# ASX Release

**18 February 2022**

## Ore Reserves and Mineral Resources Statements as at 31 December 2021

St Barbara has chosen to release its Ore Reserve and Mineral Resources Statements ahead of its half year financial results to enable the latest estimates to be incorporated into the Scheme Booklet for Bardoc Gold Limited which is expected to be registered with ASIC on or around 22 February 2022.

- Total Ore Reserves are estimated at: 97.8 Mt @ 1.8 g/t Au for 5.8 Moz of contained gold, comprising:
  - Leonora Operations 12.9 Mt @ 5.1 g/t Au for 2.1 Moz of contained gold
  - Simberi Operations 36.7 Mt @ 1.8 g/t Au for 2.1 Moz of contained gold
  - Atlantic Operations 48.2 Mt @ 1.0 g/t Au for 1.6 Moz of contained gold

The Company's Ore Reserves have decreased by 460koz since June 30 2021, primarily as a consequence of adopting an open pit mining approach to Tower Hill and the subsequent removal of Tower Hill Underground Reserves. Ore Reserves for Tower Hill will be revised following the completion of a pre-feasibility study in Q1 FY23.

- Total Mineral Resources[1] are estimated at: 215.8 Mt @ 1.9 g/t Au for 13.5 Moz of contained gold, comprising:
  - Leonora Operations 67.2 Mt @ 3.4 g/t Au for 7.3 Moz of contained gold
  - Simberi Operations 90.0 Mt @ 1.5 g/t Au for 4.2 Moz of contained gold
  - Atlantic Operations 58.6 Mt @ 1.1 g/t Au for 2.0 Moz of contained gold

The Company's Mineral Resources have increased since June 30 2021 above net mining depletion as a consequence of the inclusion of updated Mineral Resources for Tower Hill based on a change of mining approach from underground to open pit *(refer ASX Release 20 December, 2021 - 'Strategic acquistion of Bardoc Gold accelerates Leonora Province Plan')*.

The 31 December 2021 Ore Reserves and Mineral Resources Statements are attached.

## For more information


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Board of Directors

[1] Mineral Resources are reported inclusive of Ore Reserves

## Overview

St Barbara's Mineral Resources and Ore Reserves position at 31 December 2021 is summarised and compared with the 30 June 2021 statement in Table 1.

| Project | 30 June 2021 Ore Reserves | | | Production | 31 December 2021 Ore Reserves | | |
|---|---|---|---|---|---|---|---|
| | Tonnes ('000) | Grade (g/t Au) | Ounces ('000) | Ounces ('000) | Tonnes ('000) | Grade (g/t Au) | Ounces ('000) |
| Gwalia Deeps (WA) | 13,308 | 5.2 | 2,221 | **100** | 12,862 | 5.1 | 2,121 |
| Tower Hill (WA) | 2,572 | 3.7 | 306 | | - | - | - |
| **Total Leonora Operations** | **15,880** | **4.9** | **2,527** | | **12,862** | **5.1** | **2,121** |
| Simberi Oxide (PNG) | 4,675 | 1.2 | 178 | **-** | 8,962 | 1.1 | 330 |
| Simberi Transitional (PNG) | 6,378 | 1.5 | 307 | | - | - | - |
| Simberi Sulphide (PNG) | 24,010 | 2.0 | 1,563 | | 27,338 | 2.0 | 1,726 |
| Simberi Stockpile | 188 | 2.3 | 14 | | 403 | 1.9 | 25 |
| **Total Simberi Operations** | **35,251** | **1.8** | **2,062** | | **36,704** | **1.8** | **2,080** |
| Atlantic Operations (NS) | 43,480 | 1.1 | 1,558 | **32** | 42,182 | 1.1 | 1,493 |
| Atlantic Operations Stockpile (NS) | 6,400 | 0.5 | 97 | | 6,040 | 0.5 | 90 |
| **Total Atlantic Operations** | **49,880** | **1.0** | **1,655** | | **48,222** | **1.0** | **1,583** |
| **Grand Total** | **101,011** | **1.9** | **6,244** | **133** | **97,788** | **1.8** | **5,784** |

| Project | 30 June 2021 Mineral Resources | | | 31 December 2021 Mineral Resources | | |
|---|---|---|---|---|---|---|
| | Tonnes ('000) | Grade (g/t Au) | Ounces ('000) | Tonnes ('000) | Grade (g/t Au) | Ounces ('000) |
| Gwalia Deeps (WA) | 25,448 | 5.9 | 4,813 | 25,206 | 5.8 | 4,736 |
| Gwalia Open Pit (WA) | 8,439 | 2.8 | 764 | 8,439 | 2.8 | 764 |
| Harbour Lights (WA) | 12,884 | 1.5 | 602 | 12,884 | 1.5 | 602 |
| Tower Hill (WA) | 5,093 | 3.8 | 625 | 20,682 | 1.8 | 1,177 |
| **Total Leonora Operations** | **51,864** | **4.1** | **6,804** | **67,211** | **3.4** | **7,279** |
| Simberi Oxide (PNG) | 12,061 | 1.1 | 422 | 18,600 | 1.1 | 650 |
| Simberi Transitional (PNG) | 17,023 | 1.1 | 605 | - | - | - |
| Simberi Sulphide (PNG) | 61,023 | 1.6 | 3,164 | 71,400 | 1.6 | 3,575 |
| **Total Simberi Operations** | **90,107** | **1.4** | **4,192** | **90,000** | **1.5** | **4,225** |
| Atlantic Operations (NS) | 60,693 | 1.1 | 2,091 | 58,636 | 1.1 | 1,990 |
| **Total Atlantic Operations** | **60,693** | **1.1** | **2,091** | **58,636** | **1.1** | **1,990** |
| **Grand Total** | **202,665** | **2.0** | **13,087** | **215,847** | **1.9** | **13,494** |

**Table 1: St Barbara December 31 2021 and June 30 2021 Ore Reserves and Mineral Resources Comparison**

The Company's Ore Reserves have decreased since June 30 2021, primarily as a consequence of the removal of Tower Hill Underground Reserves, *(refer ASX Release 20 December, 2021 - 'Strategic acquistion of Bardoc Gold accelerates Leonora Province Plan')*. Ore Reserves for Tower Hill will be revised following the completion of a pre-feasibility study in Q1 FY23.

The Company's Mineral Resources have increased since June 30 2021 above net mining depletion as a consequence of the inclusion of updated Mineral Resources for Tower Hill based on a change of mining approach from underground to open pit *(refer ASX Release 20 December, 2021 - 'Strategic acquistion of Bardoc Gold accelerates Leonora Province Plan')*.

## Ore Reserves Revisions

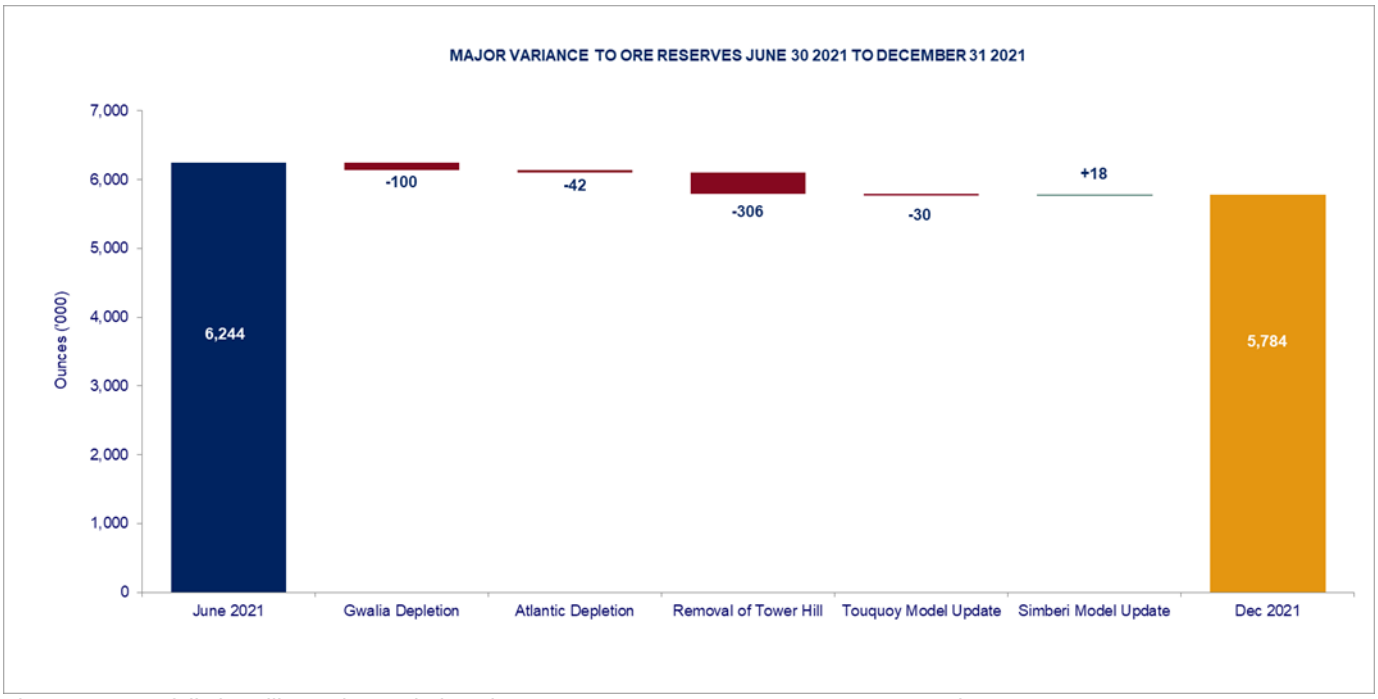

Figure 1: Waterfall chart illustrating variations in Ore Reserves 30 June 2021 to 31 December 2021

### Gwalia Deeps

The Gwalia Deeps Ore Reserves are unchanged and have been depleted for mining.

### Tower Hill

As announced in the ASX release '*Strategic acquisition of Bardoc Gold accelerates Leonora Province Plan*' dated 20 December 2021 the Tower Hill Ore Reserves have been removed in favour of stating an updated Mineral Resource based on a change of mining approach from underground to open pit. Ore Reserve numbers based on open pit mining will be available once the results from a pre-feasibility study are available. The study is scheduled for completion in Q1 FY23.

### Simberi Operations

The Ore Reserves at Simberi were updated in the first half of FY22 following the release of a new Mineral Resource model in August 2021. Whilst mining recommenced at Simberi in the September FY22 quarter, processing did not recommence until the start of January 2022 and therefore there was no depletion recorded as material mined from the pit is accounted for in stockpile changes.

Material that was previously classified as transitional ore has now been reclassified as either oxide or sulphide based on sulphur and iron content. Overall the net change has been an increase of 18,000 ounces attributed to the new Resource Model and the net increase in overall Reserves due to conversion of material from unclassified or inferred to indicated or measured confidence.

### Atlantic Operations

The Ore Reserves for Beaver Dam, Fifteen Mile Stream and Cochrane Hill are unchanged from that reported as at June 30 2021. A new resource model for Touquoy was released on 6th August 2021 to address poor reconciliation (Mineral Resource to Grade Control) performance and was used to update the pit design and remaining Ore Reserves.

There has been a reduction of 35,000 ounces due to mining depletion at Touquoy, 7,000 ounces due to stockpile depletion at Touquoy and a further reduction of 30,000 due to the revised mineral resource estimate for Touquoy.

## Mineral Resources Revisions

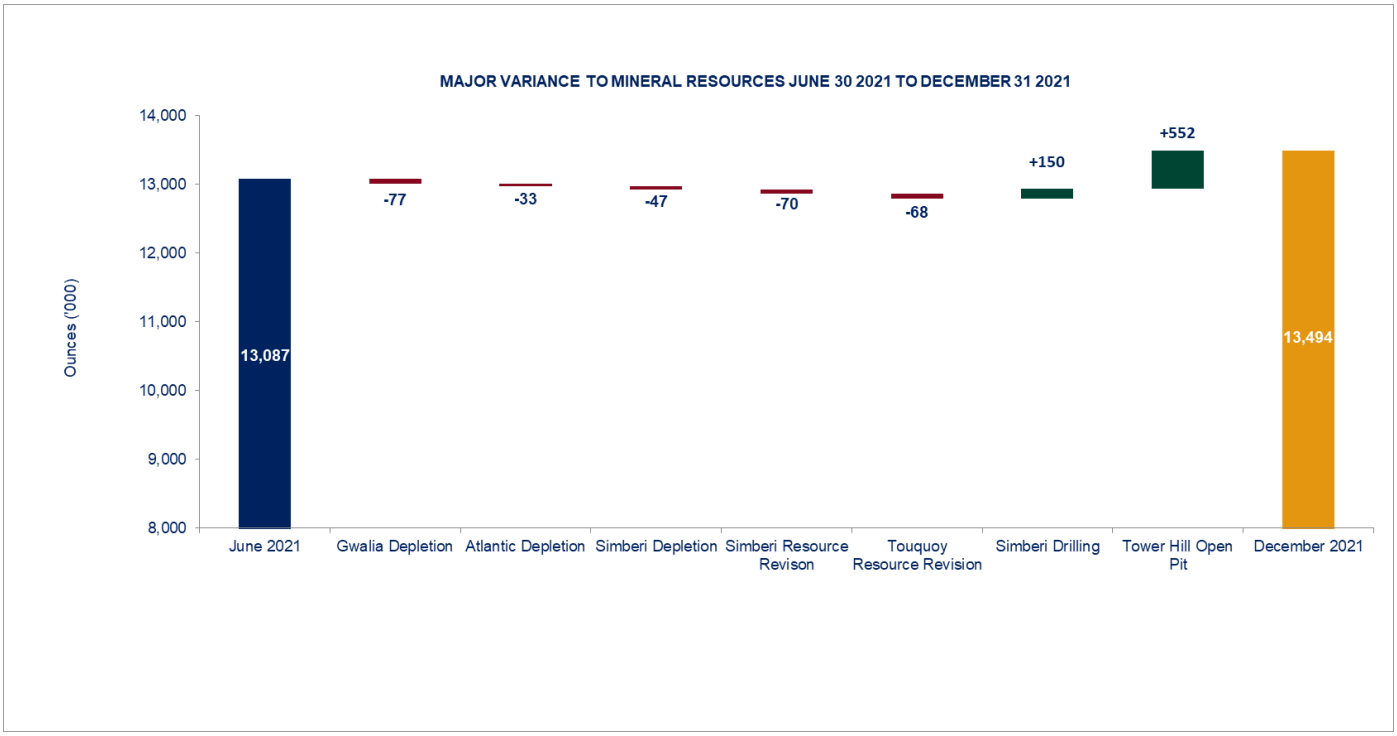


Figure 2: Waterfall chart illustrating variations in Mineral Resources 30 June 2021 to 31 December 2021

### Gwalia Deeps

The Gwalia Deeps Mineral Resources are unchanged and have been depleted for mining.

### Tower Hill

As announced in the ASX release '*Strategic acquisition of Bardoc Gold accelerates Leonora Province Plan*' dated 20 December 2021 the Tower Hill Mineral Resources have been updated based on a change of mining approach from underground to open pit.

### Simberi Operations

The Simberi Mineral Resources were updated in August 2021, inclusive of an additional 1,324 m of diamond drilling and 34,187 m of RC drilling completed between February and August 2021. As part of this resource update transitional material is no longer reported as a material type and is now classified as either oxide or sulphide based on sulphur and iron content.

Drilling has added an additional 150,000 ounces however this has largely been offset by reductions in the resource due to

- Changes in material type classification - transitional to sulphide (-50koz)
- Depletion through mining (-47koz), and
- Geological Model Changes (-21koz)

### Atlantic Operations

The resource models for Beaver Dam, Fifteen Mile Stream and Cochrane Hill are unchanged. As a consequence of poor reconciliation (Mineral Resources to Grade Control) the Touquoy Mineral Resources were updated using grade control and resource definition drilling available as at 6th August 2021. There has been a reduction of 33,000 ounces due to mining depletion at Touquoy and a further reduction of 68,000 due to the revised Mineral Resources estimate.

# Ore Reserves 31 December 2021

| Project | Proved | | | Probable | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | Tonnes ('000) | Gold (g/t) | Ounces ('000) | Tonnes ('000) | Gold (g/t) | Ounces ('000) | Tonnes ('000) | Gold (g/t) | Ounces ('000) |
| Gwalia, (WA) | 1,543 | 7.3 | 361 | 11,318 | 4.8 | 1,761 | 12,862 | 5.1 | 2,121 |
| Simberi Oxide, (PNG) | 2,718 | 1.2 | 108 | 6,244 | 1.1 | 222 | 8,962 | 1.1 | 330 |
| Simberi Sulphide, (PNG) | 2,530 | 1.8 | 143 | 24,808 | 2.0 | 1,582 | 27,338 | 2.0 | 1,726 |
| Simberi Stockpile, (PNG) | - | - | - | 403 | 1.9 | 25 | 403 | 1.9 | 25 |
| Atlantic Mining, (NS) | 21,680 | 1.1 | 782 | 20,501 | 1.1 | 711 | 42,182 | 1.1 | 1,493 |
| Atlantic Mining Stockpile, (NS) | 6,040 | 0.5 | 90 | - | - | - | 6,040 | 0.5 | 90 |
| **Total All Projects** | **34,511** | **1.3** | **1,484** | **63,275** | **2.1** | **4,301** | **97,788** | **1.8** | **5,784** |

**Notes**

1. Ore Reserves are based on a gold price of: Gwalia (A$2,000/oz), Simberi (US$1,500/oz) and Atlantic Gold (C$1,948/oz for Touquoy & Beaver Dam and C$1,688/oz for Fifteen Mile Stream & Cochrane Hill)
2. Cut-off Grades Gwalia (4.0 g/t Au), Simberi Oxide (0.4 g/t Au), Atlantic Mining (0.3 g/t Au – 0.4 g/t Au).
3. Mineral Resources are reported inclusive of Ore Reserves.
4. Data is rounded to thousands of tonnes and thousands of ounces. Discrepancies in totals may occur due to rounding.

# Mineral Resources 31 December 2021

| Project | Measured | | | Indicated | | | Inferred | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Tonnes ('000) | Grade (g/t) | Ounces ('000) | Tonnes ('000) | Grade (g/t) | Ounces ('000) | Tonnes ('000) | Grade (g/t) | Ounces ('000) | Tonnes ('000) | Grade (g/t) | Ounces ('000) |
| Gwalia Deeps, (WA) | 3,776 | 5.8 | 704 | 18,946 | 5.7 | 3,492 | 2,485 | 6.8 | 540 | 25,206 | 5.8 | 4,736 |
| Gwalia Open Pit, (WA) | 2,221 | 2.3 | 164 | 6,218 | 2.9 | 600 | - | - | - | 8,439 | 2.8 | 764 |
| Harbour Lights, (WA) | - | - | - | 12,268 | 1.4 | 569 | 616 | 1.7 | 33 | 12,884 | 1.5 | 602 |
| Tower Hill, (WA) | - | - | - | 20,682 | 1.8 | 1,177 | - | - | - | 20,682 | 1.8 | 1,177 |
| Simberi Oxide, (PNG) | 3,600 | 1.2 | 138 | 9,800 | 1.1 | 335 | 5,200 | 1.1 | 177 | 18,600 | 1.1 | 650 |
| Simberi Sulphide, (PNG) | 4,000 | 1.6 | 191 | 47,500 | 1.5 | 2,452 | 19,900 | 1.6 | 932 | 71,400 | 1.6 | 3,575 |
| Atlantic Operations, (NS) | 23,393 | 1.1 | 834 | 28,815 | 1.0 | 936 | 6,428 | 1.1 | 221 | 58,636 | 1.1 | 1,990 |
| **Total All Projects** | **36,990** | **1.7** | **2,031** | **144,229** | **2.1** | **9,561** | **34,628** | **1.7** | **1,903** | **215,847** | **1.9** | **13,494** |

**Notes**

1. Mineral Resources are reported inclusive of Ore Reserves.
2. Cut-off Grades Gwalia (2.5 g/t Au), Gwalia Open Pit (0.4 g/t Au), Harbour Lights (0.4 g/t Au Oxide / 0.6 g/t Au Sulphide), Tower Hill (0.4 g/t Au), Simberi Oxide (0.4 g/t Au), Simberi Sulphide (0.6 g/t Au), Atlantic Mining (0.3 g/t Au)
3. Gwalia Open Pit, Harbour Lights and Tower Hill Mineral Resources are reported constrained by a A$2,500/oz pit shell. Simberi Mineral Resources are reported constrained by a US$1,875/oz pit shell. Atlantic Mineral Resources are reported constrained by a C$2,388/oz pit shell.
4. Data is rounded to thousands of tonnes and thousands of ounces. Discrepancies in totals may occur due to rounding.

**JORC Code Compliance Statements**

The information in this report that relates to Ore Reserves at Gwalia is based on information compiled by Mr. Kevin Oborne who is a Member of the Australasian Institute of Mining and Metallurgy. Kevin Oborne is a full-time employee of Oborne Engineering Pty Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Kevin Oborne consents to the inclusion in the statement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves at Simberi Operations is based on information compiled by Mr. Cameron Legg who is a Member of the Australasian Institute of Mining and Metallurgy. Cameron Legg is a full-time employee of Mining One Pty Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Cameron Legg consents to the inclusion in the statement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves at Atlantic Operations for the Beaver Dam, Fifteen Mile Stream and Cochrane Hill Deposits is based on information compiled by Mr. Marc Schulte who is a Member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta. Marc Schulte is an associate of Moose Mountain Technical Services and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Marc Schulte consents to the inclusion in the statement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves at Atlantic Operations for the Touquoy Deposit is based on information compiled by Mr. Scott G. Britton who is a Registered Member of The Society for Mining, Metallurgy & Exploration. Scott Britton is a full-time employee of Mining Plus Consultants and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Scott Britton consents to the inclusion in the statement of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources at Gwalia Deeps, Gwalia Open Pit, Harbour Lights, Simberi, Tower Hill and Touquoy is based on information compiled by Ms. Jane Bateman who is a Fellow of the Australasian Institute of Mining and Metallurgy. Jane Bateman is a full-time employee of St Barbara Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Jane Bateman consents to the inclusion in the statement of the matters based on her information in the form and context in which it appears.

The information in this report that relates to Mineral Resources at Atlantic Operations for the Beaver Dam, Fifteen Mile Stream and Cochrane Hill Deposits is based on information compiled by Mr. Neil Schofield who is a Member of the Australasian Institute of Geoscientists. Neil Schofield is a full-time employee of FSSI Consultants (Australia) Pty Ltd and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Neil Schofield consents to the inclusion in the statement of the matters based on his information in the form and context in which it appears.

**JORC Table 1 Checklist of Assessment and Reporting Criteria**
**Section 1 Sampling Techniques and Data – Atlantic Operations**

| Criteria | Comments |
|---|---|
| Sampling Techniques | Sample lengths have varied depending on the drill program, ranging from about 1 cm to 4.85 m, averaging about 0.9–1 m. Core has been halved for sampling using mechanical core splitters and core saws. Some early programs submitted whole core The default sample length was 1.0 m, and all half-core samples were sawn.<br><br>The main independent laboratories used for sample preparation and analysis include ALS Chemex and SGS; these laboratories hold accreditations for selected analytical techniques. Samples have been typically crushed and pulverized to P85 75 µm.<br><br>Initially, pre-Atlantic Gold, assaying at Touquoy used a proprietary sample preparation method, known as KMS-15, which used a Kuryluk Mineral Separator to extract the coarse gold from the sample. The resulting material was fire assayed for gold.<br><br>Touquoy grade control use reverse circulation drilling to obtain 2m samples from which 1kg is split and pulverised and leached using a PAL 1000 machine. Grades of the resulting solutions are determined by AAS. |
| Drilling Techniques | Drilling has used primarily NQ (47.6 mm diameter) core. Some drill holes at Touquoy were HQ (63.5 mm) or PQ (85mm) size. A grade control program at Touquoy in 2006 was completed using BQ (37 mm) size. Drilling performed by Masval and Northumberland at Cochrane hill used AQ (30.5 mm) and BQ sizes.<br><br>Touquoy grade control drilling is completed using reverse circulation drilling with a face sampling hammer. |
| Drill Sample Recovery | Diamond drilling recovery percentages were measured by comparing actual metres recovered per drill run versus metres measured on the core blocks. Recoveries averaged over >90% with increased core loss present in fault zones and zones of strong alteration. |
| Logging | Drill core logging procedures are described on a metre-by-metre basis with regards to lithology, texture, sulphide mineralization, alteration, quartz veining, structure, and in some cases magnetic susceptibility. All drill core has been photographed both wet and dry. Core recovery and rock quality designation (RQD) were measured for each hole at the same metre-by-metre intervals.<br><br>Information was initially captured using logging sheets; later programs used direct computer entry. Core recoveries are very good overall. |
| Sub-sampling techniques and sample preparation | The main independent laboratories used for sample preparation and analysis include ALS Chemex and SGS; these laboratories hold accreditations for selected analytical techniques. Samples have been typically crushed and pulverized to P85 75 µm.<br><br>Sample preparation, analysis, and security procedures undertaken are performed in accordance with exploration best practices and industry standards.<br><br>Touquoy grade control samples are reduced to ~8kg at the drilling site using a Metzke™ rotating cone splitter. 1kg PAL charges are prepared at the on-site laboratory using a riffle splitter. |
| Quality of assay data and laboratory tests | Drill programs to 2002 typically relied on quality assurance and quality control (QA/QC) procedures implemented at the analytical laboratory. Later programs incorporated QA/QC sample submissions including blank, duplicate, and standard reference materials (SRMs).<br><br>QA/QC procedures for Touquoy grade control drilling include the regular submission of duplicate samples. AAS accuracy is routinely checked through the analysis of reference materials. |
| Verification of sampling and assay | Internal data verification programs have included review of QA/QC data, re-sampling and sample reanalysis programs, and database verification for issues such as overlapping sample intervals, duplicate sample numbers, or lack of information for certain intervals. |

| Criteria | Comments |
|---|---|
| | Validation checks are performed on data used to support estimation, and comprise checks on surveys, collar co-ordinates, lithology data, and assay data.<br><br>A review of the Touquoy database was conducted in 2007 by external consultants, Hellman and Schofield.<br><br>Internal data verification programs have included review of QA/QC data, re-sampling and sample reanalysis programs, and database verification for issues such as overlapping sample intervals, duplicate sample numbers, or lack of information for certain intervals. Validation checks are performed on data used to support estimation, and comprise checks on surveys, collar co-ordinates, lithology data, and assay data. |
| Location of data points | Drill collars have been captured using global positioning system (GPS) instruments. Holes are surveyed downhole at approximately 30 m intervals and at the final hole depth. Survey instruments have included Pajari, Sperry-sun, FlexIT and Reflex tools. |
| Data spacing and distribution | Data spacing for all deposits is generally on 25m spaced sections. Drilling data is sufficient to establish continuity for all lodes.<br><br>Grade control drilling for Touquoy is on a 5m spacing on 10m spaced sections. |
| Orientation of data in relation to geological structure | **Touquoy:** Gold mineralization broadly conforms to the orientation of stratigraphy which has been tightly folded into an upright anticline, such that drill holes angled into the northern limb are inclined towards the south and vice-versa for drill holes angled into the southern limb. In this way, depending on where drill holes have been collared relative to the changing dips of bedding in the anticline, the angled holes intersect bedding at between 45° and 90°, exaggerating true widths by up to 1.4 times. Samples taken from vertical holes do not exaggerate actual widths of mineralization at the anticline hinge but can exaggerate widths by up to 2.9 times where bedding dips are steepest (70°).<br><br>**Beaver Dam:** The orientation of mineralisation in both the Mill Shaft Zone and the Northeast Zone is uncertain at this stage and therefore the relationship between sample lengths and the true thickness of mineralisation is not known.<br><br>**Fifteen Mile Stream:** Gold mineralisation at Fifteen Mile Stream is to some degree stratiform. Bedding was intersected at angles of between 45° and 90° such that the true thickness of mineralisation is generally between 70% and 100% of the downhole intercepts.<br><br>**Cochrane Hill:** Holes drilled from surface were inclined to the south at angles between 80° and 40° from horizontal. Mineralisation is confined to a zone or envelope that dips to the north at approximately 70° such that drill holes intersect the mineralization at angles of between 30° and 70° respectively and down-hole mineralized intercepts are exaggerated over true widths by between 1.1 and two times. |
| Sample security | Security procedures prior to Atlantic Gold Corp's involvement in the Project are not known, although check sampling and re-examination of core from a large number of drill holes has not shown any sign of sample tampering. Core was typically kept in a secure and locked area with limited access. Samples are typically conveyed from the Project site to the laboratory using commercial transport firms. |
| Audits or reviews | The CP for the Beaver Dam, Fifteen Mile Stream and Cochrane Hill projects has visited the Operations to view the geology exposed by the mining and to verify the collars of selected drill holes.<br><br>The CP for the Touquoy Resource is satisfied that the data is sound and suitable for resource estimation. |

**Section 2 Reporting of Exploration Results – Atlantic Operations**

| Criteria | Comments |
|---|---|
| Mineral Tenement and Land Tenure Status | St Barbara has 100% ownership of the tenements over Touquoy (ML11 -1, EL10377) Cochrane Hill deposit (EL51477); Fifteen Mile Stream (EL05889, EL52901 and EL10406) and Beaver Dam Area (EL50421).. |
| Exploration Done by Other Parties | No Mineral Resources drilling has been completed by St Barbara. Work completed by other parties is covered in the previous section |
| Geology | The Meguma Terrane of Nova Scotia hosts the Moose River Member, Tangier Member, and Taylors Head Member of the basal greywacke-dominated Goldenville Formation. Gold mineralization is generally hosted in argillite and/or greywacke sequences of the Moose River Member and is associated with regional-scale anticlines. Structural repetition due to folding and faulting may result in thickening of gold-bearing units.<br><br>Gold occurs as native gold, and has been observed in a number of settings, including along shear cleavage, hair line fractures; in pressure shadows; as inclusions; on the margins of sulphide grains; in thin, bedding-parallel quartz veins and stringers. Mineralization is associated with sulphides, including arsenopyrite, pyrite and pyrrhotite. Lesser chalcopyrite, galena, and sphalerite have been observed.<br><br>Gold grade was estimated using multiple indicator kriging (MIK) for all deposits. The basic unit of estimation is a panel with horizontal dimensions equal to the average drill hole spacing. |
| Drill Hole Information | No exploration results are presented. |
| Data Aggregation Methods | No exploration results are presented. |
| Relationship Between Mineralisation Widths and Intercept Lengths | No exploration results are presented. |
| Diagrams | No exploration results are presented. |
| Balanced Reporting | No exploration results are presented. |
| Other Substantive Exploration Data | No exploration results are presented. |
| Further Work | Further work is not planned at this time |

**Section 3 Estimation and Reporting of Mineral Resources – Atlantic Operations**

| Criteria | Comments |
|---|---|
| Database Integrity | Internal data verification programs have included review of QA/QC data, re-sampling and sample reanalysis programs, and database verification for issues such as overlapping sample intervals, duplicate sample numbers, or lack of information for certain intervals. Validation checks are performed on data used to support estimation, and comprise checks on surveys, collar co-ordinates, lithology data, and assay data.<br><br>A review of the Touquoy database was conducted in 2007 by external consultants, Hellman and Schofield. |
| Site Visits | The Competent Person for Beaver Dam, Fifteen Mile Stream and Cochrane Hill has previously visited site. No site visits were undertaken during the last year as the resources have not changed.<br><br>The Competent Person for the Touquoy Resource most recently visited site in 2019. |
| Geological Interpretation | For the Beaver Dam, Fifteen Mile Stream and Cochrane Hill deposits, samples were composited to either 1 m or 2 m intervals. Statistical properties of the composites were reviewed in terms of histogram and spatial continuity to identify areas of consistent mineralization style. For a number of the resource models, a single mineralized domain was used. However, in Cochrane Hill and Fifteen Mile Stream - Egerton Zone, distinctly different mineralization styles with clearly different histograms of composite grade were identified and modelled with different parameters.<br><br>For the Touquoy Resource a cut-off grade of 0.2g/t Au was used to define resource boundaries. |
| Dimensions | **Touquoy:** strike extent = 810m ; width = 50m; vertical extent = 150m<br><br>**Beaver Dam:** strike extent = 810m ; width = 50m; vertical extent = 200m<br><br>**Fifteen Mile Stream:** strike extent = 1400m ; width = variable 20m to 100m; vertical extent = 225m<br><br>**Cochrane Hill:** strike extent = 950m ; width = 70m; vertical extent = 285m. |
| Estimation and modelling techniques | Multiple indicator kriging (MIK) was used to estimate the Mineral Resources for Beaver Dam, Fifteen Mile Stream and Cochrane Hill based on an anticipated approach to mill feed material selection in mining. The basic unit of estimation is a panel with horizontal dimensions equal to the average drill hole spacing.<br><br>Depending on the deposit, samples were composited to either 1 m or 2 m intervals. Statistical properties of the composites were reviewed in terms of histogram and spatial continuity to identify areas of consistent mineralization style. For a number of the resource models, a single mineralized domain was used. However, in Cochrane Hill and Fifteen Mile Stream Egerton Zone, distinctly different mineralization styles with clearly different histograms of composite grade were identified and modelled with different parameters. Typically grade capping was not considered to be warranted; however, some high-grade samples in the Fifteen Mile Stream database were top-cut.<br><br>Where possible, directional sample variograms and variogram models were generated for the domains, and the resulting data used to inform estimation search criteria.<br><br>The resource estimates assume mining ore selection in all deposits will take place on 5m flitches with a minimum mining width of around 5 m. For all deposits, following variance adjustment, the resultant block histograms were assumed to be log-normal in shape. The variance included an adjustment for the information effect introduced by grade control sampling. A grade control drill hole pattern of 10 m by 5 m with a downhole sampling interval of 2.5 m was assumed for Cochrane Hill and the Fifteen Mile Stream zones of Egerton and Hudson. The assumptions for the remaining deposits of Plenty and Beaver Dam was a 5 m by 5 m pattern, with a down-hole sampling interval of 2.5 m.<br><br>The Touquoy Mineral Resource was estimated using ordinary kriging. |

<table>
<tr><th>Criteria</th><th>Comments</th></tr>
<tr><td>Moisture</td><td>Tonnages are estimated on a dry basis</td></tr>
<tr><td>Cut-off parameters</td><td>All deposits are reported at a 0.3g/t cut-off. The cut-off grade includes the following considerations:<ul><li>Gold Price US$1,800/oz</li><li>Exchange rate of 0.77 US$:C$</li><li>Process recovery of 92%</li><li>Operating Cost Inputs</li><li>Variable overall pit slope angles</li></ul>
<table>
<tr><th>Operation</th><th>Cost</th></tr>
<tr><td>Pit Rim Mining Cost, Touquoy</td><td>$3.70/t (pit rim at 115 m)</td></tr>
<tr><td>Pit Rim Mining Cost, Beaver Dam</td><td>$2.90/t (pit rim at 130 m)</td></tr>
<tr><td>Pit Rim Mining Cost, 15 Mile Stream</td><td>$3.35/t (pit rim at 110 m)</td></tr>
<tr><td>Pit Rim Mining Cost, Cochrane Hill</td><td>$3.10/t (pit rim at 120 m)</td></tr>
<tr><td>Incremental Haulage Cost</td><td>$0.02 per every 5-metre bench below pit rim</td></tr>
<tr><td>Processing Cost, Touquoy</td><td>$11.00/t</td></tr>
<tr><td>Processing Cost, Beaver Dam</td><td>$18.00/t</td></tr>
<tr><td>Processing Cost, 15 Mile Stream</td><td>$8.22/t</td></tr>
<tr><td>Processing Cost, Cochrane Hill</td><td>$8.64/t</td></tr>
<tr><td>General/Administration Cost</td><td>$2.50/t</td></tr>
</table></td></tr>
<tr><td>Mining factors or assumptions</td><td>The mining method is conventional open pit.</td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>Metallurgical recovery is 92%</td></tr>
<tr><td>Environmental factors or assumptions</td><td>Environmental approvals are in place for the Touquoy mine. It is assumed that Federal and Provincial approvals will be granted for Beaver Dam, Fifteen Mile Stream and Cochrane Hill ahead of mining.</td></tr>
<tr><td>Bulk density</td><td>Bulk density determinations have been performed using the water displacement method. Mineral Resource estimates typically use the one value for ore and waste as follows:<ul><li>Touquoy: 2.79 t/m$^3$;</li><li>Beaver Dam: 2.73 t/m$^3$;</li><li>Fifteen Mile Stream: 2.78 t/m$^3$;</li><li>Cochrane Hill: 2.77 t/m$^3$</li></ul></td></tr>
</table>

| Criteria | Comments |
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| Classification | **Beaver Dam; Fifteen Mile Stream; Cochrane Hill**: The resource estimate for each panel was initially classified as Category 1, 2 or 3 based on the results of octant data searches in the panel neighbourhood. The number of composites required to inform an estimate varied by deposit and by category. Typically, Category 1 panel estimates were assigned to Measured Mineral Resources, Category 2 to Indicated Mineral Resources and Category 3 to Inferred Mineral Resources.<br><br>**Touquoy:** For areas covered by grade control drilling the resource was classified is Measured, where drilling is on an approximate 25m *25m spacing the resource is classified as Indicated and outside of this the resource is classified as Inferred |
| Audits or Reviews | The Atlantic Mining Mineral Resources Estimates were compiled originally in 2019 to CIM 2014 Definition Standards by a suitably Qualified Person. The Resource Estimates have subsequently been reviewed internally by qualified St Barbara personnel and are considered fit for purpose |
| Discussion of relative accuracy/confidence | The resource estimates are global estimates. Grade control drilling is completed in advance of mining to improve local estimates of grade. |

**Section 4 Estimation and Reporting of Ore Reserves – Atlantic Operations**

| Criteria | Comments |
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| Mineral Resource Estimate for Conversion To Ore Reserves | The Ore Reserves estimate for Beaver Dam, Fifteen Mile Stream and Cochrane Hill is based on the Mineral Resources estimates carried out by Neil Schofield of FSSI Consulting (Australia) Pty Ltd. Gold grade was estimated using multiple indicator kriging (MIK).<br><br>The Ore Reserves estimate for Touquoy is based on Mineral Resources estimates carried out by St Barbara and reviewed for content by Mining Plus. Gold grade was estimated using ordinary kriging.<br><br>The Mineral Resources are reported inclusive of the Ore Reserves. |
| Site Visits | The Ore Reserve estimate for Touquoy mine was prepared by Mining Plus with the assistance of the Atlantic Operations staff, supervised by Drew Pelley, P.Geo., and peer reviewed by Scott G. Britton, P.E. who is the Competent Person for these Ore Reserves estimate. Scott Britton visited the site in August, 2021 to observe operations and MROR methodology.<br><br>The Competent Person for Beaver Dam, Fifteen Mile Steam and Cochrane Hill has visited the site from 7 – 13 January 2018. |
| Study Status | The Touquoy (TQ) mine is an operating mine.<br><br>Lerchs-Grossman (L-G) analysis and pit designs to enable the conversion of Mineral Resources to Ore Reserves is supported by an NI43-101 Technical Report completed for Atlantic Gold Corporation with an effective date of 25 March 2019 for the Fifteen Mile Stream (FMS) and Cochrane Hill (CH) deposits.<br><br>A Feasibility Study was completed in May 2021 for the mining of the Beaver Dam (BD) deposit with processing at the Touquoy mill. |
| Cut-Off Parameters | For TQ cut-off grade assumes US$1,500/oz gold at a currency exchange rate of 0.77 C$ per US$; 100% payable gold; $2.13/oz offsite costs (refining and transport); 2% royalty; 92% metallurgical recovery. The cut off-grade covers processing costs of $11.87/t, general and administrative costs of $5.49/t and rehandle of $1.00/t |

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| | For BD cut-off grade assumes US$1,500/oz gold price at a currency exchange rate of 0.77 C$ per US$; 100% payable gold; $2.26/oz offsite costs (refining and transport), a 1.6% royalty; 92% metallurgical recovery. The cut-off grade covers processing and transport costs of $19.80/t and G&A costs of $4.50/t.<br><br>For FMS and CH cut-off grade assumes US$1,300/oz gold at a currency exchange rate of 0.77 C$ per US$; 99.9% payable gold; $5.00/oz offsite costs (refining and transport), a 2% royalty; and uses a 92% metallurgical recovery. The cut off-grade covers processing costs of $8.22/t at FMS, $8.64/t at CH, and general and administrative (G&A) costs of $2.50/t.<br><br>A breakeven incremental cut-off grade of 0.30 g/t Au is used for TQ, FMS and CH, and 0.40 g/t Au for BD. |
| Mining Factors or Assumptions | Lerchs-Grossman (L-G) analysis and pit designs to enable the conversion of Measured and Indicated Mineral Resources to Proved and Probable Ore Reserves has been completed for all deposits. Inferred Mineral Resources are set to waste.<br><br>The mining operations are planned to be typical of similar small-scale open pit operations in flat terrain.<br><br>The overall slopes used for the pit optimisation and design work were sourced from reports carried out by independent geotechnical consultants.<br><br>Grade control drilling is carried out in advance of mining and the information obtained from this drilling is made available for decision making in advance of mining.<br><br>Mining recovery of 95.3% and external mining dilution of 5.4% at 0.53 g/t Au grade is applied in addition to the modelled in-block dilution for TQ.<br><br>Mining recovery of 98.4% and external mining dilution of 1.6% at 0.20 g/t Au grade is applied in addition to the modelled in-block dilution for FMS and CH. For BD dilution grade is 0.28g/t Au |
| Metallurgical Factors or Assumptions | The process design assumes a conventional flowsheet, including crushing, grinding, gravity recovery, CIL, desorption/electrowinning/refining, cyanide destruction and tailings management.<br><br>A new, simple, satellite primary crushing facility consisting of a grizzly feeder, jaw crusher and primary coarse ore stockpile feed conveyor will be required at Beaver Dam.<br><br>A process facility with a nominal treatment rate of 2.0 Mt/a has been designed to recover and concentrate gold from ore mined at the proposed Fifteen Mile Stream open pit. The plant operates two shifts per day, 365 d/a at an overall plant availability of 92%. The process plant will produce a gold concentrate to be transported and further treated at the Touquoy process plant.<br><br>A process facility with a nominal treatment rate of 2.0 Mt/a has been designed to recover and concentrate gold from ore mined at the Cochrane Hill open pit. The plant will operate two shifts per day, 365 d/a at an overall plant availability of 92%. The process plant will produce a gold concentrate to be transported and further treated at the Touquoy process plant.<br><br>Metallurgical recoveries are assumed to be 92% |

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| Environmental | Environmental approvals are in place for the Touquoy mine. It is assumed that Federal and Provincial approvals will be granted for Beaver Dam, Fifteen Mile Stream and Cochrane Hill ahead of mining. |
| Infrastructure | The Touquoy property can be accessed via 110 km of sealed road from Halifax to Moose River. The administration area is accessed via a 1.3 km gravel access road from Mooseland Road. Major onsite roads at Touquoy include the ore haulage and waste haulage roads. Access to the Beaver Dam administration area will be via the 7.5 km Beaver Dam road from Provincial Highway 224 in combination with the upgraded 30 km corridor used for ore haulage from Year 6. Ore will be transported from the Beaver Dam site to the Touquoy mine site by semi-trailer trucks using a 9-axle B-train configuration carrying a 50 t payload. The trucks will travel a total distance of 30 km between the two sites, over four, either upgraded or new sections of road. A well-maintained bituminized road (Provincial Highway 374), which connects several large towns in Pictou County (Stellarton, New Glasgow) with the coastal community of Sheet Harbour, will provide access to the Fifteen Mile Stream site. The administration office and need to shut down the public highway during blasting operations, a 2.9 km section of Provincial Highway 7 will be relocated approximately 300 m to the west. In addition to the mine access road, three major ex-pit haul roads to haul ore and waste materials will be constructed.<br><br>Built infrastructure supporting the Touquoy Mine operations includes administration safety, geology, and engineering offices, control room complex, mill maintenance office, process plant building, reagent storage, laboratory, workshop and warehouse and the main plant motor control centre room. As ore will be transported to Touquoy for processing, building infrastructure at Beaver Dam will be limited. Building infrastructure will consist of a small workshop and warehouse facility. The infrastructure requirements for Fifteen Mile Stream and Cochrane Hill will include administration offices, gatehouse, mining office and change room, process plant, plant office and change room, plant workshop, and reagents and consumables storage.<br><br>At Touquoy, the power supply comes from a connection to the Provincial distribution grid. The power demand at Beaver Dam is insufficient to justify providing permanent powered generators. Therefore two (duty/standby) self-contained, skid-mounted 500kW diesel powered generators will provide the required 600 V electrical power for Beaver Dam surface consumers. The Fifteen Mile Stream site will be connected to the power grid by a 1 km overhead power line connected to the 69 kV line that runs adjacent to the planned Fifteen Mile Stream mine site. The closest point of power supply for the Cochrane Hill site is the 25 kV circuit 57C-426 located at the Salmon River Substation. To connect the site to the substation it is necessary to upgrade a 4 km section of overhead singlephase line, and to build an additional 9 km of overhead three phase line to supply the site with 25 kV power.<br><br>Concentrates from Fifteen Mile Stream and Cochrane Hill will be transported to the Touquoy process plant along a combination of existing public and private roads. The trucks will complete approximately 6–8 return trips per day at the design production rate. |
| Costs | The capital cost estimate for the project includes four separate cost estimates, one each for Touquoy, Beaver Dam, Fifteen-Mile Stream and Cochrane Hill:<br><br>The operating and capital cost estimate for Touquoy is based on the 2022 budget for the operation. This budget has been prepared in alignment to past years actuals and short-term planning results.<br><br>The Beaver Dam capital cost estimate is based on the May 2021 Feasibility Study with an accuracy of -10% to +15%<br><br>The estimates for Fifteen Mile Stream and Cochrane Hill estimates are based on the developed 2018 Pre-Feasibility Study, updated for scope and escalation to first quarter 2019, and have an accuracy range of -15%, +25% of final cost. |

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| | Operating costs were calculated based on labour, process and maintenance consumables, transport, and G&A costs. Operating costs incurred and revenue from production realized during the period prior to achieving commercial production were capitalized within the Owner's costs |
| Revenue Factors | A gold price of US$1500/oz has been used in revenue calculations for TQ and BD and US$1300/oz for FMS and CH. |
| Market Assessment | Contracts are in place for transportation, security, insurance, and refining of doré gold bars from Touquoy, and doré is currently shipped to a customer for refining. It is expected that doré produced from Beaver Dam, Fifteen Mile Stream and Cochrane Hill would be subject to similar contracts to that in place for Touquoy. |
| Economic | The Touquoy mine is an operating asset and is not subject to project-type analysis.<br><br>Life-of-Mine plans are developed or updated on an annual basis. These plans reflect current and projected performances for the Ore Reserve. |
| Social | There are no First Nations (Mi'kmaq) communities within the Touquoy, Beaver Dam, Fifteen Mile Stream and Cochrane Hill site boundaries.<br><br>No significant archaeological sites were identified during surveys. |
| Other | There are major contracts currently in place to support the Touquoy Mine operations, in addition to the refining contract. These contracts cover items such as bulk reagents, operational and technical services, process equipment maintenance support, earthworks projects, transportation and logistics, and administrative services.<br><br>Atlantic may enter into additional operational contracts including, but not limited to, equipment maintenance and ore haulage between Touquoy and Beaver Dam, Fifteen Mile Stream and Cochrane Hill, depending upon operational requirements. These will be reviewed on a continual basis as the project moves forward. Contracts would be negotiated and renewed as needed. Contract terms would be in line with industry norms, and typical of similar contracts in Nova Scotia that Atlantic is familiar with. |
| Classification | The Ore Reserve includes only Proved and Probable classifications.<br><br>The economically minable component of the Measured Mineral Resource has been classified as a Proved Ore Reserve. |
| Audits or Reviews | The Atlantic Mining Ore Reserves Estimates were compiled originally in 2019 to CIM 2014 Definition Standards by a suitably Qualified Person. The Resource Estimates have subsequently been reviewed internally by qualified St Barbara personnel and independent third-party consultants and are considered fit for purpose. |
| Discussion of Relative Accuracy/ Confidence | The Ore Reserves based are global estimates of Mineral Resource. Resource/Reserve confidence is confirmed with Grade Control drilling in advance of mining and the models are updated to reflect the best information. Mine planning and subsequent mining are adjusted accordingly. |

**JORC Table 1 Checklist of Assessment and Reporting Criteria**

**Section 1 Sampling Techniques and Data – Simberi Operations**

| Criteria | Comments |
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| Sampling Techniques | Chips from reverse circulation (RC) drilling and half-core from diamond holes (DH) have been used to sample the Simberi deposits.<br><br>Drilling by Kennecott occurred between 1984 and 1989. Subsequent drilling by Nord was carried out between 1995 and 1998. Allied drilled from 2004 to 2012. From September 2012 St Barbara have owned and operated the Simberi project.<br><br>During the early part of the Kennecott percussive drilling program (up to approximately RC320, February-May 1989), each 1 m sample was collected from a cyclone in a calico bag. The sample was dried, and jaw crushed to less than 7 mm and a 1.5 kg riffle split sub-sample dispatched for assay. The Kennecott 1m diamond drill core samples were cut in half using a diamond saw, dried, jaw crushed, and hammer milled to -30 mesh. A 200-250 g sub-sample was pulverised to -80 µm mesh before submitting to the laboratory.<br><br>Nord sampled percussive and diamond holes every 1 m. RC samples were collected in polyweave bags direct from a cyclone. Approximately 100 g of every RC sample were washed, dried, and retained for reference. RC samples were hammer milled at a Nord sample preparation facility, located on Simberi Island, to approximately -30 mesh. The sample preparation facility was supervised by contract personnel from Astrolabe Pty Ltd, an analytical laboratory in Madang. A 1 kg subsample was riffle split for assay dispatch and the remainder stored. Nord diamond core was photographed, logged, and cut in half using a diamond saw. One half was dried, jaw-crushed, hammer milled and reduced to a 1 kg sub-sample using a riffle splitter. The sub-samples were dispatched to Astrolabe (Madang, PNG) for final preparation and assay up until September 1996.<br><br>Allied RC samples were collected at 1 m intervals then dried. Each sample was jaw-crushed, hammer milled to -80 mesh and reduced to two approximate 1 kg sub-samples using a riffle splitter. One 1 kg sample was hammer milled to -30 mesh and the other 'reject' split was archived on site for a minimum of 3 months after assays were returned. The 1 kg crushed samples were dispatched to ALS. In mid-2008, a new core shed, and sample preparation facility was constructed with upgraded security and new sample processing equipment. This allowed a change to the RC sampling and preparation procedures. Samples from the cyclone were collected in large polyweave bags and weighed. Sub-samples were placed in calico bags. For dry/damp samples a riffle splitter was used to produce approximately 500 g for processing and approximately 500 g for 'reject' or archive. Spear sampling was conducted on wet samples to obtain two 800 g sub-samples, one for archive and one for processing. Sub-samples were sent to sample preparation for drying in electric ovens. Before mid-2008, Allied diamond core samples were processed in a similar way to the RC samples. Core was sampled on 1 m intervals, cut in half using diamond saws and dried. One half of each sample was stored on site in the secured core shed, the other half was crushed with a jaw crusher and split to two approximately 1 kg samples. One was hammer milled to -30 mesh and the 'reject' sample archived for a minimum of 3 months after assays were returned. The 1 kg samples were dispatched to ALS Townsville for fire assay.<br><br>St Barbara have sampled core at 1m intervals irrespective of geology using a petrol clipper saw along its long axis on a plane representing approximately half of the core.<br><br>Exploration RC samples were collected at 1m intervals and grade control samples were collected at 2m intervals. The sample generated by the rigs was initially passed through a cyclone/cone-splitter system which delivered a nominal 2-3 kg size sample which was collected in a calico bag for each metre.<br><br>When drilling wet due to water inflows, samples were collected in a 20-litre bucket, the water decanted, and the sample transferred to the calico bag. For each one metre |

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| | interval, a sieved chip sample was also collected and deposited in a chip tray for later photographing and logging.<br><br>The calico bags were then packed in large green polyurethane bags and delivered to the Simberi's onsite laboratory for drying and aqua regia Au analysis.<br><br>Exploration RC and diamond pulp residues from this process were sent to the SGS laboratory in Townsville for Au (50 g fire assay) and multi-element ICP analysis. |
| Drilling Techniques | From 1984 to 1990 drilling was carried out by Kennecott, comprising 447 (43,727 m) RC drill holes (3.75 - 4 inch), 73 (15,970 m) diamond drill holes and 11 (153 m) diamond holes drilled for metallurgical purposes. Most diamond holes were drilled PQ to depths of up to 200-250 m and HQ thereafter.<br><br>From 1994 to 1998 Nord completed a further 432 (26,241 m) RC holes and 35 (6,415 m) diamond holes. Many of these diamond holes were triple-tubed for metallurgical sampling and test-work.<br><br>Allied drilled 816 RC (62,003 m) holes and 219 (42,098 m) diamond holes after 2003. All diamond drill hole core has been photographed.<br><br>Downhole surveys were restricted to only some of the early Kennecott and Nord diamond drill holes and the bulk of the later Allied diamond drilling. Most of the RC drilling was shallow, averaging less than 100m, and errors due to hole deviation will be minimal.<br><br>St Barbara Limited (SBM, 2014-2018) completed diamond holes using a track mounted Cortech CSD1300G drill rig. RC drilling was completed using a track mounted Gemrok 1000H MP, along with a track mounted Schramm 650 rig. Both RC machines used sample splitting systems to deliver a representative sample of a size which made sample preparation and assaying productive.<br><br>In March 2018, SBM commenced a major RC drilling program to test the down dip extensions of the Sorowar orebodies. Holes were generally drilled on an azimuth of 30 degrees to the mine grid, with a dip of -60 degrees and a total depth of 250 m. The campaign used three drills supplied by Quest Exploration Drilling (QED) running a mixture of 4.5 inch and 5.25-inch RC hammers, a Schramm 685WS (500 psi/1350 cfm onboard compressor), a DML 45 (350 psi/500 cfm onboard compressor) and a UDR 1200 (no onboard compressor). All drills required additional air at high pressure to achieve the required depths. This was provided by a number of independent compressor and booster units, including a Sullair 900 20/12 (500 psi/1150 cfm), an Atlas Copco 487 (350 psi/900 cfm), an Atlas Copco XVRS (450 psi/1000 cfm), Hydro Booster AV92 (350 psi/720 cfm) and a Hurricane Booster Copco (350psi/500cfm). Drilling has proved challenging, with broken ground and high-water inflows occurring in certain areas of the Sorowar pit. This led to the loss of one rod string, and considerable time spent retrieving at least three others during the program. |
| Drill Sample Recovery | In 2016 RC sample recovery was calculated from oven-dried weight of the sample and the assumed volume. RC sample recovery is low at surface but increases up to about a downhole depth of 40 m, and then the average recovery slowly decreases. Presumably this relates to poor recovery in the clay rich oxidised material which can also have higher moisture content and then lower recovery again at greater depths where sample recovery may be more difficult and sometimes wet drilling conditions are encountered. The average sample recovery is 68 %. RC drilling recoveries around this level are possible but they are very low. There is a possibility that the density used to calculate the recovery is being overestimated, which would underestimate the recovery. This could for example be caused if the samples are sometimes not dried sufficiently. The RC drilling is recorded as mostly 5.25 inches but with some 5.5-inch diameters.<br><br>Ten percent of RC samples were logged as wet and 24% moist. It appears that moist RC samples occur at shallower downhole depths and wet samples are more abundant at greater hole depths. In relative terms, sample recovery is a little lower in moist and wet samples than in dry samples. |

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| | Core recovery is around 90 % at surface increasing to about 95 % at a depth of 70 m below surface where it remains relatively constant. Some holes have extremely variable recovery while others have 100 % recovery for the complete hole. Holes with completely 100 % recovery sometimes have large sections of the drill hole that are broken without a piece of intact core. Measuring core recovery is difficult in such holes and may not always be reliable. |
| Logging | Lithology, alteration, structure, and assay data exists as well as an extensive set of core photographs. All holes were logged for a combination of geological and geotechnical attributes. Twin holes suggest that there is often a lack of consistency between the geological logging of various geologists. Some check re-logging will be required if reliable 3D alteration and lithology models are to be built. |
| Sub-sampling techniques and sample preparation | During the Kennecott percussive drilling program (up to approximately RC320, February-May 1989), the jaw-crushed sample was split to 250 g, disc pulverised to -80 µm mesh, further split to a 50 g aliquot and finely pulverised for assay. Lack of correlation between duplicate and original sample assays led Kennecott to revise the sample preparation procedure. Subsequently (up to RC447, 1992) a 250 g split (-80 mesh) was sent to the laboratory. At the laboratory a 50g aliquot was taken for pulverising and assay. A similar sized aliquot from the 200-250 g sub-samples (-80 mesh) from the Kennecott diamond core samples was fire assayed.<br><br>Every Nord 1m RC sample was hammer milled to approximately -30 mesh and a 5 g aliquot finely pulverised and fire assayed. Nord diamond core sub-samples were dispatched to Astrolabe (Madang, PNG) for final preparation and assay up until September 1996. At the laboratory the 1 kg sub-samples were dried, pulverised and a 50 g sub-sample was fire assayed for gold using an atomic absorption spectrometer (AAS) finish. After September 1996, the samples were dispatched to Australian Laboratory Services (ALS) in Townsville, Queensland, for preparation and assay using the same method.<br><br>The 1 kg (-30 mesh) sub-samples from the Allied RC drilling were dispatched to ALS and finely pulverised. A 50 g sub-sample was fire assayed and the remainder stored at their facility in Garbutt, Queensland. The Simberi processing equipment was flushed with glass before each hole was processed. After the new core shed and sample preparation facility was constructed (2008) spear sampling was conducted on wet samples to obtain two 800 g sub-samples, one for archive and one for processing. Dried RC samples of up to 600 g were milled in an LM2 to obtain a 90 % pass through 75 microns for dispatch to the laboratory. The laboratory procedures on Simberi Island were reviewed by ALS Chemex in October 2004 and found to be satisfactory.<br><br>Before mid-2008, Allied drill core samples were processed in a similar way to the RC samples. 1 kg from the half-core sample was hammer milled to -30 mesh and the 'reject' sample archived for a minimum of 3 months after assays were returned. The processing equipment was flushed with glass before each hole was processed. The 1 kg samples were dispatched to ALS Townsville for pulverising and a 50 g sub-sample was fire assayed.<br><br>For SBM drilling all samples were prepped using the on-site laboratory. Samples were initially crushed to <2 mm using a Terminator jaw crusher. Samples greater than 1 kg were riffle split and this subsample was pulverised using an Essa LM2 pulveriser with exploration pulps of 150-200 g dispatched to ALS in Townsville for analysis.<br><br>No studies exist to determine if the sample sizes are appropriate for the grainsize being sampled. Sample sizes are however similar to other gold deposits. |
| Quality of assay data and laboratory tests | Kennecott evaluated the results of a re-assay program in 1992 dividing the data into oxide, transitional and sulphide as well as grade classes. As a result, the following corrections were made to the Au assay data: oxide -6.1%, transition -10.3% and sulphide -9.2%. These corrections were not used for SBM estimates. |

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| | Duplicate sampling by Nord concluded that the majority of the duplicate pairs agreed well. Nord's internal standard samples were reported as having acceptable agreement.<br><br>Allied's sample preparation and analytical control procedures included the use of blanks to monitor contamination, duplicates to test splitting and milling efficiency and standards to monitor analytical accuracy and precision. Gold assays for 288 standards showed precision well within two standard deviations. Gold assays for 574 duplicates, representing 4.2% of the (Allied) samples assayed show good agreement with a correlation coefficient of 0.994. In addition, Au assays for 570 samples submitted to a second laboratory also showed good agreement, with a correlation coefficient of 0.996. Between drill holes, sample preparation equipment was cleaned with crushed glass and compressed air. Between samples the same equipment was cleaned with compressed air and a brush. Due to the poor initial selection of blank material, the blanks analysis data could not be used to accurately determine the degree of contamination. Allied conducted Round Robin inter-laboratory checks in 2009 and 2010 with satisfactory results.<br><br>For resource drilling SBM have inserted non-certified blank material at a ratio of 1:25; inserted certified reference material at a ratio of 1:21; field duplicates (RC) 1:47 and the pulverisation and analysis of coarse reject (core) at a ratio of 1:22. No bias or contamination issues were detected however, some assays of standards suggest that precision can at times be lower than ideal. Analysis of blanks suggest the occurrence of some sample mix ups particularly since April 2018.<br><br>RC grade control drilling is also used for resource estimation; however this drilling is predominantly targeting oxide resources. There are 1,310 pairs of field duplicates for RC grade control and while there is no bias precision is not always ideal. There was no pulp duplicate analysis for the RC grade control data. Given the RC grade control data is used for the externally reported resource this data should have similar QA/QC to the resource drilling data. There were 1,317 assays from standards submitted with grade control RC drilling. There is no significant bias in the standard analysis however in some instances the precision is surprisingly poor and this requires attention in the future.<br><br>From 2020 June 2020 to June 2021, the Simberi laboratory analysed 1,381 original samples, 18 blanks samples, 72 CRM samples and 66 duplicate pairs giving insertion rates of:<br>• 1:77 for non-certified blank material<br>• 1:19 for certified reference material (CRM)<br>• 1:21 for Coarse Reject Duplicates (DD core and RC chips)<br><br>From 2020 June 2020 to June 2021, ALS received 7,116 original samples, 204 blank sample, 358 CRM samples, 132 core duplicate samples and 191 RC duplicate samples, giving ana insertion rate of:<br>• 1:35 for non-certified blank material<br>• 1:20 for certified reference material (CRM)<br>• 1:22 for Coarse Reject Duplicates (DD core and RC chips)<br><br>The QA/QC from the Simberi and ALS laboratories were acceptable. CRM standard fails are spread out and show no long-term bias apart from an occasional slight trend of under reporting standards over a short timeframe.<br><br>Simberi and ALS laboratory comparison of 7,021 pairs of Au assays a indicating a high correlation with a light negative bias for the site assays. |
| Verification of sampling and assay | There are 12 diamond holes versus RC twin drill holes. Also present are 5,385 RC versus diamond sample pairs that are located within 10 m or less that may or may not have been intentionally drilled as twin holes. For example, holes that cross close to each other or grade control RC holes next to exploration diamond drill holes.<br><br>Based on a detailed analysis of the above information and the underlying geology it is possible that gold grades in some of the older RC drilling is biased high. This may be |

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| | due to difficult drilling conditions (faults, high porosity etc), down hole moisture and insufficient air pressure during RC drilling resulting sample loss and/or contamination. Much higher pressures are now used in RC drilling and operators are more experienced with the ground conditions at Simberi. Reconciliation exists from 2017 onwards and there is no evidence of a bias in the current RC drilling. |
| Location of data points | All drill collars were surveyed using traditional EDM instruments based on UTM WGS 84. An audit by McMullen Nolan and Partners Surveyors Ltd in 2005, using two dual frequency GPS units, determined that the Simberi survey had very high accuracy. Since 2007, an additional QC step was introduced to record all collars with a GPS to cross check the surveyed coordinates.<br><br>Simberi island was surveyed in 2007 before mining commenced. A LiDAR survey was flown in early 2012 post mining. The two surveys have been merged to create a pre-mining surface. There are areas in which the RL of the collar coordinates and pre-mining surface vary by up to 30 meters. The reason for these difference needs to be identified and corrected.<br><br>SBM mine survey team has surveyed the SBM drilling. No down hole surveys were completed on the RC holes. There are 246 RC holes of depths greater than or equal to 200m and down hole surveying for deeper RC holes would be worthwhile. Diamond holes were surveyed down hole every 15 metres using a single shot camera. |
| Data spacing and distribution | The RC grade control data is nominally on a 10m x 10m grid with most hole depths being either vertical 30m or 60m drilled at -60 degrees. Resource drilling collar locations tends to be irregular with topography controlling access.<br><br>For resource estimation diamond, RC and RC grade control data are used. however, below the pit shells, drill spacing is highly variable and this is considered during resource classification. |
| Orientation of data in relation to geological structure | Gold mineralisation does not appear to be closely associated with any particular lithology although the contacts between lithologies can at times be a favourable host to gold mineralisation. It is recognised that the gold mineralization is controlled by NW–SE and NE–SW steeply dipping structures and the intersection of these also has the potential to host mineralization. Gold mineralisation is generally associated with sulphides or iron oxides occurring within all variety of hydraulic fractures, and broad disseminations in the naturally porous volcaniclastic rocks. The mix of vertical and inclined drilling goes some way to optimally intersect these mineralisation styles. |
| Sample security | Company personnel or approved contractors only were allowed on drill sites. Drill samples were removed from drill sites only to a secure sampling or core logging/processing facility. Logged and cut core was consigned and dispatched as secure cargo to accredited laboratories for processing. |
| Audits or reviews | In 2004, Golder Associates prepared an Independent Qualified Person's Technical Report of the Simberi Oxide Gold Project and in June 2011 Golders produced the Competent Person's Report for the Simberi Gold Project, which found no compromising factors deleterious to the resource.<br><br>In 2015, QG completed a review of the Simberi grade control which highlighted a potential bias between RC and diamond drilling. The results of a follow up study are discussed in the section above on verification of sampling and assaying. |

**Section 2 Reporting of Exploration Results – Simberi Operations**

| Criteria | Comments |
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| Mineral Tenement and Land Tenure Status | The reported resource is completely located within ML 136 which is leased until 2 December 2028 by the Simberi Gold Company Limited (SGCL), a wholly owned subsidiary of St Barbara Limited. |
| Exploration Done by Other Parties | Drilling of the resource by other parties is discussed in the previous section. |
| Geology | Discussed in the project summary above. |
| Drill Hole Information | No exploration results are externally presented. |
| Data Aggregation Methods | No exploration results are externally presented. |
| Relationship Between Mineralisation Widths and Intercept Lengths | No exploration results are externally presented. |
| Diagrams | No exploration results are externally presented. |
| Balanced Reporting | No exploration results are externally presented. |
| Other Substantive Exploration Data | No exploration results are externally presented. |
| Further Work | Future work will focus on converting Inferred oxide and sulphide resources to Indicated and Measured resources. |

## Section 3 Estimation and Reporting of Mineral Resources – Simberi Operations

| Criteria | Comments |
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| **Database Integrity** | Drilling in 2004 and 2005 by Allied Gold was subject to significant external review. Golder Associates visited the site in April 2004 and reviewed data collection procedures.<br><br>In early 2009, the historic exploration data was transferred into a Maxwell's Datashed model and subjected to QAQC, which traps and reports errors on import. Exploration data is now entered directly into the Datashed SQL database.<br><br>Grade control data is entered into a MineSight Torque database. The integrity of the database is acceptable, however data validation during entry needs improved. |
| **Site Visits** | The Competent Person most recently visited site in 2018. |
| **Geological Interpretation** | Gold does have lithological and structural controls, but these controls are complex and cannot be easily used to generate domains for resource estimation. Leapfrog software was used to generate a 0.25 g/t Au grade shell for resource estimation. A grade shell is needed to avoid smearing grades between mineralized and essentially unmineralized areas. This grade shell is sufficiently below the resource reporting cut-offs to not introduce any significant conditional bias during resource estimation.<br><br>Locally the orientation, degree of anisotropy and extrapolation of the 0.25 g/t Au grade shell tends to be somewhat subjective however, the current grade shell is considered appropriate by the Competent Person. Further improvements could be made by incorporating additional local geological controls into the interpretation. To better understand the impact of uncertainty it is recommended that multiple 0.25 g/t Au grade shells be generated and used for resource estimation.<br><br>Oxidation domains (oxide, transitional and sulphide (fresh)) are based on logging from drill holes. Proportions of oxide, sulphide and transitional were estimated by indicator kriging and validated against the wireframes used to define oxide domains in previous estimations. Validation consisted of visual inspection and grade tonnage curves. |
| **Dimensions** | The northernmost deposit is Sorowar, its bulk is aligned SE-NW (1,550 m) with minor (structurally controlled) orthogonal splays towards the southwest and northeast. These splays are less than 750 m long and 300 m wide.<br><br>Pigibo is oriented W-E for approximately 740 m with a central bulge about 300 m wide and tapering to about 100 m at the western and eastern extremities. It is located about 1,500 m to the southwest of the central part of Sorowar.<br><br>Pigiput is east of Pigibo and about 1000 m south of Sorowar. It is roughly equidimensional (640 m diameter) in plan.<br><br>Monun Creek is between Pigiput and Sorowar however, there is now enough drilling to define continuous mineralisation between Pigiput and Sorowar.<br><br>Botlu is about 800 m south of Pigibo. It strikes SE-NW for approximately 680 m with an average width of around 250 m. About 700 m to the SE of Botlu is the discontinuous Pigicow deposit which strikes SW-NE for nearly 600 m with a variable width (200-450 m).<br><br>Samat is located about 700 m to the southeast of Pigicow and is aligned north-south for approximately 720 m with an average width of 300 m. Like Pigicow, Bekou is discontinuous and oriented towards the east-northeast with a strike length of around 600 m. Located about 650 m to the southwest of Samat, its width varies from 40 m to 170 m. |
| **Estimation and modelling techniques** | Oxidation domaining was used to define material types however this domaining was not used in the estimation of Au. Gold was estimated within and without a 0.25 ppm Au shell.<br><br>For the generation of a 0.25 g/t Au grade shell and the oxide domains all available data is used i.e., diamond, RC, auger, and blast hole. The drillholes were composited downhole to 2m and numerous orientation ellipses when creating the wireframe |

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| | For resource estimation diamond, RC and RC grade control data are used. The RC grade control data is nominally on a 10m x 10m grid however, below the pits drill spacing is highly variable and this is considered during resource classification.<br><br>Ordinary Kriging with 2m composites was used to estimate Au with the following parameters:<br><br>• Minimum of 6 composites;<br>• Maximum of 16 composites;<br>• No quadrant or octant search;<br>• Search of 600 m x 600 m x 200 m (blocks informed by large composite to block distances are not classified as a resource – see section on resource classification);<br>• Anisotropic distances were used to select the closest composites;<br>• Parent cell discretisation for kriging of 5 x 5 x 2 in X, Y and Z dimensions;<br>• All composites within a block are used to estimate that block; and<br>• All domain boundaries were treated as hard during estimation.<br>The parent block model dimensions were 10 mX x 10 mY x 5 mZ, which is equal to the spacing of the better drilled areas.<br><br>Outlier restricted kriging was used with grade above a specified cut-off cut to that value when the composite is greater than 15 m from the block being estimated. An outlier cut-off of 30 ppm was used within the 0.25 ppm grade shell. An outlier cut-off of 0.7 ppm was used outside the grade shell.<br><br>Orientation disks were placed throughout the Simberi deposit using geology, structure, and gold grade continuity to define each disks rotation. These disks were used to guide the local orientation of the 0.25 ppm Au grade shell discussed above. The orientations from these disks were also used during kriging. Firstly, the orientations were interpolated into every block in the mineralized domains using nearest neighbour interpolation. During estimation the search ellipse and variogram were rotated according to the orientation stored in each block being estimated.<br><br>The Au estimate was validated using an inverse distance squared check estimate as well as comparison against the raw and declustered composites. The model was also validated using swath plots and visual comparison between composited and the kriged grades.<br><br>In the deeper less well drilled parts of the deposit kriging from wide spaced data into relatively small blocks will tend to over-smooth the estimate and conditional simulation or non-linear estimation is recommended for these areas.<br><br>Resource drilling was analysed for iron and sulphide. Ordinary Kriging with 1m composites was used to estimate iron and sulphide as 99% of samples were 1m in length. The estimation parameters were:<br><br>• Horizontal search ellipse of 80 mX x 80 mY x 4 mZ, expanded by a factor 2 and 3 for the second and third estimates.<br>• Minimum of 4 composites and a maximum 18 of composites for the first and second estimate;<br>• Minimum of 1 composite and a maximum 18 of composites for the third estimate;<br>• A maximum 3 of composites per drillholes; and<br>• Oxidation domain boundaries were treated as hard during estimation.<br>The current estimate is yet to be compared against mill production. |
| **Moisture** | Tonnages are estimated on a dry basis. |
| **Cut-off parameters** | The resource is reported at a gold cut-off of 0.4 g/t for oxide and 0.6 g/t for sulphide. Transitional material is treated as either oxide or sulphide based the chemical equations provided by metallurgists:<br><br>• Oxide: S<=0.4% OR Fe/S>10<br>• Oxide: 0.4% > S <= 2% AND 3 <= Fe/S <= 10<br>• Sulphide: S>0.4% AND Fe/S < 3 OR S>2% |

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| **Mining factors or assumptions** | The mining method for all deposits is open pit, using 5 m flitches and 20 m benches. The principle pieces of digging equipment are four Hitachi 1200 excavators, matched with a mixed fleet of CAT 740 and BELL 50D articulated dump trucks.<br><br>Ore blocks are generated within the site's MineSight software utilising a Dig Block Optimisation module with a base SMU of 5 m x 5 m x 5 m. The optimal blocks are modified by the mine geologists to achieve a practical ore mark out, which is then located on the ground via differential GPS.<br><br>Ore mark out widths vary from 5 m to 60 m, the average being in the 30 m to 40 m range. When forecasting and budgeting, mining dilution and ore loss are set at 15 % and 5 % respectively, and this has given a suitable result when compared against actual.<br><br>All material within the ore marked-out blocks, regardless of oxidation state, is delivered to ROM stockpiles, either at the Sorowar Feeder, for the rope conveyor, or to the Mill. The 365 tph rope conveyor from the Sorowar Feeder to the Mill ROM pad is an integral part of the mining process flow at Simberi, as is the downhill trucking that deliver additional 700 kt to 1 Mt per annum to the Mill ROM. |
| **Metallurgical factors or assumptions** | Gold recovery in oxide/transition ore types is correlated with sulphur using the following formula IF(S%>=2.5,30, MIN(86,94.2-22.9*S%))<br><br>Sulphide ore is refractive and cannot be treated economically through a standard CIL plant. Testing has indicated the flotation of the sulphides containing the gold can be successfully undertaken to produce a gold rich sulphide concentrate. |
| **Environmental factors or assumptions** | Historically, there has been no large-scale mining and the previous alluvial workings have had no significant impact. There are no pre-existing environmental liabilities. During a 2004 environmental baseline study, a network of monitoring stations was established to support the ongoing collection of data.<br><br>A 2005 Feasibility Study addressed the environmental impacts associated with waste dumps, open pits, pipelines, access/haul roads, process plant, deep sea tailings and stormwater. However, no attempt at identifying the acid rock drainage potential was made, although the resource model was domained with respect to visible oxidation intensity. A report by Environmental Geochemistry International suggests that the distribution of the acid rock drainage (ARD) material types be spatially determined. In this way the non-acid forming (NAF) and potentially acid forming (PAF) factors can be evaluated – using the sulphur values in the model. |
| **Bulk density** | The dry bulk densities were determined using the water immersion method. Only intact pieces of core can be measured by this approach and in extremely broken ground there is potential for a bias to be introduced. Core is wrapped in cling wrap before weighing in water. This approach can be unreliable due to either entrapped air bubbles or water leaking into the sample. Further work is required to verify the reliability of the density data and to ensure that clay rich samples have been adequately dried before density is measured.<br><br>There is limited density data. Generally, one measurement per core tray or less. Density was estimated into the block model using inverse distance squared interpolation. |
| **Classification** | The August 2021 model classification was taken from the April 2021 model with updated areas where 2021 drilling indicated increased confidence. As the 2021 drilling is restricted to only a small volume of the total model, the classification is simar to the April model.<br><br>The first step of the April 2021 model classification was an automated approach was utilised to classify the resource using drill hole spacing. The following criteria were used:<br><br>1. Measured - Utilising a quadrant search of 15 mX x 15 mY x 7.5 mZ (total size of the ellipse is 30m x 30m x 15m), there must be at least one composite in each quadrant; |

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| | 2. Indicated - Utilising a quadrant search of 30 mX x 30 mY x 15 mZ (total size of the ellipse is 60m x 60m x 30m), there must be at least one composite in each quadrant; and<br>3. Inferred - Utilising a quadrant search of 55 mX x 50 mY x 25 mZ (total size of the ellipse is 110m x 100m x 50m), there must be at least one composite in three of the quadrants.<br>Blocks outside the 0.25 grade shell were unclassified. The following additional restrictions were applied within these classifications:<br>1. For Measured the slope of regression was greater or equal to 0.85; and<br>2. For Indicated the slope of regression was greater or equal to 0.6.<br>Finally, manually generated wireframes were used to smooth any artifacts from the automated classification. For example, a single block of Inferred within Indicated.<br>To meet the JORC (2012) criteria for reasonable prospects of eventual economic extraction, only the material above a pit shell has been considered as a resource. This ultimate pit shell (generated from the August 2021 estimate) was calculated using a gold price of US$1,875 with Measured, Indicated, and Inferred resources used to optimise the pits. Resources were depleted using the end of November 2021 surface. |
| **Audits or Reviews** | In June 2011, Golders produced the Competent Person's Report for the Simberi Gold Project, which found no compromising factors deleterious to the resource. The Sorowar and Pigiput/Pigibo Mineral Resource Estimate were reviewed internally in 2014 by a panel of experienced company geologists. The review covered all aspects of the estimate including source data, geological model, resource estimate and classification. In addition, the reporting of the company Mineral Resources is guided by the company's Mineral Resource Estimation System and is overseen by the Executive Leadership team prior to being reviewed by the company's Audit Committee.<br>The Simberi August Resource was reviewed by Cube Consultants in September 2021, who concluded that there were no major flaws. Reported risks were evaluated by St Barbara and deemed to be low. Recommendations include sensitivity analysis to variogram nugget and sills, sample precision analysis and fine tuning of the oxidation surfaces. |
| **Discussion of relative accuracy/confidence** | Uncertainty in the interpretation of the 0.25 g/t Au grade shell and the interpretation of oxidation domains are key areas of uncertainty. Gold grade uncertainty within the estimation domain is also high with about three quarters of the variability occurring in under 10m (as indicated by variography). Finally, there is still the possibility that some of the older RC drilling has gold grades that are biased high. This risk is reducing as additional drilling is ongoing.<br>No geostatistical study has been carried out to determine confidence limits for the resource. Conditional simulation into conservative, intermediate and optimistic domains is recommended. |

**Section 4 Estimation and Reporting of Ore Reserves – Simberi Operations**

| Criteria | Comments |
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| Mineral Resource Estimate for Conversion To Ore Reserves | The Ore Reserve estimate is based on the Mineral Resource estimate completed by St Barbara Ltd. Gold grade was estimated using ordinary kriging.<br>The Mineral Resources are reported inclusive of the Ore Reserve. |
| Site Visits | The Competent Person has not visited site due to travel restrictions imposed by COVID-19. The Ore Reserves were compiled with the assistance of the Simberi Head of Operations, Kevin Woodward, FAusIMM 111483 who has intimate knowledge of the Simberi Operation. |
| Study Status | The current mine and processing plant configuration has been in operation since 2013. |

| Criteria | Comments |
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| | Oxide and Transitional Ore Reserves are based on a combination of actual historical performance and cost data, laboratory test work and metallurgical development.<br><br>The Sulphide Ore Reserve is based on a Feasibility Study undertaken by St Barbara Limited and completed April 2021. St Barbara approved the feasibility study and are progressing to the next phase of project development. |
| Cut-Off Parameters | Breakeven cut-off grades (COG) were calculated at a USD $1500/oz gold price.<br><br>The ex-pit COG estimates are based on a Net Value Script (NVS) calculation that incorporates commodity price assumptions, recoveries and estimated payables; and costs associated with current and projected operating conditions.<br><br>The NVS routine identifies material that is both suitable and potentially economic for processing in the Mineral Resource Model. This material is then considered for inclusion in the Ore Reserves process.<br><br>For the cost assumptions please see the “Costs” section.<br><br>For the price assumptions please see the “Revenue factors” section. |
| Mining Factors or Assumptions | The method for Ore Reserves estimation included: pit optimisation, final pit and phase designs, consideration of mine and mill schedules, all identified modifying factors and economic valuation.<br><br>Simberi mine is an open pit operation that is mining and processing oxide gold ore. The operation uses a fleet of excavators and articulated dump trucks along with a fleet of ancillary equipment.<br><br>This mining method is appropriate for the style and size of the mineralisation.<br><br>The pit optimisation was run on a mining model based on the 2021 Mineral Resources block model, and the strategy for the final pit selection was based on a revenue factor 1. Final pit designs incorporating further practical mining considerations, such as minimum mining width, were carried out using these optimisation shells.<br><br>Mining dilution is based on localised mining dilution modelling. The dilution and ore loss modelling were designed to reflect the current conditions and practices on site while also be reflective of future mining. Indicative global dilution and ore loss factors are shown below:<br>• Ore Loss: 4%<br>• Dilution: 6%<br><br>Minimum mining width (bench size) is typically in excess of 40 m but is ~30 m in some isolated areas.<br><br>No Inferred Mineral Resources material has been included in optimisation and/or Ore Reserves reporting.<br><br>Replacement costs, expected maintenance costs and costs of additional items required have been accounted for in the life of mine evaluation on which the project costings are based. |

| Criteria | Comments |
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| | Mining rates are planned to increase with all additional costs associated with this increase included in the estimation of the Ore Reserve.<br><br>The overall slopes used for the pit optimisation and design work were sourced from reports carried out by external geotechnical consultants. |
| Metallurgical Factors or Assumptions | Ore from the various Simberi deposits is trucked and conveyed to the Simberi oxide processing plant. The oxide plant consists of a parallel comminution circuit, a conventional carbon-in-leach (CIL) circuit with an AARL elution circuit, and gold recovery facilities. Tailings are disposed via Deep Sea Tailings Placement (DSTP).<br><br>Metallurgical performance through the oxide plant is variable based on the different weathering profile of the ore with gold recovery relationships developed for oxide and transitional ore. Average gold recovery across the Simberi oxide deposits is 84% whilst gold recovery for the transitional ores are highly variable and average around 62%.<br><br>In previous Mineral Resource estimations the weathering material classification has been based solely on visual geological logging data.<br><br>The Mineral Resource model used for the December 2021 Ore reserves estimation included material classification based on logging data for Oxide and Sulphide material. However, visually logged Transitional material was separated on a block by block basis using the Fe and S assays so that the transitional material is now separated based on its expected metallurgical behaviour to maximise the metallurgical recovery for each material type. (i.e. CIL vs Float feed).<br><br>Given the expected metallurgical behaviour of the transitional material will be similar to the Oxide material when processed through the CIL Plant, the Transitional Ore Reserves have been reported with the Oxide Ore Reserves.<br><br>The sulphide ore is scheduled to be processed in a new sulphide concentrator to produce a gold sulphide concentrate for export. The flotation tailings will be leached through the existing CIL circuit to produce doré. FS level test work to determine total gold recovery to concentrate and doré is expected to vary by deposit and averages around 80%. |
| Environmental | SGCL holds two environmental permits. One for the extraction of water and one for the carry out works and the discharge of waste. Together these two permits form the environmental legislative basis in which the SGCL can operate. Compliance with these conditions is continuously monitored and reported on in Quarterly Environment Performance Reports which are submitted to the National Government, Department of Environment and Conservation (DEC).<br><br>In addition, SGCL maintains an Environment Permit for Exploration relating to Waste Discharge. This Permit is referred to as Environment Permit WDL-2A(65).<br><br>For the processing of Sulphides ores, SGCL are currently going through environmental permitting approval for the extension to existing permit; carry out works and the discharge of waste. |
| Infrastructure | All equipment required for the mining and processing of the oxide and transitional Ore Reserve is in place and operational, and consist of the following:<br>• Dedicated light fuel oil diesel generators<br>• Water supply<br>• Simberi Oxide Processing plant<br>• Surface roads and communications |

| Criteria | Comments |
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| | • Plant maintenance workshop facilities<br>• Process plant buildings, administration offices, training rooms, assay laboratory, site security buildings, ablution and stores.<br>• Core shed<br>• Mobile communication tower<br>• Accommodation and camp facilities<br>• Airstrip<br>• Wharf<br><br>For the processing of Sulphide ores the FS identified the following additional infrastructure, that will be located on St Barbara held tenements and leases. The infrastructure includes but is not limited to:<br>• Additional light fuel oil diesel generators<br>• Additional Water supply<br>• Sulphide Processing Plant<br>• Additional haulage network<br>• Expansion of accommodation and camp facilities<br>• New wharf to accommodate concentrate shipment to market |
| Costs | All costs used in the generation of the Ore Reserves have been derived from first principles, actual performance, and the Sulphide Feasibility Study.<br><br>Operating costs are estimated as part of the internal budgeting process and approved by the St Barbara board.<br><br>A gold price of US$1,500/oz has been used in all calculations.<br><br>Exchange rates were provided by the Group Treasury and accepted by the Executive Leadership Team (ELT).<br><br>Costs associated with treatment and transport have been included in the cost modelling completed for the project based on actual performance and the Sulphide Feasibility Study.<br><br>Royalties have been included at the PNG government royalty of 2.0% of gold produced. A MRA levy is also applied to at 0.5% of gold produced. |
| Revenue Factors | A gold price of US$1,500/oz has been used in all revenue calculations. |
| Market Assessment | Gold doré bars are transported fortnightly by dedicated service provider from gold room to their final destination at the ABC Refinery in Sydney. Armoured vehicles are used from start to end of the shipment process. Gold is sold on an $A basis with a call option of USD sales.<br><br>For Sulphide ore, gold bearing concentrate will be the saleable product for market. SGCL has completed numerous marketing studies and has executed off-take contracts covering approximately 60~70% of expected production with contract durations ranging from 3 ~ 6 |

| Criteria | Comments |
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| | years. The contracts are in place with four (4) traders. The concentrate will be delivered to Asia. |
| Economic | The costs are based on historic actuals and estimated sulphide plant feasibility study operating costs and the 2020 Simberi Budget.<br><br>Revenues are based on historic and feasibility study estimates. Gold prices are based on St Barbara's pricing forecast of USD $1500/oz.<br><br>The Ore Reserves financial model demonstrates the mine has a positive NPV.<br><br>The discount rate is considered to be appropriate for the location, type and style of operation. |
| Social | There are two community agreements which set the guidelines for community relations at Simberi.<br><br>• The Memorandum of Agreement between SGCL, the national government, New Ireland Provincial Government, Simberi Land Owners Association and the Tabar Community Government<br>• The Compensation Agreement. |
| Other | SGCL is operating on St Barbara's held mining lease with all required government and statutory permits and approval in place. This mining lease expires in December 2028. The current projected mine life for a Sulphide operation is 2033, which is beyond the expiration date of the current mine lease.<br><br>A company risk register is maintained to address and mitigate against all foreseeable risks that could impact the Ore Reserves. |
| Classification | The Ore Reserves classification is based on the JORC 2012 Code. The basis for the classification was the Mineral Resources classification and Net Value cut-off grade.<br><br>The ex-pit material classified as Measured and Indicated Mineral Resources, has a cut-off value calculated using a Net Value Script (NVS). It is demonstrated to be economic to process and is classified as Proved and Probable Ore Reserves respectively.<br><br>Existing stockpile material is classified as Probable Ore Reserves.<br><br>The Ore Reserves do not include any Inferred Mineral Resources (metal).<br><br>No portion of the Probable ore reserve has been derived from Inferred Mineral Resources.<br><br>The Competent Person believes the Ore Reserve declared are an accurate representation for the Simberi deposit. |

| Criteria | Comments |
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| Audits or Reviews | No external audits or reviews have been conducted on the current Ore Reserves. |
| Discussion of Relative Accuracy/ Confidence | The most significant factors affecting confidence in the Ore Reserves are:<br>• Increase in operating costs for processing.<br>• Mining Dilution and Ore Loss.<br>• Effective management of both ground and surface water. |