGM and Romarco Minerals Inc. HGM provided an inventory of property that is owned both within the project boundary and as buffer land outside the project boundary. After transferring approximately 1,776 hectares of land

Criteria	JORC Code Explanation	Commentary
		into mitigation and conservancy projects, HGM owns approximately 2,314 hectares of land in total. HGM owns additional land that is not associated with the project.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	Historic exploration was completed prior to acquisition of the Haile Gold Mine by Romarco. That work has been superseded by the drilling completed at Haile.
Geology	• *Deposit type, geological setting and style of mineralisation*.	Hundreds of gold deposits are located along a northeasterly trend that extends from eastern Georgia to Virginia. Four of these deposits have been mined since the 1980s and are all inactive except for OceanaGold's Haile mine. Many of these deposits are located at or near the contact between felsic volcanics and sedimentary dominated sequences. Various metal associations and mineralization styles indicate that this is a complex metalogenic province. Brewer has many features of an acid-sulfate mineralization system such as the presence of aluminosilicates, topaz, and enargite. Gold mineralization at Barite Hill contains the assemblage of pyrite-chalcopyrite-galena-sphalerite and is characteristic of a submarine, high-sulphidation volcanogenic massive sulfide deposit. Haile and Ridgeway are similar in that the mineralization is hosted within silicified siltstones. Both deposits contain molybdenite and the mineralization correlates with anomalous silver, arsenic, antimony, molybdenum, and tellurium. The genesis of Haile and Ridgeway are controversial and both deposits have been proposed to have been formed by conflicting models. This controversy has been exacerbated by poor exposures, overprinting deformation, metamorphism, and intense weathering. Submarine hot springs have been suggested for the gold mineralization by several geologists (Worthington and Kiff, 1970; Spence et al., 1980; and Kiff and Spence, 1987). Foley et al. (2001) and Ayuso et al. (2005) have presented additional evidence in support of this model which include geochemistry of sulfide phases and geochronology. The exhalative model stipulates that gold deposition occurred when "black smokers" on the sea floor fumed out silica, gold, and sulfide bearing fluids and the minerals precipitated in a wide area over a uniform seafloor. The precipitated minerals were buried by later sedimentation. The resulting mineral deposits are typically classified as being stratiform and lenticular in shape, and the concentration of mineralization dissipates away from the source. Alternatively, several workers have proposed the mineralization is structurally controlled and was caused by deformation. Tomkinson (1990) proposed that shearing was responsible for the mineralization at Haile and Ridgeway. This model invokes shears as the conduit for focusing gold bearing fluids into the metasiltstones. Drops in pressure during faulting are speculated to be responsible for gold precipitation. Nick Hayward (1992) proposed that folding of the phyllites controlled the gold mineralization. This genetic model proposes that gold was emplaced within the dilational zones of fold hinges during deformation. Gillon et al. (1995) proposed a model which invoked both early mineralisation and remobilization during deformation. O'Brien et al. (1998) proposed that the deposits were generated during the Neoproterozoic by the arc related volcanic activity in a hydrothermal system. This is supported by the close spatial associations between Haile and the felsic volcanic rocks. Pressure shadows around pyrite grains within the mineralized zones, folded mineralized zones, and flattened

Criteria	JORC Code Explanation	Commentary
		hydrothermal breccias indicate that the mineralisation is pre-tectonic and rules out that the mineralisation is related to deformation. This is the currently preferred genetic model. Mineralisation is broadly stratiform in mostly folded metasediments, and is commonly silicified and pyritic. Hydrothermal breccias containing well bedded clasts, silicification fronts cross-cutting bedding, and multiple phases of silicification indicate that the mineralisation is post depositional and invalidate the submarine hot springs or exhalative model.
Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	No Exploration Results are being presented in this document. This report is focused on an advanced project that has well defined geological models and associated resource estimates completed
Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	No Exploration Results are being presented in this document. This report is focused on an advanced project that has well defined geological models and associated resource estimates completed.
Relationship between mineralisatio	• *These relationships are particularly important*	Drill intercepts are typically reported in down hole length from the drill collar. Most are 1.5m long assay

Criteria	JORC Code Explanation	Commentary
n widths and intercept lengths	*in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	intervals. No Exploration Results are being presented in this document. This report is focused on an advanced project that has well defined geological models and associated resource estimates completed.

Diagrams

- *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*

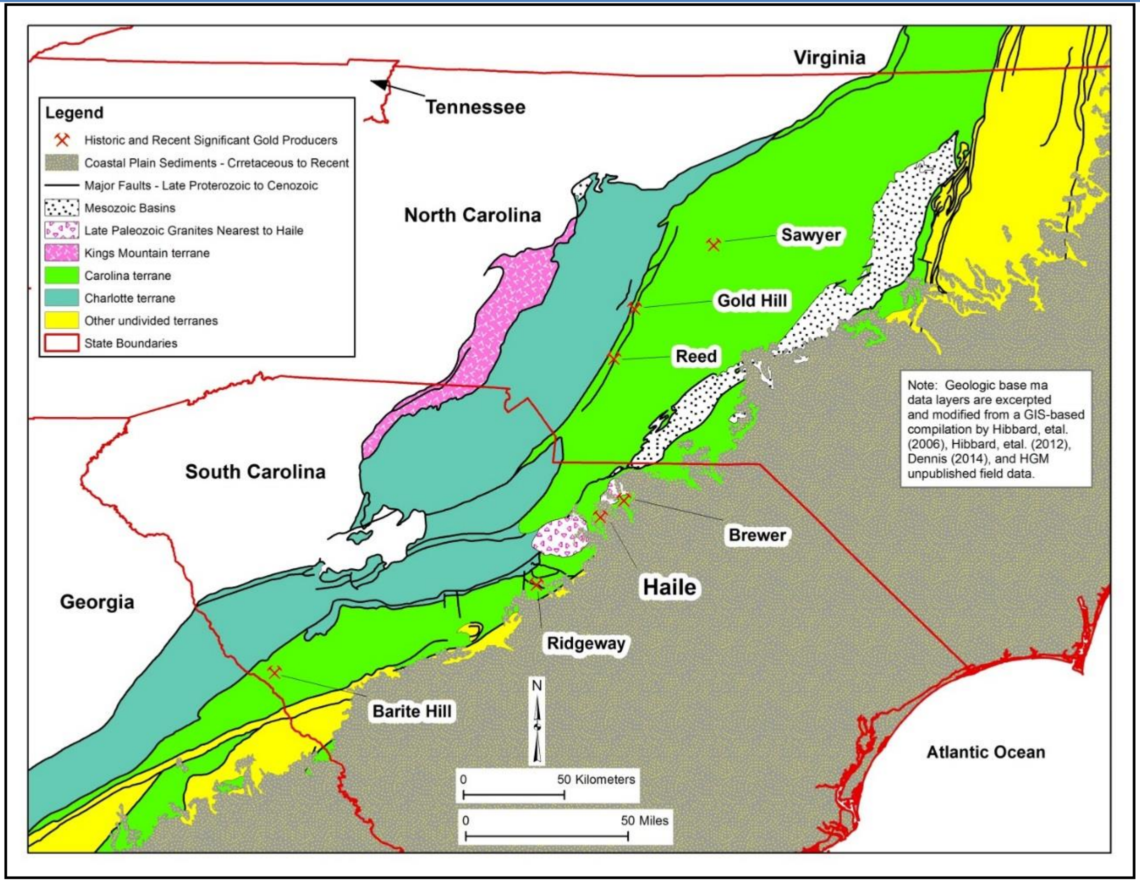
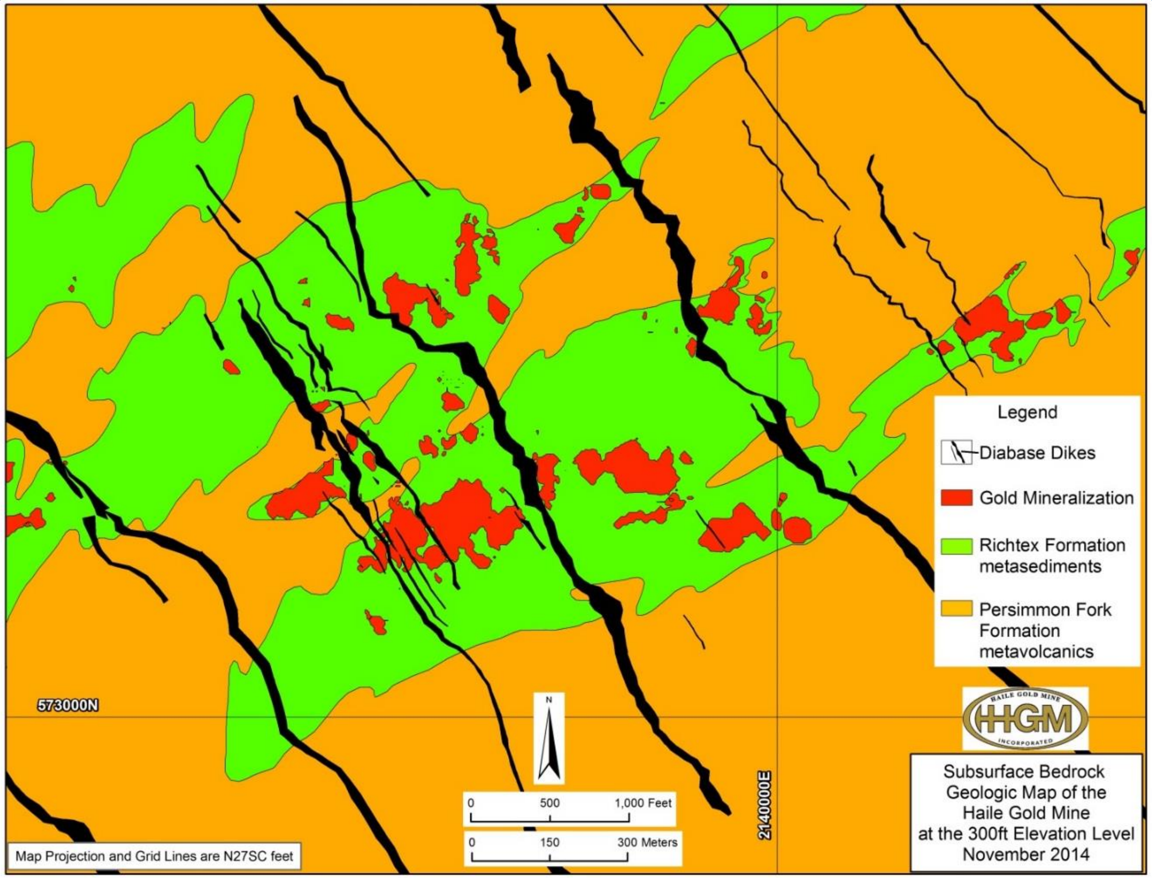
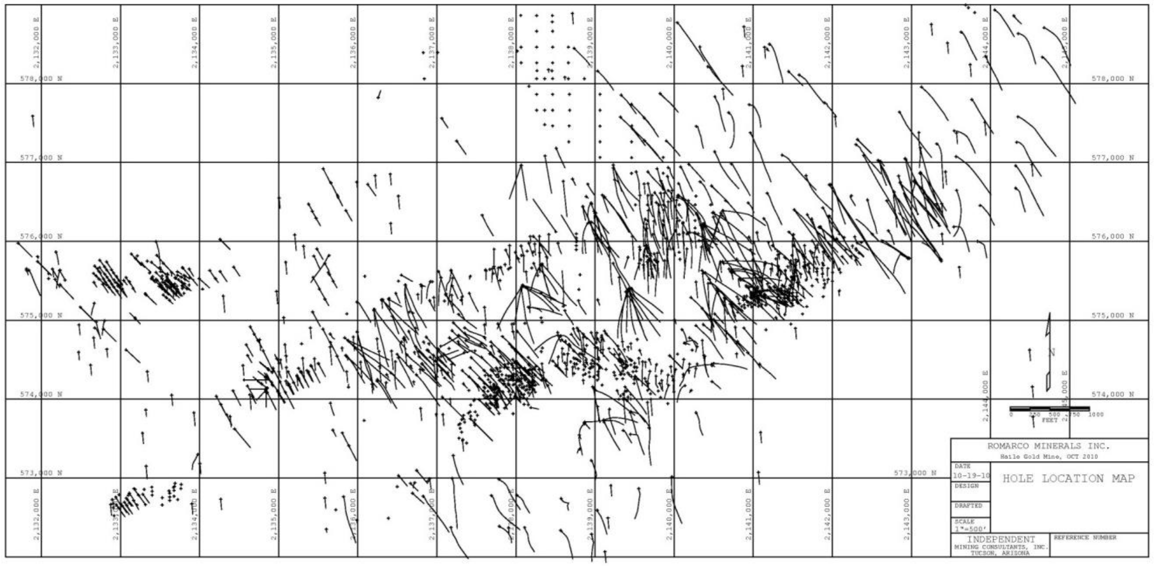


Figure 1: Gold Deposit Locations within the Carolina Terrane

Criteria	JORC Code Explanation	Commentary
		 Figure 2: Schematic Geologic Map of Haile Property, November 2014

Criteria	JORC Code Explanation	Commentary
		 Figure 3: Drill Hole Collar Locations
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	No Exploration Results are being presented in this document. This report is focused on an advanced project that has well defined geological models and associated resource estimates completed.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	OceanaGold Corporation (OGC) continues to drill in the district surround the Haile Gold Mine. However, no Exploration Results are being presented in this document. This report is focused on an advanced project that has well defined geological models and associated resource estimates completed.
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).*	OGC continues to drill in the district surrounding the Haile Gold Mine. However, no Exploration Results are being presented in this document. This report is focused on an advanced project that has well defined geological models and associated resource estimates completed.

Criteria	JORC Code Explanation	Commentary
	• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	

1.3 Section 3 Estimation and Reporting of Mineral Resources

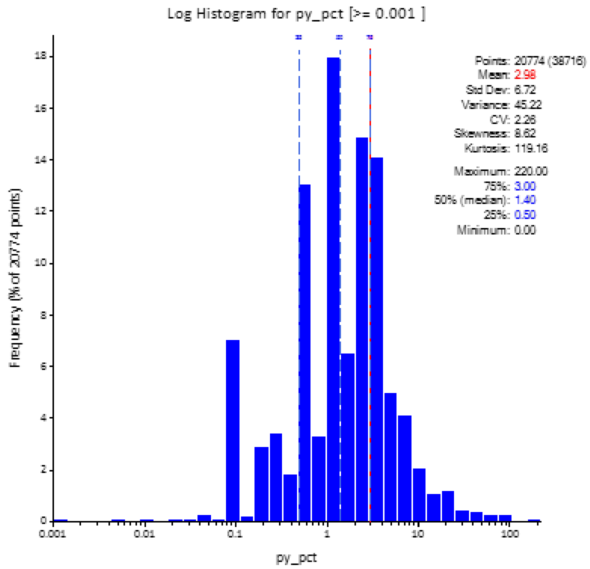
(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Database integrity	• *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* • *Data validation procedures used.*	IMC and John Marek completed checks on roughly 10% of the drill hole data base by comparing the electronic data base against the Certificates of Assay. Transcription or data entry errors are minor and would not impact the stated Mineral Resources or Ore Reserves. During 2016, the Romarco Minerals drilling database was translated to OceanaGold's standard AcQuire database platform. Where available, original source assay and survey data were used for the AcQuire translation and database validation. See the section on Data QAQC.
Site visits	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	Bruce van Brunt of OGC is the Competent Person for Mineral Resources and Ore Reserves. Mr. van Brunt has been employed at the Haile Gold Mine site continuously since 23rd of June, 2016. Dr. Bart Stryhas of SRK Consulting visited the site on October 10-12, 2016.
Geological interpretation	• *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* • *Nature of the data used and of any assumptions made.* • *The effect, if any, of alternative interpretations on Mineral Resource estimation.* • *The use of geology in guiding and controlling Mineral Resource estimation.* • *The factors affecting continuity both of grade and geology.*	Mineralisation is hosted within a folded sequence of meta-sediments / meta-volcanics, cut through by subsequent north dipping shearing. The majority of mineralisation is hosted within the meta-sediments. The geometry of folding and the identification of sheared surfaces are important controls in modelling of the three dimensional distribution of meta-sediments, and the meta-sediment / meta-volcanic boundary. Steeply dipping dolerite dykes cut the sequence. These are mostly aligned NW-SE parallel to the dominant drilling direction, which hampers reliable interpretation of dyke volume. While this is not important for definition of open pit ore, it will be very important for definition of underground ore, and drilling specifically intended to define dyke volumes will be required prior to underground mining. Geologic surfaces were interpreted from drill logs by the Haile geology staff. Those electronic files were transferred to and checked by Mr. van Brunt. The volcanic and meta-sedimentary rock types were assigned to the block model on a sub-block basis during model initialization. Sand, saprolite, the dykes, fill and the old tails and heaps were assigned after the model initialization on a whole block basis.

Criteria	JORC Code Explanation	Commentary
		The geological interpretation is believed to appropriate for purposes of estimation. No alternative interpretations have been made. The primary rock type lithologic codes that are assigned to the model are: Code 5 = Meta-Sediments 3 = Meta-Volcanics 4 = Dolerite (localled called Diabase at Haile) Dykes 2 = Saprolite 1 = CPS beach sand Additional coding is used to flag fill, tailings and historic leach pad facilities. Haile exploration and mine geology personnel provided surfaces for redox and pre-reclamation topography. They were also assigned to the model. Mineralisation is hosted within a folded sequence of meta-sediments / meta-volcanics. The majority of mineralisation is hosted within the meta-sediments, so the geometry of folding is an important control. Barren dolerite dykes cut the sequence. Key geologic events with ages in millions of years (Ma) include: • 580-550 Ma Carolina terrane volcanism & sedimentation, NE-trending • **550-540 Ma gold deposition** & folding, dominantly ENE fold axes • 311 Ma Alleghanian orogeny – ENE-trending lamprophyre dikes • 300 Ma Alleghanian granite pluton emplacement & folding • 220 Ma Pangaea rifting – emplacement of NW-trending dolerite dikes • 100 Ma – present Coastal Plain sands cover areas from Haile to the coast • Recent – weathering & saprolitization
Dimensions	• *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The gold mineralisation at the Haile property occurs along a trend of moderately- to steeply-dipping ore bodies within a regional corridor which runs from the west-southwest (WSW) to the east-northeast (ENE). The corridor is approximately 1 km wide (NNW to SSE) and over 3.4 km long (WSW to ENE). Most of the mineralisation at Haile is restricted to the laminated metasiltstone of the Richtex Formation. The gold mineralised zones within the laminated metasediments can vary in distance from the metavolcanic contact, and can appear at different stratigraphic levels within the metasediments. . The mineralized zones at Haile are believed to be hosted along a gently northeast plunging antiform (trending approximately northeast to east-northeast). The interpreted dips of the ore

Criteria	JORC Code Explanation	Commentary
		zones range from 25° northeast at the western end of the property to steeply southeast at the eastern end of the known trend. In several areas, multiple mineralised zones exist.
Estimation and modelling techniques	• *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* • *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* • *The assumptions made regarding recovery of by-products.* • *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* • *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.* • *Any assumptions behind modelling of selective mining units.* • *Any assumptions about correlation between variables.* • *Description of how the geological interpretation was used to control the resource estimates.* • *Discussion of basis for using or not using grade cutting or capping.* • *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	**Open Pit** The model method was selected to provide sound estimates for mine planning and the corresponding estimation of Mineral Resources and Ore Reserves. Two indicator interpolation boundaries were applied to minimize the "grade smearing" often associated with ordinary linear kriging. High grade values have been capped and additional limitations placed on the search radius of high grade composites. Those procedures are summarized in the following paragraphs. The resource estimates are depleted for previous small scale open pit mining, mining by OGC in 2016, but not for the minor underground mining that historically occurred. Much of the historic underground mining was removed by the Mill Zone Pit in 2016. Silver, carbon and sulphur contents were estimated. In addition to gold grade, the key indicators to gold mineralization are silicification and pyrite content. Core logging has also identified brecciation as a feature often found with high grade mineralization. **Silicification** The progression of 'silicification' increases from 0 (non-existent) - 3 (main component). The minor silicification (= 1) population has an average grade of about 0.5 g/t. The average grade of moderately silicified (= 2) rocks is 1 g/t and the very silicified (= 3) average grade increases to approximately 2 g/t. The gold:silicification relationship is strong.

Criteria	JORC Code Explanation	Commentary
		Figure 1. Assay statistics for gold reported by silicification intensity Any amount of silicification appears to be potentially indicative of mineralization. High silicification may be a good control of the high grade gold population during interpolation. Spatially, the correlation of silicification = 3 intercepts and breccia intercepts is quite good. **Pyrite** Multiple morphologies of pyrite have been identified at HGM, ranging from fine to coarse cubic pyrite. Based on logging it has been established that the fine pyrite is more typically associated with mineralization.

Criteria	JORC Code Explanation	Commentary
		Filtering out the lower gold grades below ~0.2g/t gives an indication of the association between pyrite and gold mineralization. The following figure shows that when gold is above 0.2 g/t, on average 3% pyrite is also present.  Figure 2. Histogram of pyrite concentration where gold is above 0.2 g/t **Au-Si-Py Indicators** Given the relationship between gold silicification and pyrite, a series of indicators was established to evaluate the utility of a combined set of indicators based on the recognized associations. Indicators were set up for the following variables: 1. Au - 0.29 g/t 2. Si - >= 1 3. Py - > 1% Following this, a summary indicator tabulated values ranging from 0 - 3, based on the 3 individual indicator values. This summary indicator was then used to establish interpolation domain shells. Gold statistics from the raw drilling data within the summary zones is presented in Figure 3.

Criteria	JORC Code Explanation	Commentary
		Domains/Interpolation shells – Two of the 3 summary indicator shells were chosen to be used in constraining gold mineralization, the outer shell is the 1/3 summary indicator shell within which at least one of the three indicators is positive. Figure 3. Gold statistics reported by summary indicator **Assay Cap Values** Prior to compositing, gold and silver grades were top-cut to reduce the impact of high grades on the estimation. The basis for the top-cutting combined inspection of log-log cumulative distribution function plots of grade with a metal at risk analysis conducted in Excel. Top-cuts of 20.6 gpt and

Criteria	JORC Code Explanation	Commentary
		72 gpt were applied to gold grades within the ⅓ summary indicator zone and the ⅔ summary indicator zone respectively.

For gold in the ⅓ summary indicator zone:

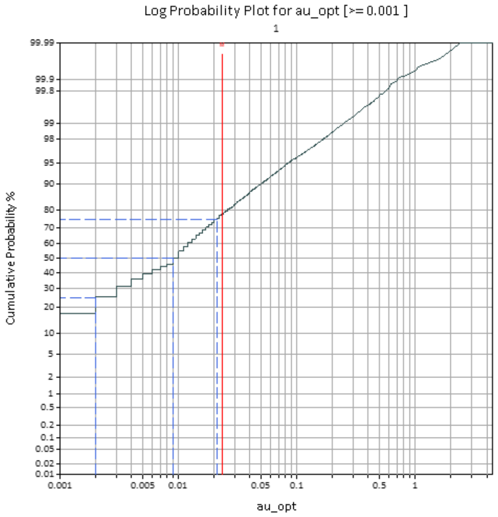
Ore = 1

Top-cut = 0.6 opt

Decile	No. of Samples	Ounces gold/ton Average	Ounces gold/ton Minimum	Ounces gold/ton Maximum	Contained Metal Ounces	Contained Metal %Total
0-10	4009	0.001	0.001	0.001	20	0%
10-20	4009	0.001	0.001	0.002	24	0%
20-30	4009	0.002	0.002	0.003	45	1%
30-40	4009	0.004	0.003	0.005	75	1%
40-50	4009	0.006	0.005	0.009	130	3%
50-60	4009	0.010	0.009	0.011	219	4%
60-70	4009	0.013	0.011	0.016	299	6%
70-80	4009	0.019	0.016	0.024	447	9%
80-90	4009	0.033	0.024	0.046	767	15%
90-100	4006	0.128	0.046	4.466	2,994	60%
90-91	401	0.048	0.046	0.050	114	2%
91-92	401	0.053	0.050	0.056	124	2%
92-93	401	0.059	0.056	0.062	139	3%
93-94	401	0.066	0.062	0.070	154	3%
94-95	401	0.075	0.070	0.080	178	4%
95-96	401	0.087	0.080	0.097	209	4%
96-97	401	0.108	0.097	0.120	249	5%
97-98	401	0.139	0.120	0.160	324	6%
98-99	401	0.196	0.160	0.245	457	9%
99-100	397	0.479	0.245	4.466	1,048	21%
Total	**40087**	**0.022**	**0.001**	**4.466**	**5,020**	**100%**

0-10	4009
10-20	8018
20-30	12027
30-40	16036
40-50	20045
50-60	24054
60-70	28063
70-80	32072
80-90	36081
90-100	4006

90-91	36482	401
91-92	36883	401
92-93	37284	401
93-94	37685	401
94-95	38086	401
95-96	38487	401
96-97	38888	401
97-98	39289	401
98-99	39690	401
99-100	40087	397



Criteria	JORC Code Explanation	Commentary

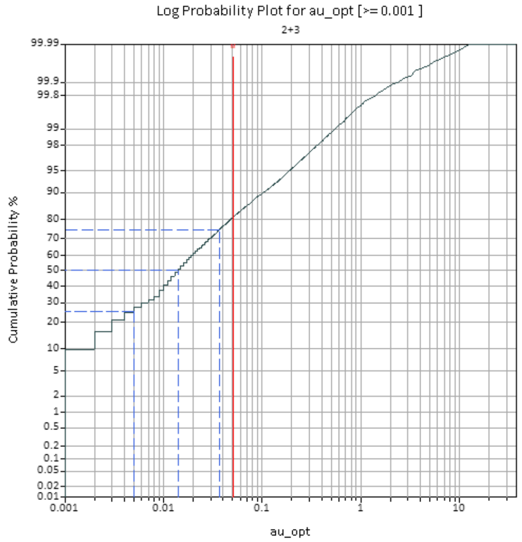
Ore = 2+3

Top-cut = 2.11 opt

	No. of	Ounces gold/ton			Contained Metal	
Decile	Samples	Average	Minimum	Maximum	Ounces	%Total
0-10	2779	0.001	0.001	0.002	14	0%
10-20	2779	0.002	0.002	0.003	33	0%
20-30	2779	0.005	0.003	0.007	64	1%
30-40	2779	0.009	0.007	0.010	120	2%
40-50	2779	0.012	0.010	0.014	166	2%
50-60	2779	0.017	0.014	0.020	231	3%
60-70	2779	0.024	0.020	0.030	338	5%
70-80	2779	0.038	0.030	0.049	537	8%
80-90	2779	0.072	0.049	0.109	997	14%
90-100	2771	0.350	0.109	37.388	4,591	65%
90-91	278	0.116	0.109	0.121	162	2%
91-92	278	0.129	0.122	0.138	181	3%
92-93	278	0.147	0.138	0.156	201	3%
93-94	278	0.156	0.157	0.177	219	3%
94-95	278	0.190	0.177	0.204	257	4%
95-96	278	0.223	0.205	0.244	299	4%
96-97	278	0.270	0.244	0.301	344	5%
97-98	278	0.343	0.303	0.402	449	6%
98-99	278	0.493	0.404	0.634	617	9%
99-100	269	1.702	0.635	37.388	1,862	26%
Total	**27782**	**0.053**	**0.001**	**37.388**	**7,091**	**100%**

0-10	2779
10-20	5558
20-30	8337
30-40	11116
40-50	13895
50-60	16674
60-70	19453
70-80	22232
80-90	25011
90-100	2771

90-91	25289	278
91-92	25567	278
92-93	25845	278
93-94	26123	278
94-95	26401	278
95-96	26679	278
96-97	26957	278
97-98	27235	278
98-99	27513	278
99-100	27782	269



Mr. van Brunt and Geosystems International, an independent auditor, have independently completed the following types of checks on the block model:

a) Visual comparisons of drill hole sections and plans versus the block model.
b) Comparisons of block mean grade versus contained composite grade within each estimation population and domain. This work has not indicated any bias between the drill data and the model.
c) Comparisons of the block mean grades and the contained composites at a range of cut-off grades. These comparisons indicate the appropriate trends with regard to the volume variance difference between the block model and the contained composite data. There is no indication of block model overestimation on a domain by domain basis.

Composites and Variography

The assay information was composited to 2.5m bench composite intervals. The interpolation zone values were assigned to the assay intervals by back assignment from triangulations.

Criteria	JORC Code Explanation	Commentary
		The redox and interpolation zone codes were assigned to the composites by "dipping" or back assignment from the model block zone codes. Variograms were estimated for gold and silver within and outside of the estimation domains. Variograms for carbon and sulfur were estimated globally. The drill hole spacing is variable, but typically between 30m x 30m and 50m x 50m. The block model was developed using parent blocks sized 10m x 10m on plan and 5m bench height with sub-blocks down to 5m x 5m on plan and 2.5m flitch height. The small block size in plan was selected in order to provide a reasonable method of modelling the interpreted geology with particular emphasis on the late barren dykes that cross the Haile deposit. The bench height of 5m was selected based on a combination of planned production equipment sizes. A bench height of 5m in ore is common in many open pit gold mines around the world. The block model is assembled in the project coordinate system that aligns with true north. There is no rotation in the model. Table 2 summarizes the block model location and size. The model extends some distance to the east beyond current drill intercepts. This is to provide sufficient topographic coverage for open pit back walls that may result from the deep Horseshoe area on the east side of the district.

Table 2: January 2017 Haile Model Area – Block Corners in UTM27 Coordinates (m)

	Southwest	Northwest	Northeast	Southeast
Easting	540000.00	540000.00	544750.00	544750.00
Northing	3825250.00	3827500.00	3827500.00	3825350.00
Elevation Range		-800.00	200.00	
No Model Rotation, Primary Axis=		90 degrees	East - West	
Model		475 Blocks in North - South		
Size		215 Block in East - West		
10 x 10 x 5 meter block size		**200 Levels**		

Block Grade Estimation

Block grades were estimated using the geostatistical procedure of kriging, limited by interpolation zone and by grade range.

Gold, silver, carbon and sulfur estimation was completed using ordinary kriging. Data was isolated for estimation by the summary indicator zones.

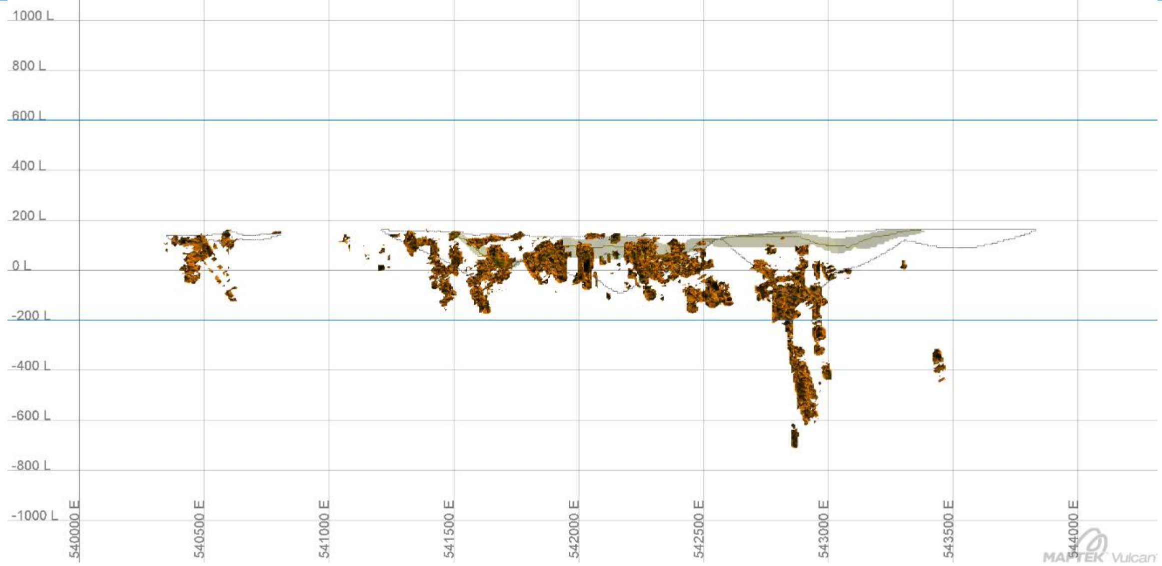
- Zone = 0: outside of the ⅓ summary indicator shell
- Zone = 1: between the ⅓ summary indicator shell and the ⅔ summary indicator shell
- Zone = 2: within the ⅔ summary indicator shell

Criteria	JORC Code Explanation	Commentary
		Gold and silver estimation was run using 4 passes each with larger search distances as displayed in the figure with successively larger ellipses. Cumulative frequency plots were developed on the 2.5m composites and population breaks or changes were recorded for each zone. Tables 3 summarizes the gold grade estimation parameters that applied ordinary linear kriging. Table 3, Gold Estimation Parameters

					Search Radius				Sample Counts				
Zone	Bearing	Plunge	Dip	Pass	Major	Semi-Major	Minor	Vario Range Multiplier	Min	Max	Max per Hole	HY Thresh	Notes
0	274	-7	-19	1	47.5	21.5	47	0.5	4	16	3	No	Top-cut of 8.3gpt applied in Vulcan
				2	95	43	94	1	4	16	3	No	
				3	190	86	188	2	1	12	3	No	
				4	285	129	282	3	1	10	3	No	
1	250	-3	-15	1	8.5	22.5	28.5	0.5	4	16	3	No	Top-cut of 20.6gpt applied
				2	17	45	57	1	4	16	3	No	
				3	34	90	114	2	1	12	3	No	
				4	136	360	456	8	1	10	3	No	
2	271	14	32	1	16	28.5	32	0.5	4	16	3	No	Top-cut of 72.3gpt applied
				2	32	57	64	1	4	16	3	No	
				3	64	114	128	2	1	12	3	No	
				4	192	342	384	6	1	10	3	No	

3826250N Long Section

Criteria	JORC Code Explanation	Commentary



The dolerite dykes were not estimated because they are essentially barren.

<u>Underground Resource Estimate – Horseshoe Deposit</u>

The Horseshoe underground resource was estimated by an independent consultant, SRK Consulting (US). Inc The limits of the Horseshoe model are shown below:

Orientation	Origin (m)	Extent (m)	Block Dimension (m)	Rotation
Easting	543,100	625	5	60°
Northing	3,827,000	700	5	clockwise
Elevation (AMSL)	-350	525	5	

The mineralisation at Horseshoe is dominantly hosted within folded meta-sediments. While a major anti-formal structure constrains the gross geometry of mineralisation, the local scale controls on mineralisation are not clear. There appears to be a shallow north-northwest dipping shear control on mineralisation at the top of the deposit, and this has been used to guide interpolation of grades.

Grade interpolation was constrained within an indicator shell based on a gold grade of 1.25g/t. Interpolation of the indicator shell was based on 3m composites, and used structural trends planes

Criteria	JORC Code Explanation	Commentary
		to guide the interpolant. A number of iterations were undertaken to develop a shell that is considered geologically reasonable, and which captures an acceptable proportion of mineralised intervals and an acceptable amount of internal dilution. Grade capping and compositing was carried out in a two step process. Grades were first composited to 1m, then capped at 70g/t prior to compositing to 3m. Capping resulted in a net 12% reduction in Au metal. Grade estimation is based on ordinary kriging into blocks of 5x5x5m. The model is rotated clockwise 60° to align the blocks with the dominant foliation fabric and strike of mineralisation. Estimation used a multiple pass strategy with increasing search distances to progressively populate blocks. For each pass a minimum three and maximum eight composites were required, with additional constraints on minimum number of drill holes (two) and octants (two) required. Variograms sills and ranges are typical of gold, with a moderate nugget and short ranges. The resource model was validated by visual inspection, statistical analysis of estimation metrics, and global and swath plot comparison of input to output grades. Grades were also estimated by alternative methods (nearest neighbour and IDW) for comparison. Finally the impact of edge dilution on the boundary of the mineralised enveloped was assessed.
Moisture	• *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Estimates of tonnage are prepared on a dry basis.

Criteria	JORC Code Explanation	Commentary
Cut-off parameters	• *The basis of the adopted cut-off grade(s) or quality parameters applied.*	Open pit cut-off grade is 0.45g/t is based on actual and anticipated costs, prices and recoveries. The underground CoG is 1.17 g/t Au, and is based on a mining cost of US$35/t, milling cost of US$10/t, administration cost of US$5.6/t, a gold price of US$1,500/oz. and gold recovery of 90%. The component of the block model that qualifies as an open pit Mineral Resource was estimated using the Lerchs-Grossmann algorithm that is normally used as a guide for open pit mine planning. The open pit block model and the determination of the open pit Mineral Resources were completed by OGC with Bruce van Brunt, Fellow AusIMM, acting as the competent person for the calculation. Mr. van Brunt is an employee of Haile Gold, and OGC and has been working on Mineral Resource and Ore Reserve estimates for precious metals projects for over 37 years. The reader is cautioned that the Mineral Resources that do not qualify as Mineral Reserves are considered too speculative geologically to have economic considerations applied to them that would enable them to be categorized as Ore Reserves. There is no certainty that these Mineral Resources will be realized or that they will convert to Ore Reserves.
Mining factors or assumptions	• *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	The open pit Mineral Resource is the material that is contained within a computer generated Lerchs-Grossmann shell. • Mining Cost USD$ 1.37/tonne • Incremental Haul USD$ 0.00875/tonne/5m bench • Processing Cost USD$ 10.61/ore tonne • G&A Cost USD$ 3.184/ore tonne • PAG Rehab Cost USD$ 0.60/PAG waste tonne • Gold Price USD$ 1300/oz • Silver Price USD$ 19/oz • Gold Refining Cost USD$ 3/oz No additional mining dilution is applied to the open pit resource estimate because the block model methods contain bench scale dilution built in to the block grades.

Criteria	JORC Code Explanation	Commentary
		For the underground, the resource estimates are based on a 5m x 5m x 5m rotated block model with E-Type grade estimates to which the cut-off grade has been applied. Mining modifying have been applied to the reserve model (see section 4).
Metallurgical factors or assumptions	• *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	Extensive processing testing was completed for detailed design and engineering of the process plant. The following equation of process recovery is the result of that work and has been applied to the Mineral Resource and Ore Reserve. Gold Process Recovery in % = 100 x (1-(0.2152 x AuGrd ^ -0.3696)) Silver Process Recovery in % = 100 x (1-((0.1768*AgGrd)+0.1877)/AgGrd) The recovery equation is based on head grades in terms of metric units in grams/metric tonne. The details of process testing and process plant design are the same for the resource and the Ore Reserve. That information is provided in the Table 1 Section on Ore Reserves.
Environmental factors or assumptions	• *Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported.*	Waste storage was studied in detail for the Ore Reserve and that information will be presented in the Table 1 Section on Ore Reserves. In Summary, acid generating rock is stored on lined storage facilities and the seepage from the facility treated before release. Potentially acid generating material is typically stored in the depleted pits below the water table after mixing with lime. Non-acid generating rock is stored adjacent to the pit at convenient haul distances.

Criteria	JORC Code Explanation	Commentary
	Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	
Bulk density	• *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.* • *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.* • *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	Density was assigned to each block in the model based on the rock type, redox and mineralization codes. Density information was based on the average results by rock type as recorded by Mr. van Brunt from analysis of core results. The following dry densities were assigned to each rock type in the block model. The dry density assignments are: Rock Type — Sp.G Meta-Seds — 2.78 fresh Meta-Seds — 2.54 oxidized Meta-Seds — 2.71 mineralized Meta-Volcanic — 2.69 fresh Meta-Volcanic — 2.54 oxidized Dolerite Dykes — 2.88 Saprolite — 2.24 Sand — 2.04
Classification	• *The basis for the classification of the Mineral Resources into varying confidence categories.* • *Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* • *Whether the result appropriately reflects the Competent Person's view of the deposit.*	Open Pit The classification criteria for Measured Resources were tightened relative to the previous estimates. This has resulted in a significant proportion of Measured Resource being reclassified as Indicated, similarly Proven Reserve being reclassified as Probable. Note that the combined Measured and Indicated Resources were not impacted by this change in classification. Blocks were coded as Measured, Indicated or Inferred based on the estimation pass number, the average distance to the composites, and the number of composites used to estimate the block. The estimation was completed with four kriging passes. The criteria for the resource classification are as follows: **Measured:** Block estimated on first pass - (npass eq 1) 4 or more drill holes in kriging neighborhood - (nhole ge 4) The average distance to the composites in the kriging neighborhood is less than 50% of the variogram range - (avg_dist lt 40)

Criteria	JORC Code Explanation	Commentary
		Indicated: Block estimated on first or second pass - (npass gt 0 and npass le 2) 2 or more drill holes in kriging neighborhood - (nhole ge 2) The average distance to the composites in the kriging neighborhood is less than 100% of the variogram range - (avg_dist lt 80) **Inferred:** Estimation search set to 200% of the variogram range Block estimated on first, second or third pass - (npass gt 0 and npass le 3) **Second Pass Inferred:** Block estimated on fourth pass - (npass eq 4) **<u>Underground</u>** The Mineral Resources reported for the Horseshoe deposit are classified as Indicated and Inferred Mineral Resources, based primarily on drill hole spacing since all other supporting data is of good quality. A wire frame solid was constructed around the areas where the majority of the blocks were estimated in the first or second pass of the estimation which had an average search distance of less than 10 meters and 15 meters respectively. These wireframe solids were used to assign the Indicated Mineral Resource classification. All blocks outside of the Indicated wireframes were classified as Inferred Mineral Resources.
Audits or reviews	• *The results of any audits or reviews of Mineral Resource estimates.*	GeoSystems International completed a review of the Haile open pit resource model in September 2016. They considered the model suitable for quarterly/medium and long term planning. They found the new model preferable to the IMC15 model, because not only it includes additional drill holes, but also provides initial estimates for Ag, C, and S, and to be acceptable for the proposed production goals and future output from the Haile Gold Project. The Horseshoe underground resource was estimated by an independent consultant, SRK Consulting (US). Inc.. The completed model was internally reviewed by Oceanagold staff subsequent to completion.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed*	The Haile open pit estimate is expected to provide acceptable estimates in global terms. Given however that most of the Haile resource is based on moderately broad drilling, the performance of local estimates is likely to be more variable. It is anticipated that by Q4 2017, sufficient tonnage will have been mined and processed to provide a meaningful reconciliation analysis.

Criteria	JORC Code Explanation	Commentary
	appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

1.4

1.5 Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.* • *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.*	The open pit Mineral Reserves at HGM are based on a block model and resource estimate by Bruce van Brunt of OGC that was published September 1, 2016. The underground Mineral Reserves at HGM are based on a block model and resource estimate by SRK dated November 1, 2016. The Mineral Resources are reported inclusive of Ore Reserves.
	• *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* • *If no site visits have been undertaken indicate why this is the case.*	Bret C Swanson, BE (Min) MMSAQP #04418QP, is a Qualified Person and Practice Leader of SRK Consulting (US), Inc. Mr. Swanson visited the project May 9-10th , 2017. Joanna Poeck, BEng Mining, SME-RM, MMSAQP #01387QP, is a Qualified Person and Senior Mining Engineer of SRK Consulting (US) Inc. Ms. Poeck visited the project site February 6-7th , 2017.
Study status	• *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.* • *The Code requires that a study to at least Pre-Feasibility Study level has*	The Haile Mine Optimisation Study which includes both open pit and underground resources and reserves has been completed to a Feasibility Study level.

Criteria	JORC Code Explanation	Commentary
	been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	
Cut-off parameters	• *The basis of the cut-off grade(s) or quality parameters applied.*	Open pit cut-off grade is 0.45g/t and the underground cut-off grade is 1.5g/t based on actual and anticipated costs, prices and recoveries.
Mining factors or assumptions	• *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).* • *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.* • *The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling.* • *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).* • *The mining dilution factors used.* • *The mining recovery factors used.* • *Any minimum mining widths used.* • *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.* • *The infrastructure requirements of*	Open Pit The open pit resource model was regularised to an SMU of 5 m × 5 m × 5 m. This caused an ore loss of 1% and a drop in gold grade of 2%. No further ore losses or ore dilution was considered as part of the mine planning because the regularisation process generated appropriate loss and dilution factors. The open pit Ore Reserves are reported within a pit design based on open pit optimisation results. The optimisation included Measured, Indicated and Inferred Mineral Resource categories with a gold price of USD$1300/oz Au. The reserve pit used to define reserves was based on a USD$1,150/oz Au pit shell as the basis of mine design. Inferred material (approximately 13%) within the reserve pit was treated as waste and given a zero gold grade. The overall pit slopes used for the design are based on operational level geotechnical studies. The stage cutbacks are approximately 150m-300m wide with the minimum mining width of 60m. Bench sinking rates are approximated to one 5m bench per month. Mining is a conventional drill/blast/load/haul open pit operation using 10m benches in waste and 5m benches in ore. Underground The rotated block model was optimised using 25mH x 15mW x 30mL stopes and includes additional dilution of 6.9% and stope recoveries of 93.3%. A single decline will access long hole open stoping panels, 75% of which will be back-filled with cemented aggregate, with the remainder (secondary) back-filled with loose aggregate. Mining areas will be grade controlled from underground before production drilling is designed. Inferred material has been treated as waste with no grade.

Criteria	JORC Code Explanation	Commentary
	the selected mining methods.	Infrastructure provisions have been made to support the open pit and underground mining methods as discussed below in the infrastructure section.
Metallurgical factors or assumptions	• *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.* • *Whether the metallurgical process is well-tested technology or novel in nature.* • *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.* • *Any assumptions or allowances made for deleterious elements.* • *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.* • *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?*	The following items summarize the process. • Size reduction by a primary jaw crusher • Grinding in a SAG and ball mill circuit to produce product size of 80% passing 200 mesh. • A portion of the grinding circuit circulating load is treated in a flash flotation cell. • The mill product ore slurry is treated in a bulk rougher flotation stage. • Combined flash and rougher flotation concentrates are reground to 80% passing 13 microns. • Reground concentrate and flotation tails ore slurries are thickened to recycle water to the grinding process. • Thickened flotation tail and concentrate slurries are leached with cyanide in a CiL circuit. • Loaded carbon from CIL is acid washed and precious metals stripped off with hot caustic-cyanide solution, and thermal reactivated carbon is returned to the CiL. • Precious metals are recovered from eluate solution by electrowinning • Gold and silver are removed from electrowinning cells and smelted to produce gold-silver doré bars. • Leached tails slurry is thickened prior to detoxification of residual cyanide and pumped to a tailings pond. • Decant water from the tailings pond is be recycled to the process plant. The majority of gold in the mineralisation at HGM was determined to be associated with base metal sulphide minerals. Liberation of precious metal values by fine grinding of a sulphide concentrate produced by froth flotation is required to maximise dissolution by cyanide in the leach process Semi-autogenous and ball mill grinding circuits are commonplace in gold mine process plants. Similarly, recovery of precious metals via froth flotation and fine grind of a sulphide flotation concentrate before cyanidation using a CiL process is conventional technology. A series of metallurgical testing programs have been completed under HGM supervision by independent commercial metallurgical laboratories. Sample preparation and characterization, grinding studies, gravity concentration tests, whole ore leach tests, flotation tests and leaching of flotation tailings and flotation concentrate tests were completed to determine the metallurgical response of the ore on composite and individual variability samples sourced

Criteria	JORC Code Explanation	Commentary
		from different zones of mineralisation. Samples were composited to represent a range of plant feed grades. Samples have been selected from the separate zones of mineralisation that make up the expected process plant feed. There is minimal variation in metallurgical response apparent, in the testwork, between samples from the various zones of mineralisation at HGM. Specific metallurgical domains have not been demarcated and a uniform recovery model has been applied. No assumption or allowances have been made for the presence of deleterious elements. None are known to exist in Haile ore at a significant level. The CiL process is the customary choice for gold mine process plants of this scale, feed grade and metallurgical response. The fact that a CiL circuit has been selected would mitigate the effect of any potential preg robbing component from carbonaceous minerals though this was not a significant factor in its selection. All testwork was completed on a bench scale on composite and variability samples from diamond drill core. A pilot plant was not operated. Samples tested individually were sourced across different zones of mineralisation. There are no mineral products that are defined by specification at HGM thus the ore reserve estimation has not been based on the appropriate mineralogy to meet a specification. The product of the process plant is gold Doré bullion bars with a moderate silver content. The levels of contained silver, and base metal impurities in the Doré bullion are such that they are still readily marketable with no significant penalty and thus ore reserve estimation does not take this into account

Criteria	JORC Code Explanation	Commentary
Environmental	• *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.*	Haile Gold Mine holds all of the main permits necessary to construct and operate the project. The mine is now operational and in the ramp-up phase (to full production) for mining and ore processing. The project is unique in that it occurs wholly on private land owned or controlled by HGM and does not impact federal/public (BLM or USFS) lands that would be subject to projected modifications from these surface management agencies. In addition, there is no potential for the federal government to impose a royalty by an amendment to the 1872 Mining Law. Since the property has been mined in the past, a significant amount of background and environmental baseline data existed while additional data was collected through the Environmental Impact Statement (EIS) process. This data continues to be collected. Major permits/certifications obtained include 404 Dredge and Fill Permit, 401 Water Quality Certification, air quality permit, and NPDES Permits (wastewater discharge, wastewater treatment system construction, and stormwater). The Mine Operating Permit, was issued in January of 2015. The operation of the mine, tailing, and process facilities are subject to permits that impose various operational limits. Those items are accounted for in the estimated project costs and production schedules. The permits currently held by the Haile Mine may be kept, modified, terminated, or replaced during the life of the mine. With the proposed mine expansion, the existing permits will be modified or further permits will be obtained as required. There is a reasonable expectation that these modifications / additional permits will be obtained based on the successful permitting of the mine and the current operations
Infrastructure	• *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.*	The Haile Project is located in an area that is highly populated, therefore a good infrastructure exists. The project is adjacent to a state highway and there is a very large, skilled workforce nearby. All necessary infrastructure for the project either exists as part of the operation or has been accounted for and costed in the project evaluation. This includes the following elements: • Tailing Storage Facility (TSF) the existing facility will be expanded to accommodate the increased mine Reserves. The method of construction and type of facility is unchanged from that which has been reported previously; • Overburden storage areas (OSA's). This includes material generated that will be classified as either

Criteria	JORC Code Explanation	Commentary
		potentially acid generating (PAG) or non-acid generating. Currently designed facilities will be either expanded, amalgamated (or both) to accommodate the material generated. Where applicable alterative storage areas will be prepared. • Site wide water management has been revised based on the change in mine design and the updating of the site wide water balance model. There is no change to the classification of contact or non-contact waters and these will be managed and utilized as previously reported; • Highway crossings and road realignment related to mining and tailings storage have been accounted for; • All ancillary facilities either exist as part of the existing project or are planned for completion as and when required throughout the mine life, this includes underground mine infrastructure; • Power Supply remains from Lynches River Electric Cooperative. The nearby power transmission infrastructure is well established and will be upgraded as required and this has been taken into consideration.
Costs	• *The derivation of, or assumptions made, regarding projected capital costs in the study.* • *The methodology used to estimate operating costs.* • *Allowances made for the content of deleterious elements.* • *The derivation of assumptions made of metal or commodity price(s), for the principal minerals and co-products.* • *The source of exchange rates used in the study.* • *Derivation of transportation charges.* • *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.* • *The allowances made for royalties payable, both Government and private.*	The capital costs for the Haile project expansion was estimated in US dollars. All cost estimates are based on North American supply. Where appropriate equipment quotations or supplier quotations were obtained and utilised. The estimate used labour rates provided by the existing operations and current contractors. Capital costs include all infrastructure costs, owner's costs and contingency. No specific deleterious elements have been found with the Haile project. The management of acid rock drainage as discussed in the mine plan and geotechnical sections have been addressed in the project costs. Exchange rates do not apply to this project because it was designed and is under construction in the United States, based on U.S. Dollars. Estimation of the operating costs have been developed from first principles and benchmarked against existing OGC operations (including current site costs) and North American operations. Operating costs include allowance for general and administrative costs, waste management and site reclamation. Gold pricing, refining, and transport costs are discussed in the Market Assessment section. Table 4 illustrates both mine capital and operating costs and has moved the mine preproduction stripping cost to a separate category so that it can be capitalized.

Criteria	JORC Code Explanation	Commentary
		Projected capital and operating costs for mining have been developed based on production schedules over more than 15 years to achieve a production rate of at least 4.0 Mtpa of product. Estimation of the production rates and operating costs have been developed from first principles and benchmarked against existing operations in New Zealand and USA. No allowance was made for royalties, government or private
Revenue factors	• *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.* • *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.*	Gold is readily traded and the cost structure is well known. The basis of the financial analysis within this study was $1300/oz. Transportation and refining cost have been included in the financial analysis based on current terms at precious metal refineries. Silver was included in the evaluations but has limited economic contribution relative to gold.
Market assessment	• *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.* • *A customer and competitor analysis along with the identification of likely market windows for the product.* • *Price and volume forecasts and the basis for these forecasts.* • *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply*	The market for gold dore is well-established. Market predictions and discussions for gold are beyond the scope of this document. The impacts of gold price volatility on the mine plan and process operation are well understood. The Competent Person is not aware of any forward sales or hedging contracts for Haile metal production. A contract is in place with Metalor USA Refining Corporation, located in North Attleboro, Massachusetts for the refining of dore bullion. The contract commenced in January 30 2017 and has an indefinite term, subject to termination by either party. This contract sets a range of prices and surcharges for refining the dore under terms and conditions which generally comply with industry norms.

Criteria	JORC Code Explanation	Commentary
	contract.	
Economic	• *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.* • *NPV ranges and sensitivity to variations in the significant assumptions and inputs.*	The Haile Gold Project economics were done using a discounted cash flow model. The financial indicators examined for the project including the Net Present Value (NPV). Annual cash flow projections were estimated over the life of the mine based on capital expenditures, production costs, transportation and refining charges and sales revenue. The life of the mine is 16 years as of 1st January, 2017. The economic analysis of the Haile Gold Project at a gold price of $1300/oz shows a before tax Net Present Value (NPV) of $927 million at a discount rate of 5%.
Social	• *The status of agreements with key stakeholders and matters leading to social licence to operate.*	Prior to commencement of operations, the project endured rigorous permitting reviews on the federal, state, and local levels. At each step of this process, the public was afforded the opportunity to participate in the review. The main permit to construct and operate was the Environmental Impact Statement (EIS) and Record of Decision (ROD). During this review and evaluation, Nation to Nation consultation with Native Americans occurred. All required permits from Lancaster County, the State of South Carolina, and the U.S. Government have been obtained and the project is legally proceeding with construction at this time. Further permits will be obtained as required in consultation with all key stakeholders. There is reasonable expectation that these permits can be obtained based on the current permits
Other	• *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:* • *Any identified material naturally occurring risks.* • *The status of material legal agreements and marketing arrangements.* • *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes*	Several potential risks and opportunities were identified. • *Metal Prices* – The base case long-term gold price is $1300/ounce. • *Silver Grade* – Silver is a byproduct for this project and is modelled based on limited sample coverage. The overall economic contribution of silver to revenue is small, however the mill needs to understand the Ag/Au ratio of the mill feed in advance to efficiently run the elution circuit. • *Existing Mining Facilities and Underground Workings* – Due to the historic mining in the area, there is a chance that underground mining and other facilities will be found. This could potentially reduce mining efficiency. • *Reclamation/Closure* – Interim reclamation is a part of the overall mine. Opportunity(s) may present themselves to include additional/more expedient reclamation/closure activities as part of mining, thus reducing final closure obligations and financial assurance costs. • *Fresh Water Makeup Risks and Opportunities* – The results of the site wide water balance indicate that sufficient water is expected to be available. Because the water balance is run on a monthly time step, instantaneous water demand shortages can be handled with the addition of water storage once Haile moves into operations. Water is available from the local municipal source if there is a shortage. • *Inferred Mineralisation* - There is known inferred mineralisation within the bounds of the reserve that is not included as reserves. If this mineralisation is converted to reserves the available ore tonnage may go up and the amount of waste (overburden) that will need to be handled will be reduced.

Criteria	JORC Code Explanation	Commentary
	anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• *There is opportunity to optimize the underground mine plan through detailed short term planning on a stope by stope basis to reduce the planned dilution, currently included in the stope design, and therefore increase the grade of the underground mine plan.* • *Open Pit Factor of Safety (FoS) analysis conducted BGC Engineering Inc (Geotechnical) indicates localized areas of pit instability related to foliation direction and the Saprolite/Hard Rock interface. These areas of concern are small in magnitude and can be mitigated through detailed operation planning.*
Classification	• *The basis for the classification of the Ore Reserves into varying confidence categories.* • *Whether the result appropriately reflects the Competent Person's view of the deposit.* • *The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).*	The Proven Ore Reserve is a sub-set of Measured Mineral Resources, and the Probable Ore Reserve is derived from Indicated Mineral Resources. Inferred Mineral Resource material has not been included in the Ore Reserves. The classification criteria for Measured Resources were tightened relative to the previous estimates. This has resulted in a significant proportion of Measured Resource being reclassified as Indicated, similarly Proven Reserve being reclassified as Probable. Note that the combined Measured and Indicated Resources were not materially impacted by this change in classification. It is the opinion of the Competent Person for Ore Reserve estimation that the Mineral Resource classification adequately represents the degree of confidence in the orebody.
Audits or reviews	• *The results of any audits or reviews of Ore Reserve estimates.*	The HGM 2016 Ore Reserve estimate was reviewed internally by OGC. AMC Consultants (Vancouver) have undertaken peer review of the Haile Optimisation Study for mining elements and geotechnical engineering.
Discussion of relative accuracy/ confidence	• *Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.*	The accuracy and corresponding confidence in the mineralisation is addressed based on both qualitative and quantitative means. The classification of the Haile open pit and underground Mineral Reserves is believed to appropriately reflect the accuracy of the estimates. Gold deposits have higher levels of grade uncertainty than other metal deposits due to the high coefficients of variation. Manageable short term variability will be an ongoing condition in the mine operation. Mine Planning and subsequent engineering cost estimation has been done to a level of accuracy that supports a 15% contingency. That contingency is indicative of the high level of confidence in the Ore Reserve and the project in general.

Criteria	JORC Code Explanation	Commentary
	• *The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.* • *Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.* • *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	

1.6 Section 5 Estimation and Reporting of Diamonds and Other Gemstones

(Criteria listed in other relevant sections also apply to this section. Additional guidelines are available in the 'Guidelines for the Reporting of Diamond Exploration Results' issued by the Diamond Exploration Best Practices Committee established by the Canadian Institute of Mining, Metallurgy and Petroleum.)

[Section 5 is not applicable to the Haile Gold Mine].