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AURYN RESOURCES INC.

TECHNICAL REPORT ON THE HOMESTAKE RIDGE PROJECT, SKEENA MINING DIVISION, NORTHWESTERN BRITISH COLUMBIA

NI 43-101 Report

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1 SUMMARY

EXECUTIVE SUMMARY

Roscoe Postle Associates Inc. (RPA) was retained by Auryn Resources Inc. (Auryn) to prepare an independent Technical Report on the Homestake Ridge Project (the Project), located in the Skeena Mining Division, northwestern British Columbia, Canada. The purpose of this report is to support the disclosure of an updated Mineral Resource estimate. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. RPA visited the property from August 26 to 28, 2017. The effective date of the updated Mineral Resource estimate and this report is September 1, 2017.

The Project comprises four non-contiguous blocks consisting of seven crown grants and 36 mineral claims and totalling 7,547.15 ha, located in 1:50,000 scale National Topographic System (NTS) map sheet 102/P13, approximately 32 km southeast of Stewart, British Columbia. The Property is accessible only by air.

Auryn is a Vancouver-based company formed in June 2008 and is a reporting issuer in British Columbia, Alberta, and Ontario. The common shares of Auryn trade on the Toronto Stock Exchange and the NYSE American exchange. The company is under the jurisdiction of the British Columbia Securities Commission and the US Securities and Exchange Commission (SEC).

On June 14, 2016, Auryn announced that it had entered into a binding letter agreement whereby it would acquire all the issued and outstanding common shares of Homestake Resource Corporation (“Homestake”). On September 8, 2016, Auryn announced that it had completed a plan of arrangement and that Homestake had become a wholly-owned subsidiary of Auryn. Homestake holds a 100% interest in the Project, subject to various royalty interests on certain claims held by vendors.

Currently, the major asset associated with the Project is a strategic land position covering prospective lithologies and structures. The property hosts the Homestake Main, Homestake Silver and South Reef zones which are at the resource definition stage as well as a large

land position which merits additional exploration. Recent work has expanded the known mineralization envelope and identified previously unknown mineralized corridors.

Since acquiring the Project, Auryn completed a limited amount of induced polarization (IP) surveying, a soil sampling program and a 13 hole diamond drilling program totalling 5,571.3 m as of the effective date of this report (the total program is expected to be approximately 35 holes over 12,000 m to 15,000 m).

RPA and Scott Wilson RPA Inc. (Scott Wilson RPA), a predecessor company to RPA, estimated Mineral Resources on the Project in 2010, 2011, and 2013 and disclosed the results in NI 43-101 compliant Technical Reports.

The current Mineral Resource estimate on the Project is summarized in Table 1-1.

TABLE 1-1 MINERAL RESOURCE STATEMENT AS AT SEPTEMBER 1, 2017
Auryn Resources Inc. – Homestake Ridge Project

Classification	Tonnage (Mt)	Gold (g/t)	Gold (oz)	Silver (g/t)	Silver (Moz)	Copper (%)	Copper (Mlb)
Indicated	0.624	6.25	125,000	47.9	1.0	0.18	2.4
Inferred	7.245	4.00	932,000	90.9	21.2	0.11	16.9

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade of 2.0 g/t AuEq.
3. Assumptions used to calculate AuEq values are described below in the text of this report.
4. Mineral Resources are estimated using a long-term gold price of US$1,300 per ounce, and a US$/C$ exchange rate of 1.2.
5. A minimum horizontal width of two metres was used.
6. Bulk density ranges from 2.66 t/m^3 to 2.85 t/m^3 depending on the domain.

CONCLUSIONS

The Property is located within the prolific Iskut-Stewart-Kitsault Belt which hosts several precious and base metal mineral deposits. Diverse mineralization styles include stratabound sulphide zones, stratabound silica-rich zones, sulphide veins, and disseminated or stockwork sulphides. Mineralization is related to Early Jurassic feldspar-hornblende-phyric sub-volcanic intrusions and felsic volcanism and commonly occurs with zones of pyrite-sericite alteration. Numerous genetic models can be proposed for the area and local deposits present a broad range of characteristics.

Drilling has outlined mineralization with three-dimensional continuity, and size and grades that can potentially be extracted economically. Project geologists have a good understanding of the regional, local, and deposit geology and controls on mineralization. The geological models are reasonable and plausible interpretations of the drill results. Exploration protocols for drilling, sampling, analysis, security, and database management meet industry standard practices. The drill hole database was verified by RPA and is suitable for Mineral Resource estimation work.

RPA updated the Mineral Resource estimate for the Homestake Ridge Project using the block model dated December 31, 2012 and a AuEq cut-off grade based on adjusted metal price, exchange rate and operating cost assumptions. No new drilling information has been received within the resource area and therefore a new effective date of September 1, 2017 was assigned to the Mineral Resource estimate. Data from the drilling being carried out in the late summer and fall of 2017 is expected to be received in October or November of 2017, and the Mineral Resource model and statement will be updated.

Mineral Resources were estimated considering a potential underground mining scenario. At a cut-off grade of 2 g/t AuEq, Indicated Mineral Resources were estimated to total 0.624 Mt at average grades of 6.25 g/t Au, 47.9 g/t Ag, and 0.18% Cu. At the same cut-off grade, Inferred Mineral Resources were estimated to total 7.245 Mt at average grades of 4.00 g/t Au, 90.9 g/t Ag, and 0.11% Cu. There are no Mineral Reserves estimated on the Property.

The wireframe models of the mineralization have done a reasonably good job of segregating the various zones (domains) within the deposit. The sample statistics show that there are still multiple populations within some of the domains. In RPA's opinion, this may be due to higher grade zones within the relatively lower grade wireframes. Additional interpretive work may be able to segregate these higher grade domains, which would result in more robust grade interpolations.

Results from metallurgical test work suggest that the expected recoveries from a combined gravity/flotation processing plant would be: 85% to 93% for gold; 75% to 88% for silver; 85% to 90% for copper.

RECOMMENDATIONS

Exploration work carried out at Homestake Ridge by previous operators and Auryn has identified significant gold, silver and base metal mineralization. Previous operators focused on stratabound mineralization models similar to that of Eskay Creek. Homestake highlighted several key structures that appear to be the main control on mineralization throughout the property. Work expanded the previously known mineralization in addition to identifying previously unknown mineralization corridors within the Project boundaries. Following up on these structures and structural corridors is highly recommended. A two phase multi-year program is recommended to complete additional exploration and resource definition drilling followed by a Preliminary Economic Assessment (PEA).

RPA has reviewed and concurs with Auryn's proposed exploration programs and budgets. Phase 1 of the recommended work program will build on the results of the 2017 exploration program by expanding and infilling both newly discovered zones of mineralization as well as known deposits with the aim of completing an updated mineral resource estimate. To complete Phase 1, it is recommended that a 20,000 m diamond drilling program be completed. Details of the recommended Phase I program can be found in Table 1-2.

TABLE 1-2 PROPOSED BUDGET – PHASE 1
Auryn Resources Inc. – Homestake Ridge Project

Item	C$
PHASE 1	
Head Office Expenses and Property Holding Costs	500,000
Geologic and Support Staff Cost	2,000,000
Geophysical and Drone Surveys	250,000
Surface Sampling and XRF	500,000
Diamond Drilling	7,500,000
Assaying/Analyses	1,125,000
Camp Costs	650,000
Helicopter Support	2,500,000
Engineering and Baseline Studies	500,000
Subtotal	15,525,000
Contingency	1,552,500
TOTAL	**17,077,500**

A Phase 2 exploration program, contingent on the results of Phase 1, will also be diamond drill focussed with the goal of determining the extent of mineralization around the existing deposits and increasing the confidence level in certain areas of the resource by way of additional in-fill drilling. The goal of the Phase 2 drilling would be to bring the resource to the

point that it could support the preparation of a PEA in 2019. In addition to the resource targeted drilling, it is recommended that satellite mineralized zones be investigated to determine their significance as the Project advances. It is recommended that the Phase 2 program consist of 20,000 m of drilling in addition to environmental, engineering and metallurgical studies as required to support the PEA. Details of the recommended Phase 2 program can be found in Table 1-3.

TABLE 1-3 PROPOSED BUDGET – PHASE 2
Auryn Resources Inc. – Homestake Ridge Project

Item	C$
PHASE 2	
Head Office Expenses and Property Holding Costs	750,000
Geologic Staff and Support Staff Cost	3,000,000
Geophysical and Drone Surveys	250,000
Surface Sampling and XRF	350,000
Diamond Drilling	7,500,000
Assaying/Analyses	1,125,000
Engineering and Baseline Studies	1,500,000
Helicopter Support	2,500,000
Camp Costs	750,000
Subtotal	17,725,000
Contingency	1,772,500
TOTAL	**19,497,500**

TECHNICAL SUMMARY

PROPERTY DESCRIPTION AND LOCATION

The Homestake Ridge Project covers 7,547.15 ha and is located approximately 32 km southeast of Stewart, BC, and approximately 32 km north-northwest of the tidewater communities of Alice Arm and Kitsault, BC. The property is located within NTS 1:50,000 scale topographic map 102/P13. It is centred at approximately 55° 45' 12.6" N latitude and 129° 34' 39.8" W longitude on Terrain Resource Integrated Management (TRIM) maps 103P072 and 103P073 and lies within Zone 9 of the UTM projection using the NAD83 datum.

LAND TENURE

The property comprises four non-contiguous blocks consisting of seven crown grants and 36 mineral claims covering a total area of 7,547.15 ha in the Skeena Mining Division. The crown grants include surface rights, while the mineral claims do not include surface rights.

On June 14, 2016, Auryn announced that it had entered into a binding letter agreement whereby it would acquire all the issued and outstanding common shares of Homestake. On September 8, 2016, Auryn announced that it had completed a plan of arrangement and that Homestake had become a wholly-owned subsidiary of Auryn. Homestake holds a 100% interest in the Project, subject to various royalty interests on certain claims held by vendors, with some claims requiring annual royalty payments.

EXISTING INFRASTRUCTURE

There is no permanent infrastructure on the Project. A temporary camp capable of housing 40 people was established at 55°44.406’ N and 129°35.128’ W for the duration of the 2017 exploration program.

HISTORY

The Homestake Ridge property comprises two areas of historic exploration. The Homestake and the Vanguard groups have been tested by past explorers starting in the early 1900s after the discoveries at Anyox and in the Stewart region. Claims were first staked at the Homestake group between 1914 and 1917. In 1925, the original claims were given “Crown Grant” status.

In 1939, the property was optioned by British Lion Mines Ltd (British Lion). British Lion conducted extensive trenching and excavated two (Smith and Myberg) adits, shipping eight tonnes of selected ore that returned 1,120 g Au, 1,617 g Ag, 63.5 kg Pb, 303 kg Zn and 599 kg Cu from the Homestake group of claims. This is the only known production from the property.

In 1947, a cross-cut adit was begun on the Nero claim (operator unknown) that formed part of the Vanguard group. Work continued until the early 1950s when the claims were abandoned.

In 1964, Dwight Collison of Alice Arm staked the area, conducted surface trenching, limited underground work, and drilled seven holes for an aggregate of 58.2 m, on the Lucky Strike and Cascade claims which make up part of the Homestake group. In 1966, Canex Aerial Exploration Ltd. undertook an exploration program and in 1967, Amax Exploration conducted and extended examination of the Vanguard group.

In 1979, Newmont Exploration of Canada Ltd. (Newmont) optioned part of the property, which excluded the original Homestake and Vanguard claims and targeted near surface massive sulphides. Newmont terminated the option in late 1980. Caulfield Resources Ltd. explored the Vanguard group in 1981, but no subsequent work was done.

Homeridge Resources Ltd. optioned the property in 1984, but no work was done. The claims were allowed to lapse in 1986, were re-staked and optioned to Cambria Resources Ltd., which completed geological mapping, lithogeochemical sampling, trenching and 4.3 line km of IP and resistivity surveys.

The ground was optioned to Noranda Exploration Company Limited (Noranda). Between 1989 and 1991, Noranda consolidated ground by optioning more area including the Cambria, Homestake, and Vanguard claims. Geological mapping and geophysical surveys were conducted and twelve diamond drill holes were cored for a total of 1,450.05 m.

Teck acquired the current Homestake Ridge property in 2000 via option agreements and staking. From 2000 to 2002, Teck conducted geochemical and geological surveys, trenching, and drilling for volcanogenic massive sulphide (VMS) deposits.

Homestake (formally Bravo Venture Group) optioned the property from Teck in 2003. Homestake's work, prior to 2009, consisted of the compilation of historic data, the performance of geochemical and geophysical surveys, geological mapping, and the drilling of 27,289 m in 120 NQ2 and BTW diamond drill holes. In 2007, Homestake released a NI 43-101-compliant Mineral Resource estimate at a 0.5 g/t AuEq cut-off grade which totalled 11.9 Mt in the Inferred category grading 2.36 g/t Au, 15.0 g/t Ag, and 0.11% Cu.

From 2008 to 2009, resumed diamond drilling and was successful in confirming the known mineralized zones as well as discovering the Homestake Silver Zone located approximately 700 m to the southeast of the Main Homestake deposit.

In 2010, Scott Wilson RPA prepared an updated NI 43-101 compliant Mineral Resource estimate for the project at a 3 g/t AuEq cut-off grade which totalled 888,000 t in the indicated category grading 6.69 g/t Au, 47.2 g/t Ag and 0.15% Cu and 2.34 Mt in the inferred category grading 4.62 g/t Au, 106 g/t Ag and 0.13% Cu.

From 2010 to 2012, Homestake completed additional surface exploration including further mapping, soil and rock sampling, 13.54 line km of IP surveying, and diamond drilling resulting in the identification of new exploration targets and the significant expansion of Mineral Resources estimate on the Project.

In April of 2011, Homestake announced the results of an updated Mineral Resource estimate at the Homestake Silver Zone by RPA, which resulted in a significant increase in the inferred resources of the previous estimate. The reported resource at a 3.0 g/t AuEq cut-off grade totalled 888,000 t in the indicated category grading 6.69 g/t Au, 47.2 g/t Ag and 4.1 Mt in the inferred category grading 4.62 g/t Au, 103 g/t Ag.

In 2011 a new discovery was made 800 m to the southwest of, and parallel to, the Main Homestake and Homestake Silver deposits. This area, known as the South Reef target was tested by three holes with all three intersecting +30 g/t Au mineralization.

During 2012, Homestake completed two phases of drilling focussed on the delineation and extension of the South Reef target. The second phase of drilling was funded by Agnico Eagle Mines Limited (Agnico Eagle) as part of an option agreement (see below). The 2012

drilling was successful in identifying an approximate 250 m strike by 250 m down dip before ending in, or being offset by, a major fault structure. Mineralization is open along the strike to the northwest. Other targets remain on the property.

Agnico Eagle optioned the property from Homestake in 2012. From 2013 to 2014, Agnico Eagle completed exploration consisting of prospecting, reconnaissance geological mapping, soil sampling, a limited amount of ground geophysical (magnetics and IP) surveying and diamond drilling consisting of 16 holes totalling approximately 6,525 m. The drilling suggested that the Slide Zone is concordant with the Homestake Main and Homestake Silver zones and trends north northwesterly and dips steeply to the northeast. The option was subsequently terminated.

GEOLOGY AND MINERALIZATION

The Project is located within a lobe of Upper Triassic to Middle Jurassic strata exposed along the western edge of the Bowser Basin within the Stikinia Terrane of the Intermontane Belt. Stikinia formed in the Pacific Ocean during Carboniferous to Early Jurassic (320 Ma to 190 Ma) and collided with North America during the Middle Jurassic.

The Property occurs within the metallogenic region known as the Stewart Complex. Described as the contact of the eastern Coast Plutonic Complex with the west-central margin of the successor Bowser Basin, the Stewart Complex ranges from Middle Triassic to Quaternary in age and is comprised of sedimentary, volcanic and metamorphic rocks.

The Project covers the transition between the sedimentary and volcanic rocks of the Upper Triassic to Lower Jurassic Stuhini Group, a complex sequence of Lower to Middle Jurassic sedimentary, volcanic and intrusive rocks of the Hazelton Group and sedimentary rocks of the Upper to Middle Jurassic Bowser Lake Group.

The Lower Hazelton rocks comprise fine-grained to feldspar-hornblende phyric volcanic and volcaniclastic rocks of andesite to latite/trachyte composition and may include some phases of hypabyssal monzonite. This lower stratigraphy of the Hazelton Group extends along the length of the Homestake Ridge from the Main Homestake Zone to the Vanguard Copper showings and is the host rock and footwall sequences to the three known mineral deposits,

the Main Homestake, Homestake Silver and South Reef zones as well as numerous other showings.

The cessation of Hazelton volcanism and continued sub-basin development resulted in a rapid facies changes into calcareous sandstones, grits, and conglomerates progressing upwards to thinly laminated and alternating beds of black graphitic and pyritic mudstones and light grey siltstones or very fine-grained sandstones (possible “pyjama beds”) correlated to the Salmon River formation.

In the northern part of the property at the headwaters of Homestake Creek, rhyolitic volcanic rocks occur at the base of the Salmon River sediments.

The eastern part of the property is dominated by the Middle to Upper Jurassic Bowser Basin Group which conformably overlies the thin bedded graphitic argillites of the Salmon River formation.

Structure on the property largely reflects northeast-southwest compression that has continued from the Jurassic to present day. Recent drilling and mapping suggest that the local stratigraphy has undergone several deformation events including uplift and local extension of the Stuhini and lower Hazelton stratigraphy. Large northeast trending ankerite bearing faults have been mapped and related to Tertiary east-west extension.

EXPLORATION STATUS

The Project is at the resource development stage.

MINERAL RESOURCES

RPA updated the Mineral Resource estimate for the Homestake Ridge Project at a cut-off grade of 2 g/t (AuEq). Grades for gold, silver, copper, arsenic and antimony were estimated into the blocks using ID^3 weighting. Three block models, one for each of the three main deposit zones, were created in 2013 using GEMS software. Block size for all models was 5 m x 5 m x 5 m. The wireframe models were constructed in Surpac by Homestake personnel working in consultation with RPA. The assay data comprised drilling and trench sampling results from programs conducted by Homestake.

The main areas of the deposit are the Homestake Main Zone (HM), the Homestake Silver Zone (HS), and the South Reef Zone (SR). The HM is the more copper-rich of the zones, with both gold-rich and silver-rich variants and an apparent trend of increasing copper grade with depth. The HM consists of a broad corridor of sub-parallel anastomosing zones which strike approximately 137° and dip steeply to moderately to the northeast. Most of the zones dip at 75° to 80°, flattening to 45° in the central section between elevations 750 MASL and 900 MASL. Widths range from centimetre-scale to four metres in true thickness. Locally, the zones are observed to jog abruptly in a left-lateral sense which is attributed to cross-faulting. These disruptions can be 30 m or more. The HM has been traced on surface and in drill intercepts for a strike length of 750 m, and a vertical extent of approximately 500 m.

MINERAL RESERVES

There are no Mineral Reserves on the Project.

2 INTRODUCTION

Roscoe Postle Associates Inc. (RPA) was retained by Auryn Resources Inc. (Auryn) to prepare an independent Technical Report on the Homestake Ridge Project, located in the Skeena Mining Division, northwestern British Columbia, Canada. The purpose of this report is to support the disclosure of an updated Mineral Resource estimate. This Technical Report conforms to NI 43-101 Standards of Disclosure for Mineral Projects. The effective date of the updated Mineral Resource estimate and Technical Report is September 1, 2017.

Auryn is a Vancouver-based exploration company formed in June 2008 which is engaged in acquiring, exploring, and evaluating natural resource properties in Canada and Peru. It is a reporting issuer in British Columbia, Alberta, and Ontario whose common shares trade on the Toronto Stock Exchange (TSX:AUG) and the NYSE American Exchange (US:AUG). Auryn is under the jurisdiction of the British Columbia Securities Commission and the US Securities and Exchange Commission (SEC).

In addition to the Homestake Ridge Project, Auryn controls a large land position along the Committee Bay greenstone belt in Nunavut which includes the Three Bluffs development stage gold deposit, a large land position along the Gibsons MacQuoid greenstone belt elsewhere in Nunavut, and a portfolio of properties with the potential to host epithermal Au-Ag and porphyry Cu-Au mineralization in Peru.

On June 14, 2016, Auryn announced that it had entered into a binding letter agreement whereby it would acquire all the issued and outstanding common shares of Homestake Resource Corporation (“Homestake”). On September 8, 2016, Auryn announced that it had completed a plan of arrangement and that Homestake had become a wholly-owned subsidiary of Auryn. Homestake holds a 100% interest in the Project, subject to various royalty interests on certain claims held by vendors.

Currently, the major asset associated with the Project is a strategic land position covering prospective lithologies and structures. The Project hosts the Homestake Main, Homestake Silver and South Reef zones which are at the resource definition stage as well as a large

land position which merits additional exploration. Recent work has expanded the known mineralization envelope and identified previously unknown mineralized corridors.

Since acquiring the Project, Auryn has completed a program of core re-logging, a limited amount of Induced Polarization (IP) surveying, a soil sampling program and a 13 hole diamond drilling program totalling 5,571.3 m as of the effective date of this report.

RPA and Scott Wilson RPA Inc. (Scott Wilson RPA), a predecessor company to RPA, estimated Mineral Resources on the Project in 2010, 2011, and 2013 and disclosed the results in NI 43-101 compliant Technical Reports.

SOURCES OF INFORMATION

A site visit to the Homestake Ridge Project was carried out by Paul Chamois, M.Sc.(A), P.Geo., Principal Geologist with RPA, from August 26 to 28, 2017. During the visit, Mr. Chamois examined core from the on-going drilling program, confirmed the local geological setting, reviewed the core handling and data collection methodologies, and investigated factors that might affect the Project. Discussions were held with the following personnel:

- Andy Orr, Senior Geologist, Auryn Resources Inc.
- Nils Peterson, Senior Geologist, Auryn Resources Inc.
- Ben Stanley, Geologist, Auryn Resources Inc.
- Rob L'Heureux, Vice President, APEX Geoscience
- Fraser Kirk, Geologist, APEX Geoscience
- Ed Parker, Geologist, APEX Geoscience

David Ross, P.Geo., RPA Principal Geologist prepared Sections 12 and 14 of the Technical Report and contributed to Sections 1, 25, and 26. Mr. Chamois prepared Sections 2 to 11, 13, 15 to 24, and 27 and contributed to Sections 1, 25, and 26.

The documentation reviewed, and other sources of information, are listed at the end of this report in Section 27 References.

LIST OF ABBREVIATIONS

Units of measurement used in this report conform to the metric system. All currency in this report is Canadian dollars (C$) unless otherwise noted.

a	annum
A	ampere
bbl	barrels
btu	British thermal units
°C	degree Celsius
C$	Canadian dollars
cal	calorie
cfm	cubic feet per minute
cm	centimetre
cm^2	square centimetre
d	day
dia	diameter
dmt	dry metric tonne
dwt	dead-weight ton
°F	degree Fahrenheit
ft	foot
ft^2	square foot
ft^3	cubic foot
ft/s	foot per second
g	gram
G	giga (billion)
Gal	Imperial gallon
g/L	gram per litre
Gpm	Imperial gallons per minute
g/t	gram per tonne
gr/ft^3	grain per cubic foot
gr/m^3	grain per cubic metre
ha	hectare
hp	horsepower
hr	hour
Hz	hertz
in.	inch
in^2	square inch
J	joule
k	kilo (thousand)
kcal	kilocalorie
kg	kilogram
km	kilometre
km^2	square kilometre
km/h	kilometre per hour
kPa	kilopascal
kVA	kilovolt-amperes
kW	kilowatt
kWh	kilowatt-hour
L	litre
lb	pound
L/s	litres per second
m	metre
M	mega (million); molar
m^2	square metre
m^3	cubic metre
µ	micron
MASL	metres above sea level
µg	microgram
m^3/h	cubic metres per hour
mi	mile
min	minute
µm	micrometre
mm	millimetre
mph	miles per hour
MVA	megavolt-amperes
MW	megawatt
MWh	megawatt-hour
oz	Troy ounce (31.1035g)
oz/st, opt	ounce per short ton
ppb	part per billion
ppm	part per million
psia	pound per square inch absolute
psig	pound per square inch gauge
RL	relative elevation
s	second
st	short ton
stpa	short ton per year
stpd	short ton per day
t	metric tonne
tpa	metric tonne per year
tpd	metric tonne per day
US$	United States dollar
USg	United States gallon
USgpm	US gallon per minute
V	volt
W	watt
wmt	wet metric tonne
wt%	weight percent
yd^3	cubic yard
yr	year

3 RELIANCE ON OTHER EXPERTS

This report has been prepared by RPA for Auryn Resources Inc. The information, conclusions, opinions, and estimates contained herein are based on:

- Information available to RPA at the time of preparation of this report,
- Assumptions, conditions, and qualifications as set forth in this report, and
- Data, reports, and other information supplied by the Client and other third-party sources.

For the purpose of this report, RPA has relied on ownership information provided by Auryn and Broughton Law Corporation (Broughton Law), Homestake's solicitors, regarding title to the Homestake Ridge Project. Broughton Law provided a legal review and opinion dated September 7, 2016. This information was used in Sections 1 and 4 of this report. RPA has not researched property title or mineral rights for the Homestake Ridge Project and expresses no opinion as to the ownership status of the property.

Except for the purposes legislated under provincial securities laws, any use of this report by any third party is at that party's sole risk.

4 PROPERTY DESCRIPTION AND LOCATION

The Homestake Ridge Project covers 7,547.15 ha and is located 32 km southeast of Stewart, BC, and approximately 32 km north-northwest of the tidewater communities of Alice Arm and Kitsault, BC (Figure 4-1). The property is located on 1:50,000 scale NTS map 102/P13. The four claim blocks comprising the Project are located within a rectangular area extending for a distance of approximately 23 km in a north-south direction and approximately 13 km in an east-west direction. The claim block hosting the known Mineral Resources is centred on approximately 55° 45' 12.6" N latitude and 129° 34' 39.8" W longitude on Terrain Resource Integrated Management (TRIM) maps 103P072 and 103P073 and lies within Zone 9 of the UTM projection using the NAD'83 datum.

LAND TENURE

The Project comprises four non-contiguous blocks consisting of seven crown granted claims covering 96.712 ha and 36 mineral claims covering 7,547.15 ha (Figure 4-2). Table 4-1 lists the subject claims and crown grants along with the relevant individual tenure information including tenure number and name, issue and expiry dates, title type, and area.

The crown grants include surface rights, while the mineral claims do not include surface rights.

Annual holding costs including concession taxes and fees and advanced royalty payments total $109,160. Assessment work requirements for 2017 total $44,474.70.

Homestake earned a 100% interest in 14 Homestake Ridge mineral claims through its option with Teck Cominco Limited, now Teck Resources (Teck). Teck failed to exercise its back-in rights in 2008 but retained a 2% net smelter return (NSR) royalty, 1% of which could be purchased at a future date for $1.0 million. On May 16, 2016 Homestake announced that it had closed an agreement with Teck to purchase the 2% royalty and ancillary rights for $100,000, effectively extinguishing this royalty.

The Coombes Claims (including Cambria 1, Cambria 2, KW1, KW2, KW3, KW4, KW5, WK1, WK3, WK4, WK6 and WK7) are subject to a 2% NSR royalty by virtue of an option

agreement dated July 5, 2000. The royalty includes a purchase right in favour of Homestake for $1,000,000.

The crown grants (including DL 3975, DL 3976, DL 3977, DL 3978, DL 3979, DL 3980 and DL 6322) are subject to a 2% NSR royalty which includes an annual advanced minimum royalty of $50,000 in favour of Alice Sullivan and Mildred Keller.

Figure 4-3 illustrates those mineral claims and Crown Grants that are subject to NSR royalties.

On June 14, 2016, Auryn announced that it had entered into a binding letter agreement with Homestake whereby it would acquire Homestake under a plan of arrangement (the Arrangement). In consideration of 100% of Homestake's issued and outstanding shares, Auryn would issue approximately 3.3 million shares to Homestake shareholders. During the Arrangement process, Auryn also agreed to provide Homestake with a demand loan of up to $150,000 on an interest free, unsecured basis. On September 8, 2016, Auryn announced that it had completed the Arrangement and that Homestake had become a wholly-owned subsidiary of Auryn.

TABLE 4-1 TENURE DATA
Auryn Resources Inc. - Homestake Ridge Project

Tenure Number	Claim Name	Issue Date	Good Until	Area (ha)	Title Holder	Title Type Description	Tenure Sub-Type
L3975	HOMESTAKE	N/A	N/A	20.902	Homestake Resource Corporation	Crown Granted	N/A
L3976	HOMESTAKE No. 1	N/A	N/A	20.283	Homestake Resource Corporation	Crown Granted	N/A
L3977	HOMESTAKE No. 2	N/A	N/A	15.042	Homestake Resource Corporation	Crown Granted	N/A
L3978	HOMESTAKE No. 3	N/A	N/A	13.962	Homestake Resource Corporation	Crown Granted	N/A
L3979	HOMESTAKE FRACTION	N/A	N/A	0.919	Homestake Resource Corporation	Crown Granted	N/A
L3980	HOMESTAKE No. 1 FRACTION	N/A	N/A	4.702	Homestake Resource Corporation	Crown Granted	N/A
DL6322	MILLSITE	N/A	N/A	20.902	Homestake Resource Corporation	Crown Granted	N/A
950714	BRAVO N1	19-Feb-12	28-Jul-17	327.49	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
950719	BRAVO N2	19-Feb-12	28-Jul-17	436.51	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
950722	BRAVO N3	19-Feb-12	28-Jul-17	436.50	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
950724	BRAVO N4	19-Feb-12	28-Jul-17	272.81	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
950725	BRAVO N5	19-Feb-12	28-Jul-17	381.82	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
950726	BRAVO N6	19-Feb-12	28-Jul-17	418.04	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
950727	BRAVO N7	19-Feb-12	28-Jul-17	417.96	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
1011645	KN HSR 1	01-Aug-12	28-Jul-17	273.86	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
251427	CAMBRIA 1	06-May-12	17-Dec-24	100.00	Homestake Resource Corporation	Four Post Claim	Claim
251428	CAMBRIA 2	06-May-12	17-Dec-24	75.00	Homestake Resource Corporation	Four Post Claim	Claim
377241	WK 1	23-May-86	17-Dec-24	250.00	Homestake Resource Corporation	Four Post Claim	Claim
377242	WK 2	23-May-86	17-Dec-24	500.00	Homestake Resource Corporation	Four Post Claim	Claim
377243	WK 3	23-May-86	17-Dec-24	400.00	Homestake Resource Corporation	Four Post Claim	Claim
380949	WK 4	20-Sep-00	17-Dec-24	450.00	Homestake Resource Corporation	Four Post Claim	Claim
380950	WK 5	20-Sep-00	17-Dec-24	450.00	Homestake Resource Corporation	Four Post Claim	Claim
380951	KW 1	20-Sep-00	17-Dec-24	25.00	Homestake Resource Corporation	Two Post Claim	Claim
380952	KW 2	20-Sep-00	17-Dec-24	25.00	Homestake Resource Corporation	Two Post Claim	Claim
380953	KW 3	20-Sep-00	17-Dec-24	25.00	Homestake Resource Corporation	Two Post Claim	Claim
383016	KW 5	28-Nov-00	17-Dec-24	25.00	Homestake Resource Corporation	Two Post Claim	Claim
383017	KW4	28-Nov-00	17-Dec-24	25.00	Homestake Resource Corporation	Two Post Claim	Claim
383037	WK 6	28-Nov-00	17-Dec-24	150.00	Homestake Resource Corporation	Four Post Claim	Claim
383038	WK 7	28-Nov-00	17-Dec-24	400.00	Homestake Resource Corporation	Four Post Claim	Claim
537435	HR	20-Jul-06	17-Dec-24	127.45	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
537436	HRMARGIN 1	20-Jul-06	17-Dec-24	109.25	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
537437	HRMARGIN2	20-Jul-06	17-Dec-24	54.60	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
538791	HOMESTAKE RIDGE 1	05-Aug-06	17-Dec-24	18.21	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
540533	HOMESTAKE RIDGE 2	06-Sep-06	17-Dec-24	18.20	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
540540	HOMESTAKE RIDGE 3	06-Sep-06	17-Dec-24	18.21	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
545945	HOMESTAKE RIDGE 4	27-Nov-06	17-Dec-24	18.20	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
565708	HOMESTAKE RIDGE 5	07-Sep-07	17-Dec-24	36.42	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
565709	HOMESTAKE RIDGE 6	07-Sep-07	17-Dec-24	18.21	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
565710	HOME STAKE 7	07-Sep-07	17-Dec-24	18.20	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
598667	VANGUARD GOLD	03-Feb-09	17-Dec-24	18.21	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
598668	VANGUARD EXTENSION	03-Feb-09	17-Dec-24	54.66	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
1015450	KINSKUCH NW2	22-Dec-12	17-Dec-24	1039.18	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
1015588	HS SOUTH 1	22-Dec-12	17-Dec-24	36.44	Homestake Resource Corporation	Mineral Cell Title Submission	Claim
			Total	**7547.15**			

MINERAL RIGHTS

In Canada, natural resources fall under provincial jurisdiction. In the Province of British Columbia, the management of mineral resources and the granting of exploration and mining rights for mineral substances and their use are regulated by the Mines Act, R.S.B.C. (1996) that is administered by the British Columbia Ministry of Energy and Mines. Mineral rights are owned by the Crown and are distinct from surface rights.

ROYALTIES AND OTHER ENCUMBRANCES

RPA is not aware of any other royalties, back-in rights, or other obligations related to the Arrangement or any other underlying agreements.

PERMITTING

RPA is not aware of any environmental liabilities associated with the Project. RPA understands that Auryn has all required permits to conduct the proposed work on the Property.

RPA is not aware of any other significant factors and risks that may affect access, title, or the right or ability to perform work on the Project.

Figure 4-1

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Location Map

www.rpacan.com

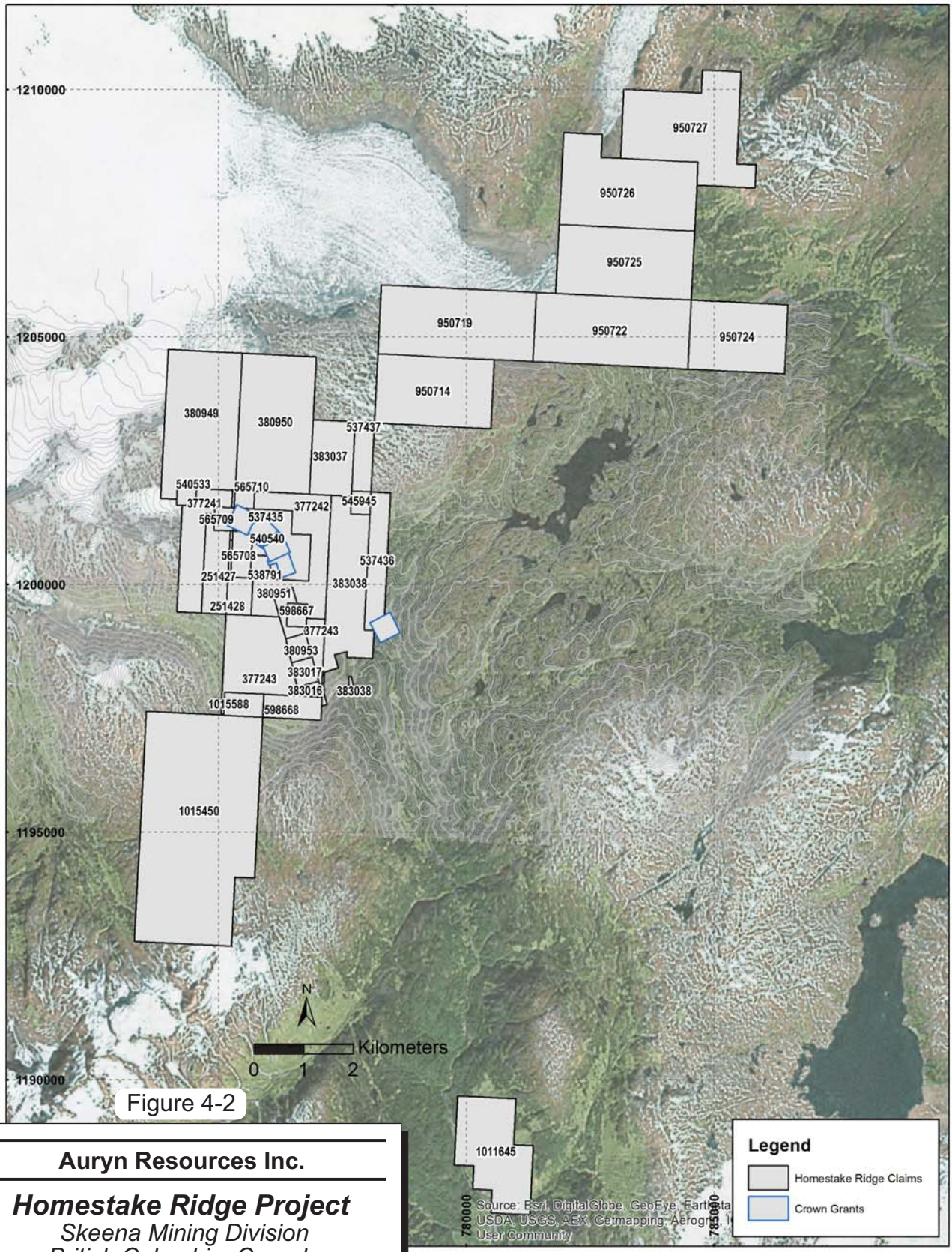


Figure 4-2

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Mineral Claims Map

Source: Auryn Resources Inc., 2017.

September 2017

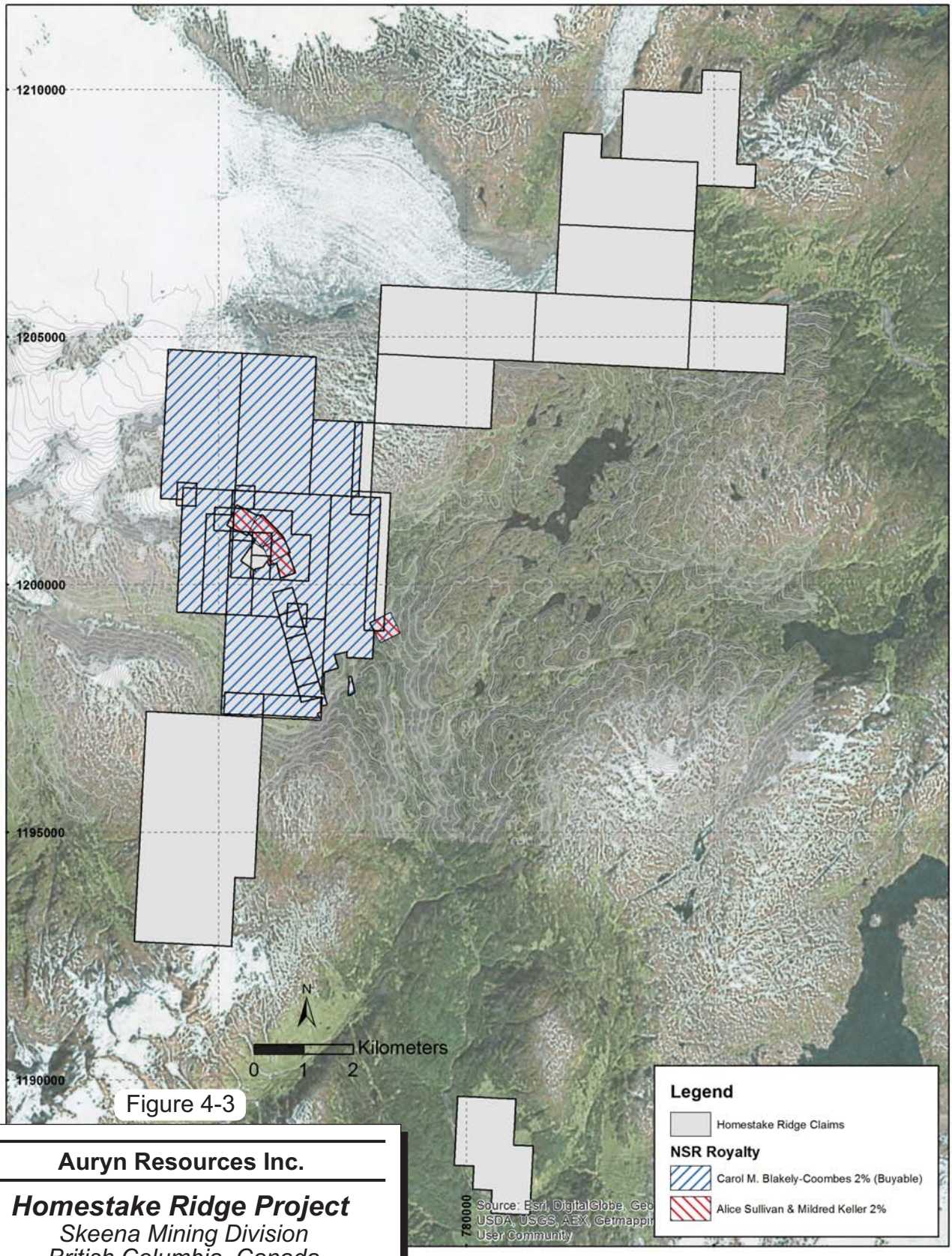


Figure 4-3

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

NSR Royalty Map

Source: Auryn Resources Inc., 2017.

September 2017

5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

ACCESSIBILITY

The Homestake Ridge Project is located 32 km southeast of Stewart, BC, at the southern extent of the Cambria ice field. Access to the Project from the town of Kitsault is by boat/barge to the community of Alice Arm. From there, an upgraded tractor trail follows an old railway bed for a distance of 32 km into the area of the past producing Dolly Varden silver mine, approximately four kilometres from the southern boundary of the Project. From there, overgrown mule trails lead to the historic workings of the Vanguard and Homestake areas of the Project. Helicopters are available for charter from either Prince Rupert, Terrace, or Stewart.

CLIMATE

Climate in the area is classified as Oceanic or Marine West Coast and is characterized by moderately cool summers and mild winters with a narrower annual range of temperatures compared to sites of similar latitude. Climate data derived from the closest monitoring station (Nass Camp) indicates that temperatures range from an average low of -6.6°C in January to an average high of 21.6°C in July. The mean temperature for the year is 5.3°C.

The area receives 1,065 mm of precipitation each year (expressed in mm of water). Rainfall peaks in October with 165 mm. Snowfall is highest in December and January when accumulations are 92 cm and 91 cm respectively. The property is reported to be covered in snow from late September to late June (Bryson, 2007). Precipitation and heavy fog often impact on airborne access to the Project. Table 5-1 summarizes climate data in the area.

TABLE 5-1 CLIMATIC DATA
Auryn Resources Inc. – Homestake Ridge Project

Headings	Stewart (0 MASL)	Prince Rupert (0 MSAL)	Terrace (67 MASL)	Smithers (490 MASL)	Nass Camp
Mean January Temperature	-3.0°C	2.4°C	-3.0°C	-7.2°C	N/A
Mean July Temperature	15.1°C	13.4°C	16.5°C	15.2°C	N/A
Extreme Maximum Temperature	35.0°C	32.2°C	37.3°C	36.0°C	36.0°C
Extreme Minimum Temperature	-30.0°C	-24.4°C	-26.7°C	-43.9°C	-32.5°C
Average Annual Precipitation	1,866.8 mm	2,619.1 mm	1,340.8 mm	508.5 mm	1,066.9 mm
Average Annual Rainfall	1,338.9 mm	2,530.4 mm	1,025.3 mm	367.2 mm	N/A
Average Annual Snowfall	570.2 cm	92.4 cm	331.5 cm	182.7 cm	N/A

Harsh conditions related to high snowfall precludes exploration activities during the winter months.

LOCAL RESOURCES

The Project is located north of the historic mining towns of Kitsault and Alice Arm. Both towns are located at Alice Arm, a branch of the Observatory Inlet and part of the Portland inlet system which hosts Canada's most northerly, ice-free, deep sea port at Stewart

Sprott Power Corp. (Sprott Power) initiated development of six hydroelectric projects in the Upper Kitsault Valley. To facilitate the construction, roads and bridges are being upgraded in that area. Sprott Power is also redeveloping shutdown hydroelectric utilities in the area including the Kitsault dam and powerhouse. The Government of British Columbia has announced the resurfacing of 18 km of Highway 113, which will improve access to Kitsault from Terrace. Regional infrastructure is shown in Figure 5-1.

Labour and supplies for the project can be brought in from Terrace, which lies 185 km to the south, along Highway 113. Terrace has a population of 12,109 (2001 census) and hosts wide range of supplies, services, and trained labour. Terrace is serviced by three air carriers with daily scheduled flights. Stewart with 661 people (2001 census) is located 240 km, by road, from Kitsault. Stewart is well serviced, has trained labour with mining expertise, and hosts a deep-sea port that has been used for shipping ore and concentrate from other mines. Kitwanga, 180 km by road from Kitsault, lies on the Canadian National Railway mainline and Trans-Canada Highway 16. Like Stewart, Kitwanga has served as a shipping centre for

mineral ores and concentrates. Mining is supported in the local communities and, historically, companies have been able to form productive joint venture partnerships with local First Nations.

INFRASTRUCTURE

There is no permanent infrastructure on the Project.

PHYSIOGRAPHY

With the exception of the subalpine plateau at the south end of the property, the topography is steep. In some areas, the relief is precipitous and poses a challenge for exploration work. Elevations in the area range from 430 MASL at the Kitsault River to 1,780 MASL at the ice-covered ridgeline. Property elevations vary from 860 MASL to 1300 MASL (Kasper and Metcalfe, 2004).

Subalpine forests, comprised of fir, hemlock, spruce, and cedar cover the eastern and southern portions of the property at lower elevations. The Project overlays a south-southeast trending ridge at the headwaters of the Kitsault River and the lower portions of the Kitsault and Little Kitsault Glaciers. East of this ridge, subalpine forest is broken up by a large slide area that is covered by slide alder, grass, and lichen. The upper slopes are populated by alpine grass, moss, and lichen with intermittent patches of dwarf alpine spruce (Knight and Macdonald, 2010).

RPA is of the opinion that, to the extent relevant to the mineral project, there is a sufficiency of surface rights and water.

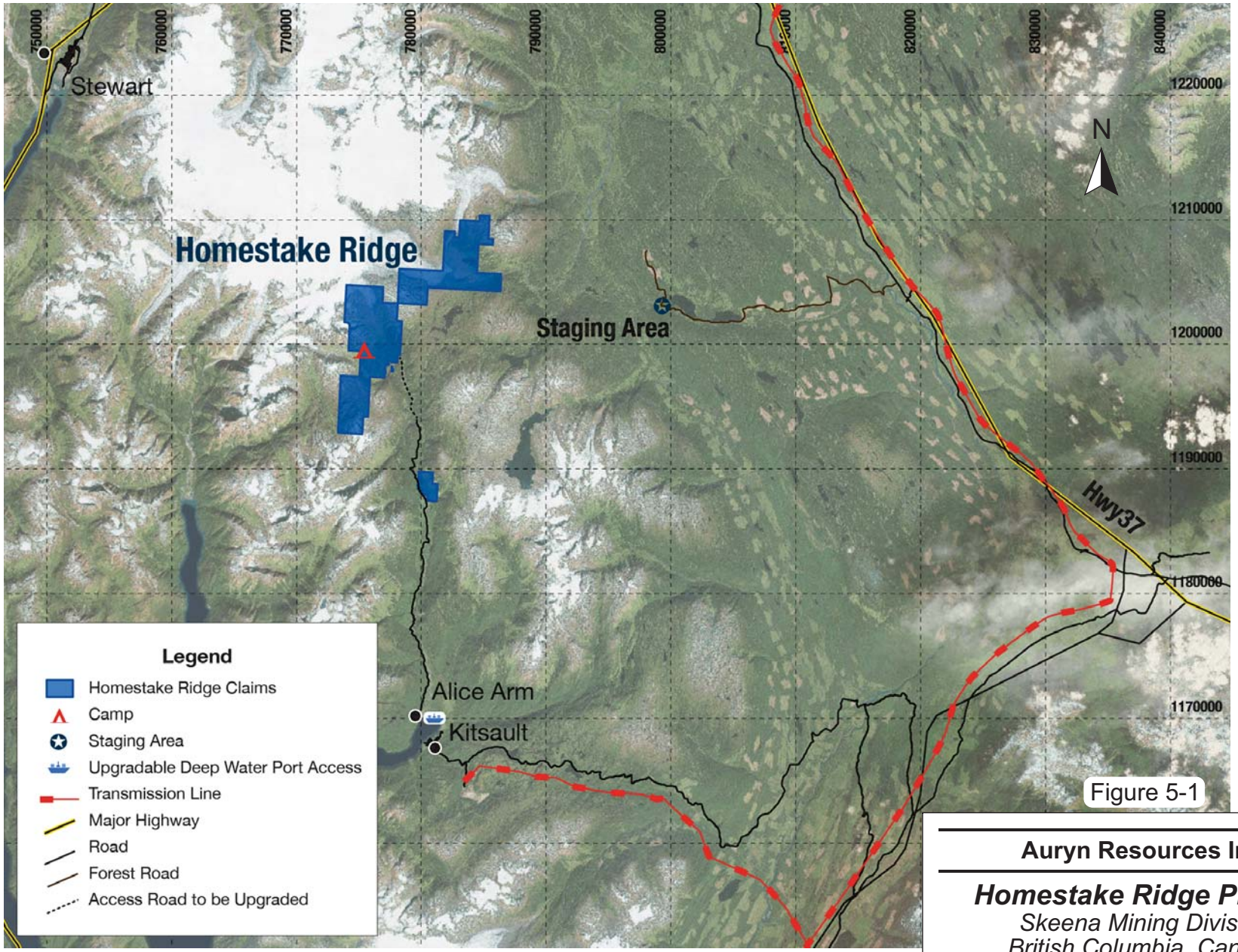


Figure 5-1

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Regional Infrastructure

September 2017

Source: Auryn Resources Inc., 2017.

6 HISTORY

PRIOR OWNERSHIP

Claims were first staked at the Homestake group between 1914 and 1917 and, in 1918, the claims were bonded to the Mineral Claims Development Company (MCDC). MCDC was reorganized into the Homestake Mining and Development Company (Homestake Development) in 1921.

EXPLORATION AND DEVELOPMENT HISTORY

The following is taken from Macdonald and Rennie (2016).

The Homestake Ridge property comprises two areas of historic exploration. The Homestake and the Vanguard groups have been tested by past explorers starting in the early 1900s after the discoveries at Anyox and in the Stewart region. Claims were first staked at the Homestake group between 1914 and 1917 and, in 1918, the claims were bonded to the Mineral Claims Development Company (MCDC). MCDC was reorganized into the Homestake Mining and Development Company (Homestake Development) in 1921. Limited surface and underground work was done on the property. In 1925, the claims were given "Crown Grant" status. In 1926, Homestake Development and three other groups bonded to the interests of C. Spencer. The option was abandoned, with no further work being done on the property (Knight and Macdonald, 2010).

In 1939, the property was optioned by a Vancouver syndicate that became British Lion Mines Ltd. (British Lion). British Lion conducted extensive trenching and excavated two (Smith and Myberg) adits, shipping 8.0 tonnes of selected ore that returned 1,120 g Au, 1,617 g Ag, 63.5 kg Pb, 303 kg Zn, and 599 kg Cu on the Homestake group of claims (Bryson, 2007). This is the only known production from the property.

Because of the outbreak of World War II little work was done until 1947 when a cross-cut adit was begun on the Nero claim that formed part of the Vanguard group. Work continued, intermittently, on the cross-cut until the early 1950s. The claims were abandoned (Folk and Makepeace, 2007).

In 1964, Dwight Collison of Alice Arm staked the area and conducted surface trenching, limited underground work and drilled seven holes to an aggregate depth of 58.2 m, on the Lucky Strike and Cascade claims which comprise part of the Homestake group (Knight and Macdonald, 2010).

In 1966, Canex Aerial Exploration Ltd. (Canex) undertook a program of prospecting, geochemical sampling, electromagnetic (EM) surveying, and chip sampling in the Vanguard area. In 1967, Amax Exploration conducted and extended examination of the Vanguard group but did not return (Folk and Makepeace, 2007). Dwight Collison died in 1979.

In 1979, Newmont Exploration of Canada Ltd. (Newmont) optioned part the property, known as the Wilberforce group, from Collison's widow, Ruby Collison. The Wilberforce group excluded the original Homestake and Vanguard claims. Newmont explored for near surface, massive sulphides conducting magnetometer and Max-Min geophysical surveys, geological mapping, and trenching. A total of 595 soil samples and 82 rock samples were assayed. Newmont terminated the option in late 1980 (Folk and Makepeace, 2007).

Caulfield Resources Ltd. explored over the Vanguard group in 1981 taking 102 soil samples and conducting 5.25 line km of ground magnetic surveys, but no subsequent work was done (Folk and Makepeace, 2007).

Homeridge Resources Ltd. optioned the property from Ruby Collison in 1984, but no work was done (Bryson, 2007). The claims were allowed to lapse in 1986, were re-staked and optioned to Cambria Resources Ltd., which completed geological mapping, lithogeochemical sampling, trenching, and 4.3 line km of IP and resistivity surveying. Weather deferred drilling for that year and the ground was eventually optioned to Noranda Exploration Company Limited (Noranda) (Folk and Makepeace, 2007).

Between 1989 and 1991, Noranda consolidated ground by optioning more area including the Cambria (formerly Collison), Homestake, and Vanguard claims. A 44.3 km grid was cut along which magnetometer and IP surveys were performed in addition to geological mapping. A total of 1,930 rock samples and 1,943 silt and soil samples were taken. Twelve diamond drill holes were cored (diameter unknown) for an aggregate depth of 1,450.05 m (Folk and Makepeace, 2007).

Teck acquired the current Homestake Ridge property in 2000 via option agreements and staking. From 2000 to 2002, Teck conducted geochemical and geological surveys, trenching, and diamond drilling, exploring for volcanogenic massive sulphide (VMS) deposits. A total of 21 NQ (47.6 mm dia.) holes were drilled to an aggregate depth of 4,374.6 m yielding 618 core samples. In addition, 778 rock samples were analyzed by Inductively Coupled Plasma (ICP) multi-element geochemistry plus Au and another 31 samples were subjected to "whole rock" X-Ray Fluorescence (XRF) analysis (Folk and Makepeace, 2007).

From 2010 to 2012 Homestake completed additional surface exploration including further mapping, soil and rock sampling and 13.54 line km of IP geophysical surveys, and diamond drilling.

In 2011 a new discovery was made 800 m to the southwest of, and parallel to, the previously discovered Main Homestake and Homestake Silver deposits. This area, known as the South Reef target was tested by three holes with all three intersecting +30 g/t gold mineralization.

During 2012, Homestake completed two phases of drilling focussed on the delineation and extension of the South Reef target. The second phase of drilling was funded by Agnico Eagle Mines Limited (Agnico Eagle) as part of an option agreement (see below). The 2012 drilling was successful in identifying an approximate 250 m strike by 250 m down dip before ending in, or being offset by, a major fault structure. Mineralization is open along strike to the northwest. Other targets on the property remain to be explored.

Agnico Eagle optioned the property from Homestake in 2012. In 2013, Agnico Eagle completed an exploration program consisting of geological mapping, soil sampling (785 samples), approximately 21 line km of ground geophysical surveying including IP/resistivity and magnetics and a 10-hole drilling program totalling 3,947.24 m. The drilling was meant to test various exploration targets outside of the Homestake Main and Homestake Silver deposits (Swanton et al., 2013). In 2014, Agnico Eagle completed a limited amount of prospecting, reconnaissance geological mapping and rock sampling (57 samples) as well as a 6-hole drilling program totalling 2,578 m designed to test the Slide Zone. The drilling suggested that the Slide Zone is concordant with the Homestake Main and Homestake Silver Zones and trends north northwesterly and dips steeply to the northeast.

HISTORICAL RESOURCE ESTIMATES

The following is taken from MacDonald and Rennie (2016).

In 2007, Homestake (at the time Bravo Venture Group Inc.) released a Mineral Resource estimate using an Inverse Distance Cubed (ID^3) search method with a maximum search radius of 100 m. The estimate totalled 11.9 Mt of Inferred Mineral Resources grading 2.34 g/t Au, 15.0 g/t Ag, and 0.15% Cu. The cut-off used was 0.5 g/t Au. RPA notes that this resource was preliminary and was estimated to identify the mineral potential of the deposit. No minimum width constraint was applied nor was the resource constrained by a pit shell.

Following diamond drill programs conducted by Homestake in 2008 and 2009, Scott Wilson RPA, updated the Mineral Resource estimate. The March 2010 estimate is summarized in Table 6-1.

TABLE 6-1 MINERAL RESOURCES – MARCH 31, 2010
Auryn Resources Inc. - Homestake Ridge Project

Zone	Class	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
Main	Indicated	888,000	6.69	47.2	0.15
Main	Inferred	1,140,000	5.02	50.9	0.25
HS	Inferred	1,200,000	4.25	158	0.02
Total	**Inferred**	**2,340,000**	**4.62**	**106**	**0.13**

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources were estimated at an average cut-off grade of 3.0 g/t Au Equivalent (AuEq). Tonnage and grade at this cut-off is highlighted.
3. Mineral Resources were estimated using an average long-term gold price of US$1,050 per ounce Au, US$18.00 per ounce Ag, and US$3.25 per pound Cu, with an exchange rate of C$1.00=US$0.90.
4. Gold equivalence was calculated based on a ratio of metal prices with no provision for metallurgical recoveries.

In April of 2011, Homestake announced an updated estimate resource for the Homestake Silver deposit completed by RPA, which resulted in a doubling of the previous estimate (Table 6-2). This significantly increased the gold and silver ounces in the combined Main Homestake and Homestake Silver deposits, which were reported as follows at a 3.0 g/t AuEq cut-off.

TABLE 6-2 MINERAL RESOURCES – DECEMBER 31, 2010
Auryn Resources Inc. - Homestake Ridge Project

Zone	Class	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
Main	Indicated	888,000	6.69	47.2	0.15
Main	Inferred	1,140,000	5.02	50.9	0.25
HS	Inferred	2,920,000	3.69	123	n/a
Total	**Inferred**	**4,060,000**	**4.06**	**103**	**n/a**

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources were estimated at an average cut-off grade of 3.0 g/t Au Equivalent (AuEq).
3. Mineral Resources for Homestake Main were estimated using an average long-term gold price of US$1,050 per ounce Au, US$18.00 per ounce Ag, and US$3.25 per pound Cu, with an exchange rate of C$1.00=US$0.90.
4. Gold equivalence was calculated based on a ratio of 62:1 Ag to Au with no provision for metallurgical recovery.

In 2013, Homestake announced an updated resource prepared by RPA using block models constrained by wireframe models. Grade for gold, silver, copper, arsenic, and antimony were estimated into the blocks using ID^3 weighting. Three block models, one for each of the three main deposit zones, were created using GEMS (Gemcom) software. Block size for all models was 5 m x 5 m x 5 m. The wireframe models were constructed in Surpac by Homestake personnel, working in consultation with RPA. The assay data comprised drilling and trench sampling results from programs conducted by Homestake. The 2013 resource estimate is summarized in Table 6-3.

TABLE 6-3 MINERAL RESOURCES –JUNE 7, 2013
Auryn Resources Inc. - Homestake Ridge Project

Zone	Class	Tonnes	Au (g/t)	Ag (g/t)	Cu (%)
Main	Indicated	604,000	6.40	48.3	0.18
Main	Inferred	2,031,000	5.65	28.60	0.31
HS	Inferred	4,400,000	2.85	130.40	0.03
SR	Inferred	332,000	13.04	3.60	0.04
Total	**Inferred**	**6,763,000**	**4.19**	**93.60**	**0.11**

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a Net Smelter Return (NSR) cut-off value of US$85/t.
3. Mineral Resources are estimated using an average long-term gold price of US$1,500 per ounce Au, US$27.00 per ounce Ag, and US$3.50 per pound Cu, with an exchange rate of C$1.00=US$1.00.

The 2013 estimate was reviewed and remains current.

PAST PRODUCTION

In 1939, British Lion shipped eight tonnes of selected ore that returned 1,120 g Au, 1,617 g Ag, 63.5 kg Pb, 303 kg Zn, and 599 kg Cu from the Homestake group of claims (Bryson, 2007). This is the only known production from the Property.

7 GEOLOGICAL SETTING AND MINERALIZATION

REGIONAL GEOLOGY

Section 7 of this report is taken from Macdonald and Rennie (2016).

Four major building blocks constitute the terrane superstructure of northwestern British Columbia as shown on Figure 7-1 (Colpron and Nelson (2011): a western block of poly-deformed, metamorphosed Proterozoic to middle Paleozoic peri-continental rocks (Nisling Assemblage); an eastern block of exotic oceanic crustal and low-latitude marine strata (Cache Creek Terrane); central blocks including Paleozoic Stikine Assemblage and Triassic arc-volcanic and flanking sedimentary rocks of Stikine Terrane; and overlying Late Triassic to Middle Jurassic arc-derived strata of the Whitehorse Trough (including the Inklin overlap assemblage).

The following description of the Regional Geology is derived from Kasper and Metcalfe (2004), Knight and Macdonald (2010).

The Homestake Ridge property is located within a lobe of Upper Triassic to Middle Jurassic strata exposed along the western edge of the Bowser Basin within the Stikinia Terrane of the Intermontane Belt. Stikinia formed in the Pacific Ocean during Carboniferous to Early Jurassic (320 Ma to 190 Ma) and collided with North America during the Middle Jurassic (Folk and Makepeace, 2007).

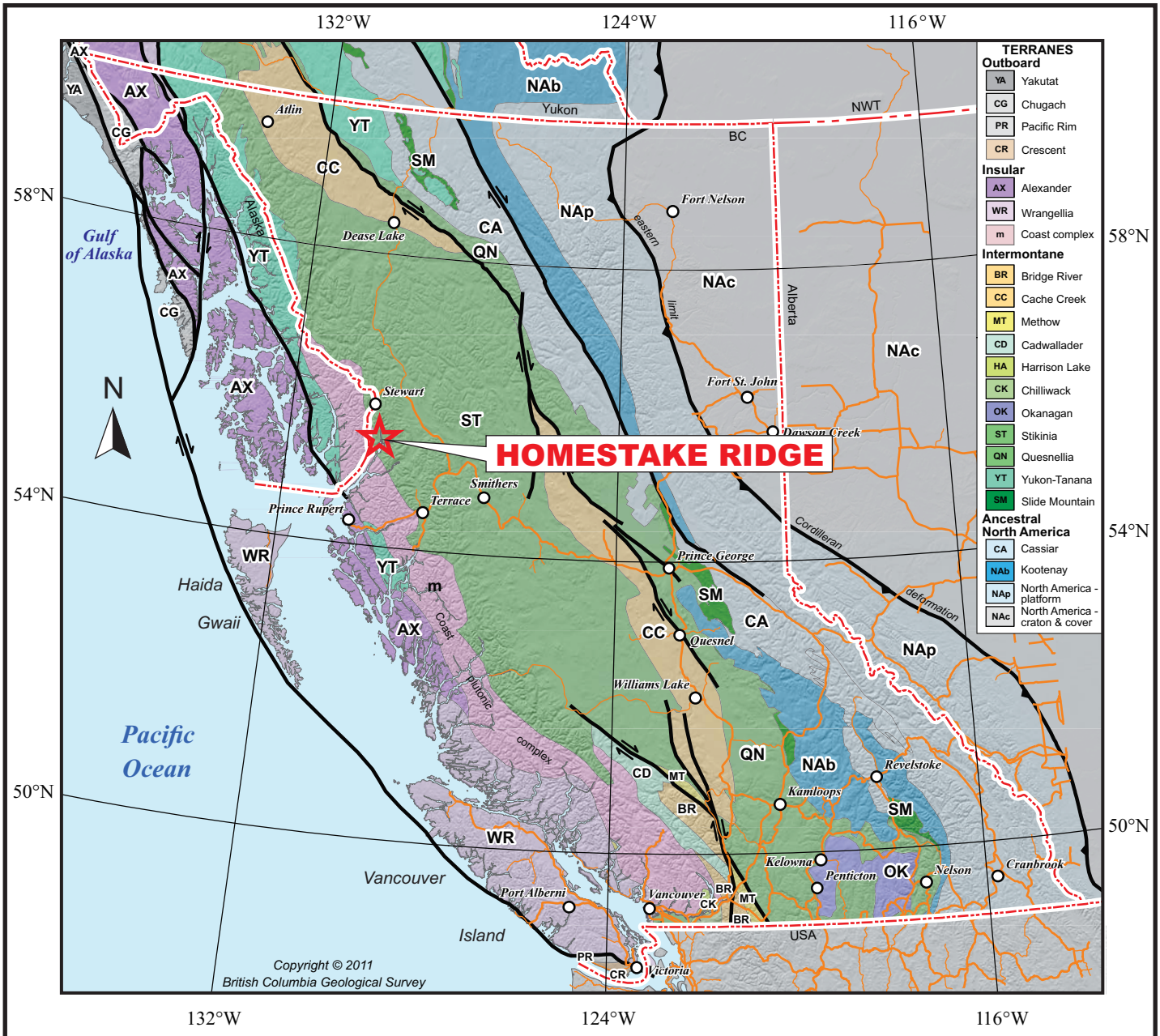
The Project occurs within the metallogenic region known as the Stewart Complex (Grove 1986, Aldrick, 1993). Described as the contact of the eastern Coast Plutonic Complex with the west-central margin of the successor Bowser Basin, the Stewart Complex ranges from Middle Triassic to Quaternary in age and is comprised of sedimentary, volcanic and metamorphic rocks (Grove, 1986). The Stewart Complex is one of the largest volcanic arc terranes in the Canadian Cordilleran. It forms a northwest-trending belt extending from the Iskut River in the north and Alice Arm in the south. The Coast Plutonic Complex forms the western boundary of the prospective stratigraphy; continental derived sediments of the

Bowser Lake Group form the eastern border. The Stewart Complex is host to more than 200 mineral occurrences including the historic gold mines Eskay Creek, Silbak-Premier and SNIP, as well as the Granduc, Anyox and Dolly Varden-Torbrit base-metal and silver mines. The dominant mineral occurrences are precious metal vein type, with related skarn, porphyry, and massive sulphide occurrences (Knight and Macdonald, 2010).

Stikinia, which contains both the Stewart Complex and the Homestake Ridge Property, is comprised of at least four Paleozoic to Cenozoic tectonostratigraphic packages (Kasper and Metcalfe, 2004) including: Paleozoic Stikine Assemblage consisting of quartz-rich rocks, carbonate slope deposits, and minor mafic to felsic volcanic rocks; Early Mesozoic volcanic and inter-arc and back-arc basin sedimentary rocks; Middle to Upper Jurassic Bowser Basin turbiditic sedimentary rocks; and Tertiary post-kinematic granitoid intrusions of the Coast Plutonic Complex.

Magmatic episodes of Stikinia alternated with the development of sedimentary basins. These basins formed during the Late Triassic to Early Jurassic, the Toarcian to Bajocian (183 to 168 Ma) and the Bathonian to Oxfordian (168 Ma to157 Ma) ages. The basin which formed during the Toarcian-Bajocian is of considerable importance because this west-facing, north-trending back arc basin contains the Eskay Creek “contact zone” rocks (Hazelton Group), which are overlain by Middle and Upper Jurassic marine basin sediments (Bowser Lake Group).

At least two periods of deformation occurred in the region, a contractional deformation during the post-Norian-pre-Hettangian (204 Ma to 197 Ma) and an Early Jurassic hiatus. These periods of deformation are represented by unconformities one of which also separates two metalliferous events that took place in the Early Jurassic (e.g., Silbak-Premier and SNIP) and Middle Jurassic (e.g., Eskay Creek).



September 2017

Figure 7-1

Auryn Resources Inc.

Homestake Ridge Project
Skeena Mining Division
British Columbia, Canada

Regional Geology

Source: BC Ministry of Energy, Mines and Petroleum Resources, 2005.

LOCAL GEOLOGY

This section is derived from Kasper and Metcalfe (2004) and Knight and Macdonald (2010). Figure 7-2 illustrates the Local Geology.

The Stuhini Group rocks are found in the cores of anticlines and represent the oldest known rocks in the area. These rocks are composed of a thick sequence of volcanic and sedimentary rocks of Upper Triassic (Norian) age, interpreted as the products of a volcanic arc. The volcanic Stuhini Group rocks are generally pyroxene-bearing, a contrast to the well-defined early crystallized hornblende phenocrysts commonly found in the Lower Jurassic Hazelton Group volcanic rocks. Kasper and Metcalfe noted that the re-evaluation of bedrock mapping in the Homestake Ridge area in 2002 resulted in the assignation of some lithologies on the property to the Stuhini Group.

The Hazelton Group overlies the Stuhini Group. The Lower Jurassic Hazelton Group is represented by a lower unit comprising massive, hornblende+feldspar-phyric andesitic to latitic ignimbrites, flows and associated volcanic sedimentary rocks. Overlying these intermediate volcanic rocks is the Lower-Middle Jurassic Eskay Creek stratigraphy composed of marine felsic volcanic rocks and associated epiclastic sedimentary rocks and fossiliferous clastic sedimentary rocks. Kasper and Metcalfe noted that rocks of similar lithology and stratigraphic relationship have been identified in the Homestake Ridge area.

The dominant local intrusive rocks are of Cretaceous to Eocene age associated with the Coast Plutonic Complex. However, intrusive rocks identified in the Homestake Ridge area are hornblende+feldspar phyric and resemble Early Jurassic Texas Creek Suite rocks, which are related to important mineralization elsewhere in the Stewart Complex.

Important local deposits include the Dolly Varden-Torbrit Silver camp located ten kilometres south of the Homestake Ridge property, which produced 19.9 million oz Ag and 11 million lb Pb, and various properties in the Stewart area such as Red Mountain, Granduc, Silbak-Premier and Brucejack Lake. Some of the mineralization on the Homestake Ridge property is thought to be similar in age and genesis to the VMS deposit at Eskay Creek, located about 115 km to the north-northwest.

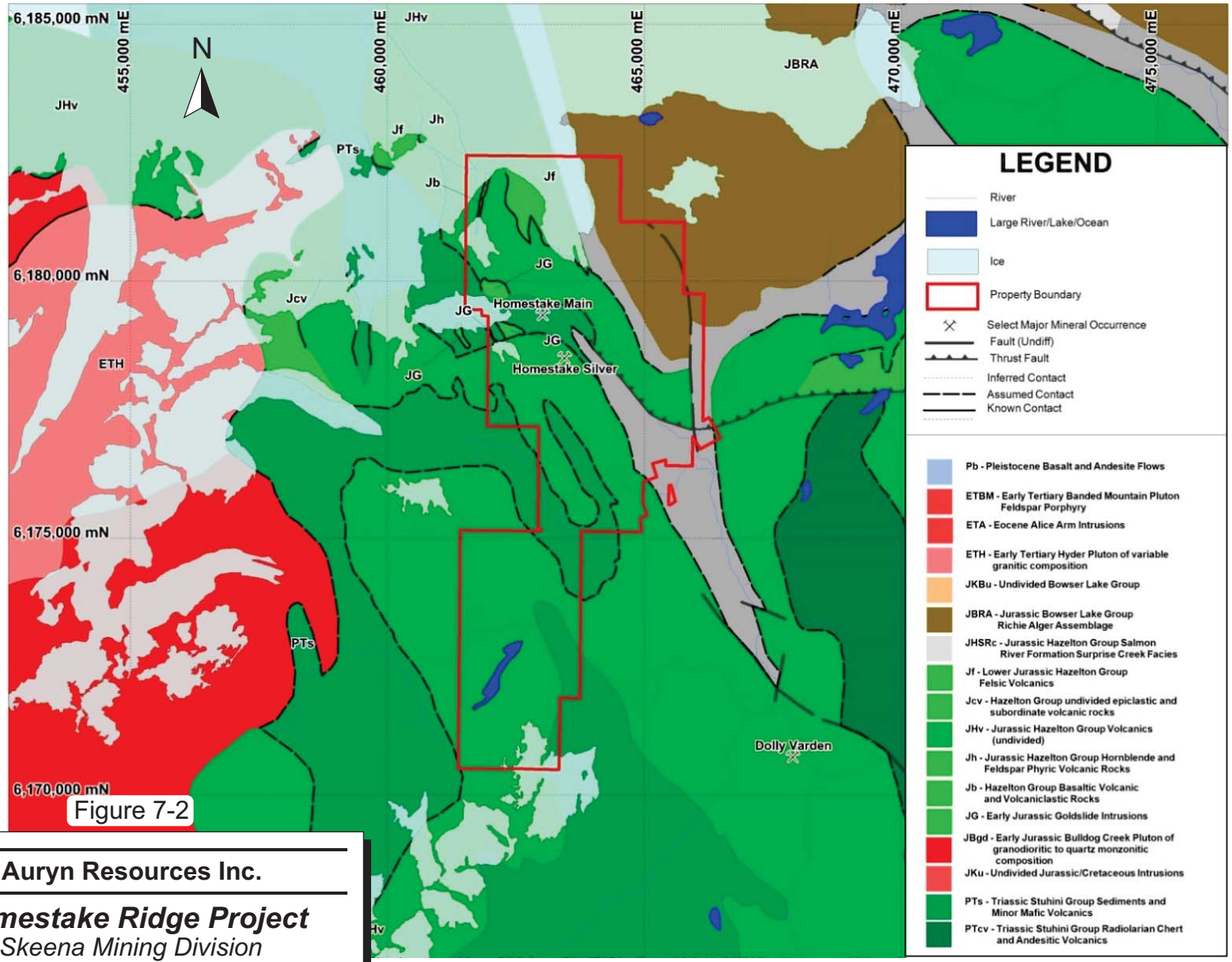


Figure 7-2

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Local Geology

Source: GSC Open File 5705, 2008 and GSC Open File 2931, 1994.

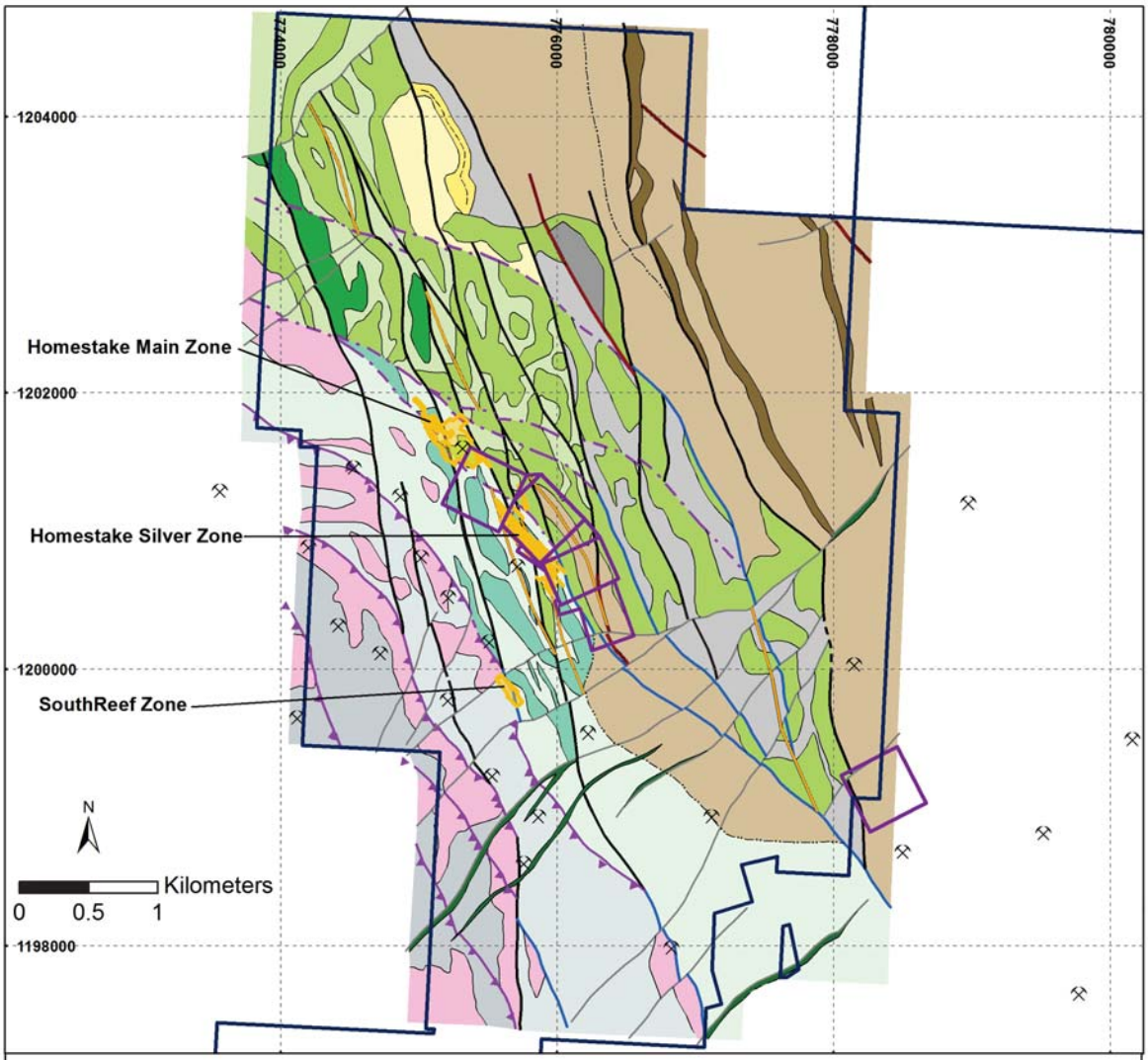
September 2017

PROPERTY GEOLOGY

This section is derived from Kasper and Metcalfe (2004), Knight and Macdonald (2010), and the results for mapping on the property by Homestake over the last several years. Figure 7-3 illustrates the Property Geology. The southern part of the property has been omitted from this map because no property scale geological mapping has been conducted on these claims. These were staked in December 2012 and became part of the property.

The Homestake Project covers the transition between the sedimentary and volcanic rocks of the Upper Triassic to Lower Jurassic Stuhini Group, a complex sequence of Lower to Middle Jurassic sedimentary, volcanic and intrusive rocks of the Hazelton Group and sedimentary rocks of the Upper to Middle Jurassic Bowser Lake Group. The Hazelton Group rocks on the Homestake property mark a transition from a high-energy volcanic dominated lower stratigraphy through a hiatus and into a fining sequence of volcanic tuffs and sediments punctuated by bi-modal mafic and felsic volcanism and finally into fine clastic sedimentation of the Salmon River Formation (Upper Hazelton Stratigraphy) and the Bowser Lake Group (Evans and Lehtinen, 2001). This sequence hosts many sulphide occurrences and extensive areas of alteration on the property which are associated with the Lower to Middle Jurassic stratigraphy.

The oldest lithology on the property is marine sediments believed to be related to the Upper Triassic to Lower Jurassic Stuhini Group (unit LS). Sediments within this package vary from thinly bedded black mudstone-siltstone to grey sandstone to pebble to cobble conglomerates.



Legend

- Homestake Ridge Claims
- Crown Granted
- BC Mineral occurences
- Drill Defined Mineralized Resource

Symbology

- Thrust fault (Early Cretaceous)
- Thrust fault (Early Cretaceous), inferred
- Early Cretaceaous fault
- Re-activated fault
- Major fault (Cretaceous)
- Major fault (Cretaceous), inferred
- Late (Tertiary) Fault
- Litho-magnetic boundary
- Lithological boundary defined by EM/resistivity
- Fold Axis, nature unknown
- Conductive horizon
- Litho-magnetic boundary, inferred
- Magnetic trend

Lithology

CODE, Lithology

- DYKE, Mafic dyke
- I2F, Equigranualr hornblende monzonite or hornblende feldspar porphyry
- S3, Volcanic lithic greywacke
- S6A/I2F/V3VC, Laminated mudstone sandstone / feldspathic hornblende intrusive / mafic volcaniclastic
- S6A/V3VC, Laminated mudstone sandstone / mafic volcaniclastic
- S6D, Mudstone siltstone
- S6D-m, Mudstone siltstone
- S6D//S3, Mudstone siltstone overlaying Volcanic lithic greywacke
- S6D//V2BP, Mudstone siltstone overlaying Andesitic Volcaniclastics
- V1B, Flow banded Rhyolite
- V1B-m, Flow banded Rhyolite
- V1D, FL-Bl phyric dacite flow
- V2BP, Polymictic volcanic conglomerate, maroon and green volcaniclastics
- V2BP-W, Polymictic volcanic conglomerate, maroon and green volcaniclastics
- V2BP-W?, Polymictic volcanic conglomerate, maroon and green volcaniclastics
- V2UN, Altered rocks
- V3B, Massive and pillow basalts

Figure 7-3

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Property Geology

September 2017

Source: Auryn Resources Inc., 2017.

Overlying the Stuhini sediments is a complex series of volcanic, sedimentary, and intrusive rocks of the Hazelton Group. The Lower Hazelton rocks comprise fine-grained to feldspar-hornblende phyric volcanic and volcaniclastic rocks of andesite to latite/trachyte composition (unit LF), and may include some phases of hypabyssal monzonite. This lower stratigraphy of the Hazelton extends along the length of the Homestake Ridge from the Main Homestake to the Vanguard Copper showings and is the host rock and footwall sequences to the three known mineral deposits, the Main Homestake, Homestake Silver and South Reef zones as well as numerous other showings. Porphyritic monzonite dykes and hypabasal domes (unit MONZ) intrude the Stuhini sediments and are believed to be coeval with the Lower Hazelton volcanic rocks. Greig et al (1994) has related the Lower Hazelton Group feldspar-hornblende porphyry volcanic package to the Goldslide Intrusions at Red Mountain and refer to them as unit Jkg on the regional scale.

Thin, locally discontinuous units of matrix supported, feldspar-phyric volcanic breccias (unit MSB) and hetrolithic debris flow with tuffaceous and mudstone to sandstone interbeds (unit DF) cap the lower volcanic stratigraphy and are in turn unconformably overlain by maroon to green andesitic and dacitic volcaniclastic rocks and tuffs (unit PC) which form much of the central part of the Homestake Ridge property. These polylithic andesitic and dacitic pyroclastic to epiclastic rocks contain discrete mafic flows, tuffaceous beds and debris flows. This andesitic volcanic package has been equated to the Betty Creek Formation (Evans and Macdonald, 2003) and mapped as unit Jmp by Greig et al (1994).

The cessation of Hazelton volcanism and continued sub-basin development resulted in a rapid facies changes into calcareous sandstones, grits, and conglomerates progressing upwards to thinly laminated and alternating beds of black graphitic and pyritic mudstones and light grey siltstones or very fine-grained sandstones (possible “pyjama beds”) correlated to the Salmon River formation (unit US). These sediments form a band of rock which unconformably overlie the volcanic flows and conglomerates of the underlying stratigraphy from the toe of the Kitsault Glacier southeast along the margins of Homestake Creek on the eastern side of the property. A tongue of these sediments infills a basin which formed to the southeast of the Homestake Silver Deposit. The fining-up nature of this unit reflects the general fining up nature of the Salmon River Formation as it progresses into the Bowser basin, and reflects the development of a large-scale basin at the end of Hazelton volcanism (Evans and Lehtinen, 2001).

In the northern part of the property at the headwaters of Homestake Creek, rhyolitic volcanic rocks (unit RHY) occur at the base of the Salmon River sediments. Greig et al (1994) mapped this unit as Jd and suggested a correlation with the Mount Dilworth Formation of the Eskay Creek area. The rhyolites are light to dark grey, massive and vary from aphanitic to fine-grained feldspar porphyritic banded flows to tuffs and breccias. Pyrite is ubiquitous throughout, occurring either as fine dissemination or infilling fractures and joints. A series of Mafic Dykes (unit Md) with chilled margins and an elevated Niobium signature were encountered intruding the Hazelton Group Rocks in the Homestake Silver Zone. Similar dykes have been mapped at surface intruding the Lower Hazelton Stratigraphy. These dykes are of unknown age.

The eastern part of the property is dominated by grey, interbedded siltstones and sandstones thought to be part of the Middle to Upper Jurassic Bowser Basin Group (unit BG) which conformably overlie the thin bedded graphitic argillites of the Salmon River formation (noted as JBRA in the regional geology map).

Structure on the property largely reflects NE-SW compression that has continued from the Jurassic to present day (Folk and Makepeace, 2007), recent drilling and mapping suggest that the local stratigraphy has undergone several deformation events including uplift and local extension of the Stuhini and lower Hazelton stratigraphy resulting in a marked unconformity between the lower and upper Hazelton rocks. Similar features were noted by Greig (1992) near Kinskuch Lake located 15 km to the east-southeast.

These compressional tectonics have resulted in an antiformal (or horsted) block of Triassic and lower Jurassic stratigraphy in the western side of the property and a synformal (graben-like) block of middle to upper Jurassic rocks on the eastern side of the property. In the southeastern part of the property, these two regimes are separated by a northwest-striking, westerly dipping structure known as the Vanguard fault.

Uplift and local extension of the lower stratigraphy may have occurred during the same Early Jurassic compressional event. The earliest period of movement along the Vanguard fault may have occurred at this time.

Northwest-southeast oriented normal faults occur along the northeastern slopes of Homestake Ridge and locally represent the southwestern wall of the “Hazelton Basin”. These faults would have been active from the Early to Middle Jurassic as pyroclastic and volcanic flows of the PC unit infilled the basin. Mineralizing fluids which lead to the deposition of the gold and silver deposits on the Project are thought to have been channelled along these faults. Northeast-southwest faults offset the Hazelton Group volcanic and older sedimentary rocks throughout the property. Younger Tertiary extensional faults may have been superimposed on these faults.

Large northeast trending ankerite bearing faults have been mapped and related to Tertiary east-west extension (Evans and Lehtinen, 2001).

MINERALIZATION

This section of the report has been derived from Knight and Macdonald (2010) and Folk and Makepeace (2007).

Numerous mineral occurrences are present on the Project. Six zones have been delineated and will be described below. These are the Homestake Zone, South Reef Zone, Vanguard Gold and Copper Zone, Sericite Zone, Dilly Zone and North Dome Zone.

Homestake Zone

The Homestake Zone comprises the Main Homestake and Homestake Silver deposits and has been tested by about 15 historic trenches, three historic adits, and a total of 188 drill holes with an aggregate depth of 53,879 m.

Main Homestake Deposit

The Main Homestake deposit consists of a series of silica to silica-carbonate-chlorite altered lenses and hydrothermal breccias, which have a northwest strike and dip moderately northeast at slightly steeper than the topographic dip-slope. Gold and silver mineralization occurs with pyrite, chalcopyrite, and lesser galena and sphalerite in stronger areas of silica alteration or hydrothermal brecciation within zones of sericite-pyrite altered feldspar-hornblende phyric volcanic rocks. Only along the southwestern flank of the Main Homestake

deposit does lower grade gold mineralization penetrate up into the overlying package of basinal filling volcano-sedimentary and andesitic rocks which comprise the “hanging wall” sequence. Native gold along with pyrargyrite and acanthite have been observed hosted within quartz veins and quartz-carbonate hydrothermal breccias in drill core.

The Main Homestake deposit as currently known is about 700 m long and has been traced down-dip by drilling for a distance of approximately 500 m. At the surface, the northwestern extent of the mineralization is obscured by a glacier; while to the southeast surface geochemistry indicates that the zone continues towards the Homestake Silver deposit 700 m to the southeast. Widths of the Main Homestake Zone vary up to about 60 m (approximate true width) and are defined by assay grades due to the diffuse nature of the mineralization. Gold distribution appears to be inhomogeneous and grades display a great deal of local variability. The zone has a complex form which may consist of a faulted series of lenses and related steeply dipping feeders. To date, 128 diamond holes, totalling 29,643 m have been drilled in and around this zone.

Homestake Silver Deposit

Located 300 m to the southeast of the Main Homestake zone, the Homestake Silver deposit is comprised of a series of northwest trending, vertically to sub-vertically dipping hydrothermal breccias. Mineralization occurs as galena-sphalerite+silver in contrast to the gold enriched chalcopyrite seen the Main Homestake deposit. Modelling indicates that the Homestake Silver deposit can be traced over 700 m strike and 550 m down dip. The Homestake Silver area has been tested by 60 diamond drill holes for an aggregate length of 24,214 m.

In 2010 five holes, totalling 1,659 m, were drilled in what has been named the “Homestake Connector” zone. This zone is located southeast of the Main Homestake and northwest of the Homestake Silver zones.

South Reef Zone

The South Reef deposit is located approximately 800 m to the south-southwest of the Homestake Silver deposit. Gold mineralization is variably associated with strong quartz-chlorite alteration, pyrite and minor base metal sulphides interspersed with intervals of

sericite + pyrite alteration in two en-echelon, northwest-trending sub-vertical mineral zones that can be traced with drilling for over 250 m strike-length and 250 m dip. Several base-metal enriched intercepts are identified up-section from the gold-enriched zone but have yet to be fully defined by drilling. To date, 14 diamond holes, totalling 4,431 m have been drilled in and around this zone

Vanguard Cu and Au Zones

Located approximately 2.5 km southeast of the Homestake Zone, the Vanguard is an 1,800 m long, 150 m wide structural zone hosted in various pyroclastic and volcanic rocks. This area has undergone extensive exploration including 36 trenches and short adits. Most showings are located within a northwest striking, sub-vertically dipping zone containing diffuse sulphide veins, stockworks, sulphide breccia zones, and calcite-barite veins related to pervasive chlorite alteration. Gold-enriched mineralization occurs in the northern part of this belt and adjacent to and up-section from the South Reef gold zone. To the south, the mineralization is characterized by high grade copper with gold and silver (Folk and Makepeace, 2007). Homestake drilled 13 holes in this area for a total 3,286 m aggregate depth.

Sericite Zone (Gold Reef, Fox Reef)

Located in a large area southwest of the Homestake Zone, the Sericite Zone comprises over 50 mineral occurrences hosted within pervasively sericite-pyrite altered FHP intrusives and volcanic rocks. These occurrences bear the historic names of Tip Top, Foxreef, Goldreef, Matilda, Silver Tip, among others. Gold is found in quartz-calcite-barite veins up to six metres wide with pyrite+chalcopyrite+galena+sphalerite mineralization. Geochemical surveys show an anomalous north-south trend along the volcanic-FHP contact (Folk and Makepeace, 2007). Homestake drilled 15 holes along the Goldreef – Foxreef trend for a total of 3,630 m aggregate depth.

Dilly and Dilly West Zones

Historic zones named Cascade Falls, Lucky Strike, Silver Crown, and Camp Zone are collectively known as Dilly and Dilly West and occur southwest of the Homestake zones. Exploration has been active in this area with over 40 pits, trenches, and adits excavated

(Figure 10-1). The zones are hosted by silicified mudstones and siltstones overlying rhyolites.

Mineralization consists of syngenetic sulphide bands anomalous in Au, Ag, As, Bi, Pb, Zn, Hg, and Sb. The zones are stratiform and display a linear trend with strike lengths of 1,500 m for the Dilly Zone and 600 m for the Dilly West Zone. The underlying rhyolite is cross-cut by veins with similar mineralization to the sulphide bands and these veins are interpreted to be “feeders”. Stratigraphically above the sediments is a thin, silicified and mineralized rhyolite pyroclastic. Silica decrease on the north end of the Dilly Zone, and base metals and barite occur within the sediments. Also present is semi-massive to massive arsenopyrite within sulphide stockwork and FHP sills (Folk and Makepeace, 2007).

North Homestake Zone (North Dome)

The North Homestake Zone is described as a large sericite-pyrite-silica altered felsic dome approximately 3.2 km north of the Homestake Silver deposit and occupies a 125 ha area. The geology is massive feldspar-phyric, fine grained felsic volcanic rock of dacite to latite composition that occurs in the upper part of the volcano-sedimentary stratigraphy. Sheeted northeast trending pyritic fractures occur in the strongly silicified southern and western margins. These fractures are strongly anomalous in pathfinder elements such as As, Sb, and Hg.

The upper contact of the rhyolite is projected to be in contact with sediments that are thought to be analogous to those at Eskay Creek. The Kitsault Glacier, however, partially obscures the projected two-kilometre contact. Previous drilling of this horizon by Homestake in 2009 to 2010 intersected thick intervals of altered felsic rocks and strong silver enrichment over tens of metres in two holes. An attempt was made in 2002 by Teck to drill test this geological target, but the hole was abandoned.

8 DEPOSIT TYPES

The following section is derived from Folk and Makepeace (2007) and Bryson (2007) and is taken from Macdonald and Rennie (2016).

The Project lies within the highly prolific Iskut-Stewart-Kitsault Belt that is host to several precious and base metal mineral deposits. Homestake Ridge has over 80 mineral occurrences on the Property related in the emplacement of intrusive stocks and felsic domes into the volcanic-sedimentary host rocks.

Diverse mineralization styles on the property include stratabound sulphide zones, stratabound silica-rich zones, sulphide veins, and disseminated or stockwork sulphides. Mineralization is related to Early Jurassic feldspar-hornblende-phyric sub-volcanic intrusions and felsic volcanism and commonly occurs with zones of pyrite-sericite alteration. A later, less significant, mineralizing event occurred in the Tertiary and is characterized by ankerite-calcite-pyrite veins. Numerous models can be proposed for the area and local deposits present a broad range of characteristics.

Mineralization displays characteristics of both epithermal gold and VMS deposition. Stratabound and vein (or replacement) mineralization is present that contains values in Ag, As, Au, Cu, Hg, Pb, Sb and Zn (Folk and Makepeace, 2007). The property geology is considered to be favourable for the discovery of “Subaqueous Hot Spring Au-Ag” or “Low Sulphidation Epithermal Au-Ag” type deposits.

The “Subaqueous Hot Spring Au-Ag” deposits, of which Eskay Creek is an example, are formed by “hot spring” fluids venting into a shallow water environment. These deposits may contain large, textureless massive sulphide pods, finely laminated, stratiform sulphide layers and lenses, reworked clastic sulphide sedimentary beds, and epithermal style vuggy breccia veins with coarse sulphides and chalcedonic silica. As such, they share characteristics of both VMS and epithermal deposits.

“Low Sulphidation Epithermal Au-Ag” deposits, of which Silbak-Premier is an example, are typically emplaced within a restricted stratigraphic interval with one kilometre of the

paleosurface. Mineralization near surface takes place in hot spring systems with deeper, underlying hydrothermal conduits. Typically, mineralized zones are localized in structures but may occur in permeable lithologies. Veins may exhibit open-space filling, symmetrical and other layering, crustification, comb structure, colloform banding, and multiple brecciations. Deposits are commonly vertically zoned from a base metal poor Au-Ag-rich top to an Ag-rich base metal zone over a vertical range of 250 m to 350 m. The silver-galena-sphalerite veins of the Homestake Silver Zone exhibit many of these features.

9 EXPLORATION

CORE RE-LOGGING

Subsequent to acquiring the Project, Auryn undertook a comprehensive program of re-logging the available historical drill core in storage in Prince Rupert during January and February of 2017.

IP SURVEY

A limited amount of IP surveying was completed from July 21 to August 8, 2017 by Peter E. Walcott & Associates Limited (Walcott). Walcott used a pole-dipole array and measured the 1st to 10th separations utilizing a 50 m dipole. A total of 17.5 ln-km was surveyed over seven traverses (Walcott, 2017). As of the effective date of this report, the survey results had not been interpreted. Figure 9-1 illustrates the locations of the traverses surveyed with IP.

SOIL SAMPLING

From July 9 to August 29, 2017, Auryn completed a soil sampling program consisting of taking an A-horizon and a B-horizon sample at each pre-selected, GPS-controlled site. If a B-horizon sample was not available at a particular site, a C-horizon or talus sample was taken. Samples were taken at 50 m intervals along 100 m spaced lines in plateau areas or at 100 m intervals along contours in steeper areas.

B-horizon samples were dried and analyzed in camp using an Innov-X Systems X-ray fluorescence (XRF) instrument. Pebbles taken from each sample were analyzed using a hand-held Terra Spec Halo near infrared (NIR) spectrometer. Ah-horizon samples were not analyzed on site.

Soil samples were sent to ALS for a multi-element analysis by agua regia extraction and ICPAES and ICPMS finish (TL-43 ICP package).

In total, 3,126 soil samples were taken. Figure 9-2 illustrates the area covered by the soil sampling program.

As of the effective date of this report, no analytical results from the soil sampling program had been received from ALS.

DIAMOND DRILLING

Details of the drilling program undertaken by Auryn in 2017 can be found in Section 10 of this report.

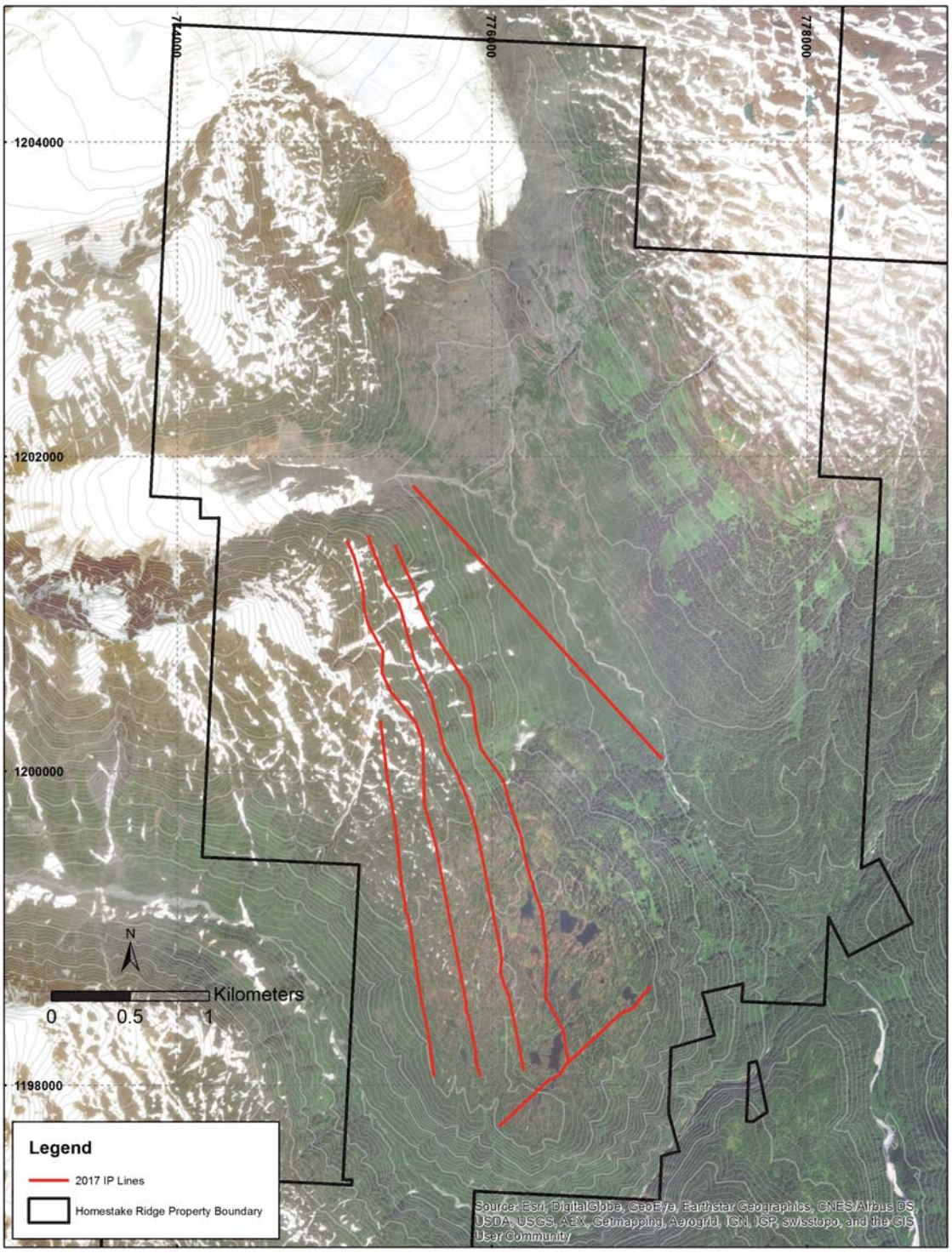


Figure 9-1

Auryn Resources Inc.

Homestake Ridge Project
Skeena Mining Division
British Columbia, Canada

IP Survey

September 2017

Source: Auryn Resources Inc., 2017.

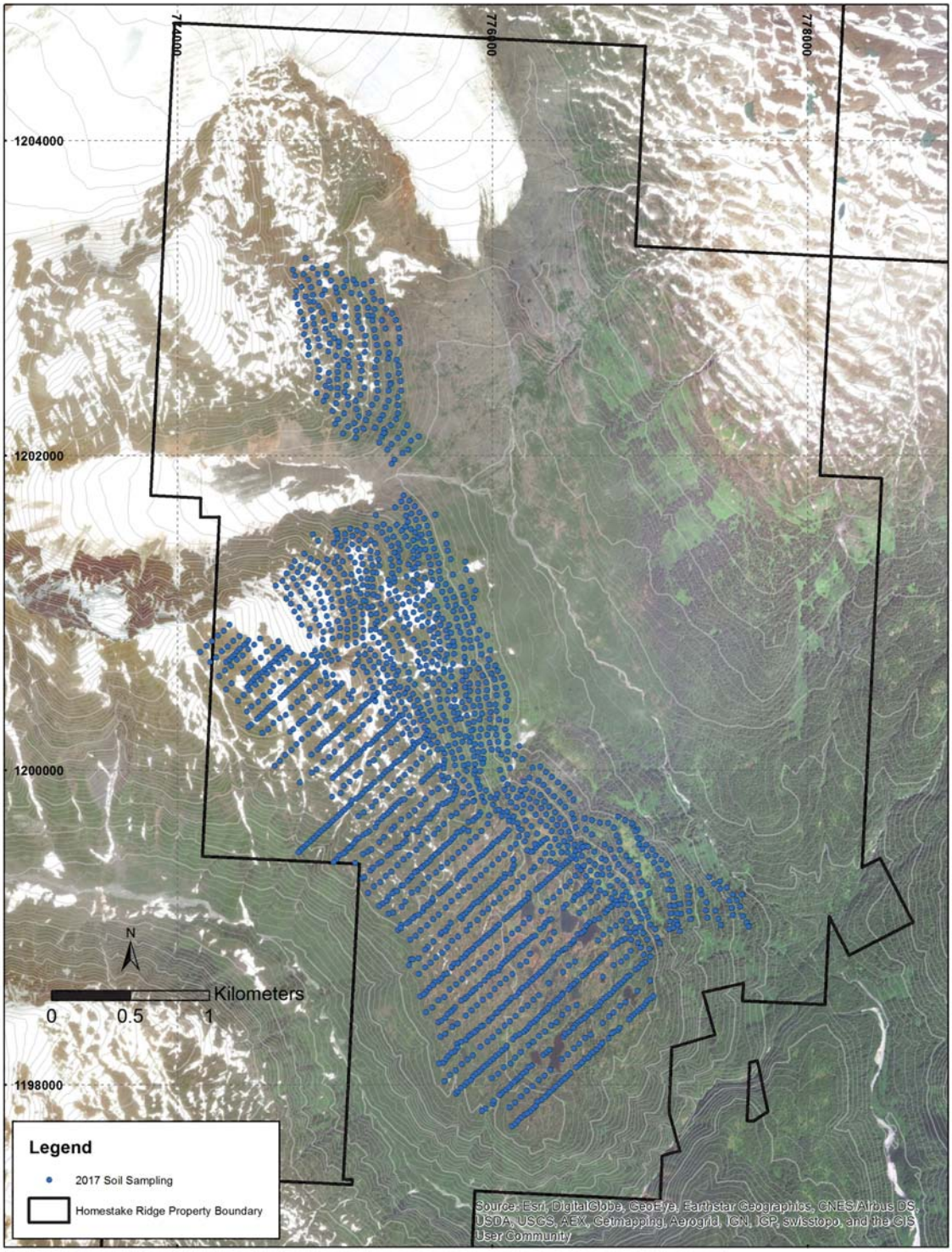


Figure 9-2

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Soil Sampling Locations

September 2017

Source: Auryn Resources Inc., 2017.

10 DRILLING

HISTORICAL DRILLING

Table 10-1 lists the drilling completed on the Project prior to its acquisition by Auryn.

TABLE 10-1 PREVIOUS DRILLING
Auryn Resources Inc. – Homestake Ridge Project

Years	Company	Zones Drilled	Holes Drilled	Meterage Drilled
1964-1979	Dwight Collison	Lucky Strike (Homestake)	7	58.2
1989-1991	Noranda Exploration	Homestake & Vanguard	12	1,450.05
2000	Teck Cominco	All Zones	21	4,374.6
2003-2012	Bravo Ventures (Homestake Resources)	All Zones	252	71,026
2013-2014	Agnico Eagle	Exploration & Slide Zone	16	6,525

The following is taken from Macdonald and Rennie (2016).

Logging protocols have remained generally consistent through all of Homestake's programs. The holes were quick-logged by a geologist. The quick logs included a brief description of lithology, alteration and mineralogy, as well as a description of any significant structural characteristics. The core was photographed and stored pending more detailed logging.

Detailed core logging included description of lithology, mineralization, type and intensity of alteration, vein mineralogy and component percentage, breccia intensity, fracture intensity and structural components such as faults, fractures, contacts, bedding, cleavage (primary and secondary) and veining, measured relative to the core axis. Geotechnical logging includes recovery, rock quality designation (RQD) and, occasionally, specific gravity. Petrographic studies were done in 2006, 2007, and 2008 and encompassed 53 specimens of drill core from various locations of interest.

Generally, core recovery was observed to be very good, and in RPA's opinion there are no drilling, sampling or recovery factors that could materially impact the accuracy and reliability of the results.

Drill collars were located using a Garmin GPS, and chain (slope compensated) and compass from known survey points (Bryson, 2007).

Downhole surveying for the early holes consisted only of acid dip tests. Starting in 2006, drill holes were surveyed for downhole azimuth and dip using a RANGER Single Shot tool at 30 m to 60 m intervals (approximately 50 m on average) during drilling or upon completion. In 2010, drill holes were surveyed using a RANGER Explorer Multi-shot tool giving continuous readings of dip, azimuth and magnetic susceptibility downhole. The multi-shot tool was also utilized for the 2011 and 2012 drill programs.

The drill hole collar elevations were compared to the surface topography and found that, generally, the collars were in agreement with the surface. Two historic holes (HR03-11 and HR03-07) and one recent hole (HR09-149) deviated from the surface digital terrain model (DTM). In author's opinion, the elevations of these holes will not materially affect the Mineral Resource estimate.

AURYN DRILLING

From early July 2017 to the effective date of this report, Auryn completed 13 drill holes totalling 5,571.3 m. Initially the program was undertaken with two drills and is planned for a total of 35 holes for a total of 12,000 m to 15,000 m of drilling.

Table 10-2 lists those holes completed by Auryn as of the effective date of this report and Figure 10-1 illustrates their collar locations. Figures 14-4 to 14-6 show section views of the Homestake Main, Homestake Silver, and South Reef zones, respectively.

TABLE 10-2 AURYN 2017 DRILLING
Auryn Resources Inc. – Homestake Ridge Project

Hole No.	Zone	Northing	Easting	Elevation (MASL)	Date Started	Date Completed	Attitude (Az./Dip)	Length (m)
17HR-268	South Reef	463370	6177687	1,160.0	20/07/2017	22/07/2017	210°/-70°	184.0
17HR-269	Slide Zone	463212	6178551	1,073.6	24/07/2017	01/08/2017	070°/-51°	632.0
17HR-270	South Reef	463465	6177795	1,149.5	24/07/2017	29/07/2017	190°/-70°	420.0
17HR-271	South Reef	463464	6177795	1,149.5	28/07/2017	01/08/2017	220°/-74°	510.0
17HR-272	Slide Zone	463400	6178477	1,011.9	01/08/2017	11/08/2017	200°/-75°	770.0
17HR-273	South Reef	463666	6177594	1,104.8	03/08/2017	07/08/2017	205°/-72°	362.0
17HR-274	South Reef	463792	6177552	1,027.6	08/08/2017	11/08/2017	200°/-63°	299.0
17HR-275	South Reef	464064	6177389	975.8	11/08/2017	15/08/2017	210°/-50°	371.0
17HR-276	Homestake Main West Ext.	462648	6179941	1,184.0	12/08/2017	19/08/2017	240°/-55°	503.0
17HR-277	South Reef	464064	6177389	975.8	15/08/2017	23/08/2017	210°/-70°	405.0
17HR-278	Homestake Main West Ext.	462650	6179939	1,184.0	20/08/2017	28/08/2017	210°/-70°	630.3
17HR-279	South Reef	464010	6177008	990.9	24/08/2017	29/08/2017	070°/-51°	357.0
17HR-280	South Reef	464280	6177255	974.8	29/08/2017	01/09/2017	210°/-50°	128.0

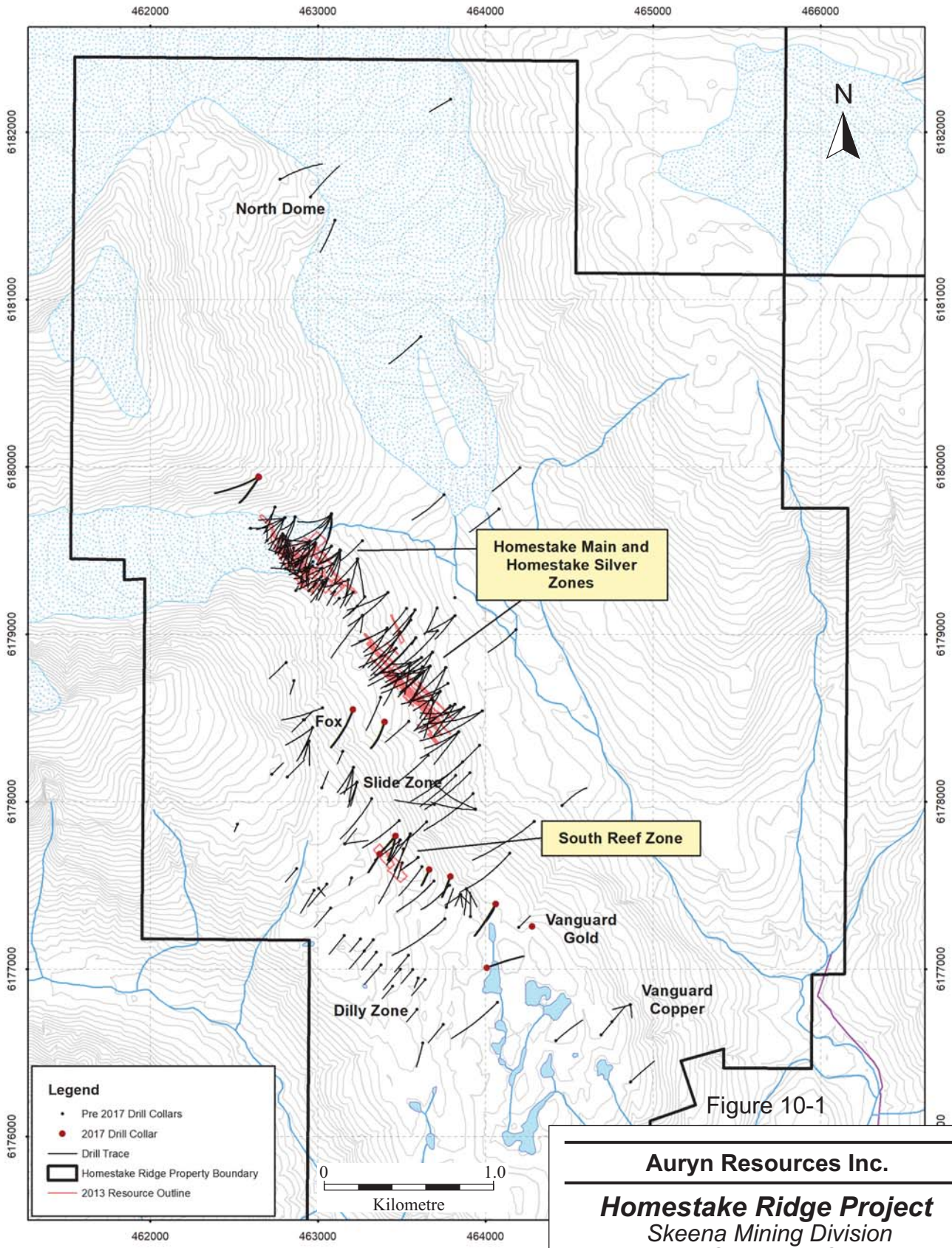


Figure 10-1

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Drilling Collar Locations

September 2017

Source: Auryn Resources Inc., 2017

The drilling was contracted to Cyr Drilling International Ltd. (Cyr) from Winnipeg, MB. Cyr used helicopter portable A-5 hydraulic drills manufactured by Zinex Mining Corp. to produce NQ2 (50.6 mm diameter) core. The drills were moved between drill sites and supported by an Astar 350 B-3 helicopter provided by Tseax Aviation from Terrace, BC.

The locations of drill hole pads were initially spotted using a handheld GPS instrument and the azimuth of the holes was established by compass. Once the pad was built and the drill moved onto it, an Azimuth Aligner instrument manufactured by Minnovare Pty. Ltd. was used to establish the azimuth. An inclinometer was used to establish the dip.

The attitude of the hole with depth was determined using a DeviShot instrument manufactured by Devico AS in single shot mode with readings taken by the drillers. The initial reading was taken at six metres past the casing with subsequent readings taken nominally at 50 m intervals. An Auryn geologist checked the core before making the decision to terminate the holes. Upon completion of the hole, the casings were pulled and the location of a hole marked with a picket. Subsequently all hole locations were surveyed with differential GPS.

Drill core was placed sequentially in wooden core boxes at the drill by the drillers. The core boxes were transported by helicopter on a twice daily basis to the camp where depth markers and box numbers were checked and the core was carefully reconstructed. The core was logged geotechnically on a three metre run by run basis including, core recovery, RQD, and magnetic susceptibility.

The core was descriptively logged and marked for sampling by Auryn geologists paying particular attention to lithology, structure, alteration, veining/brecciation and sulphide mineralization.

Readings were taken at three metre intervals using a hand-held TerraSpec Halo NIR spectrometer manufactured by ASD Inc.

Logging and sampling information was entered into the GeoSpark core software package supplied by GeoSpark Consulting Inc. which allowed for the integration of the data into the project Access database.
The core was photographed both wet and dry after logging but prior to sampling.

Quality Control and Quality Assurance (QA/QC) samples were introduced into the sample stream at a rate of 1 in 20 for both blank samples and Certified Reference Material (CRM) samples. Field duplicates, in the form of quarter sawn samples, were introduced into the sample stream at a rate of 1 in 50 samples.

Certified blank material was acquired from Analytical Solutions. Four CRMs were acquired from OREAS to cover a range of grades and elements including gold, silver and copper. Table 10-3 lists the CRMs and their respective expected values.

TABLE 10-3 CERTIFIED REFERENCE MATERIALS
Auryn Resources Inc. - Homestake Ridge Project

	Certified Values		
CRM	**Au**	**Ag**	**Cu**
OREAS 60C	2.47 g/t	4.87 ppm	N/A
OREAS 229	12.11 g/t	N/A	N/A
OREAS 600	0.20 g/t	24.75 ppm	482 ppm
OREAS 603	5.18 ppm	284.34 ppm	1.00%

All holes were continuously sawn in two metre samples regardless of geological contacts.

No analytical results have been received from the QA/QC samples inserted into the sample stream of the 2017 drill holes completed as of the effective date of this report.

No specific gravity determinations were taken on the drill holes completed as of the effective date of this report.

Core boxes from completed and sampled holes were flown by helicopter to a staging site from where they were trucked to a secure sample storage site in Prince Rupert, BC.

Figure 10-2 illustrates Auryn's core handling flow chart.

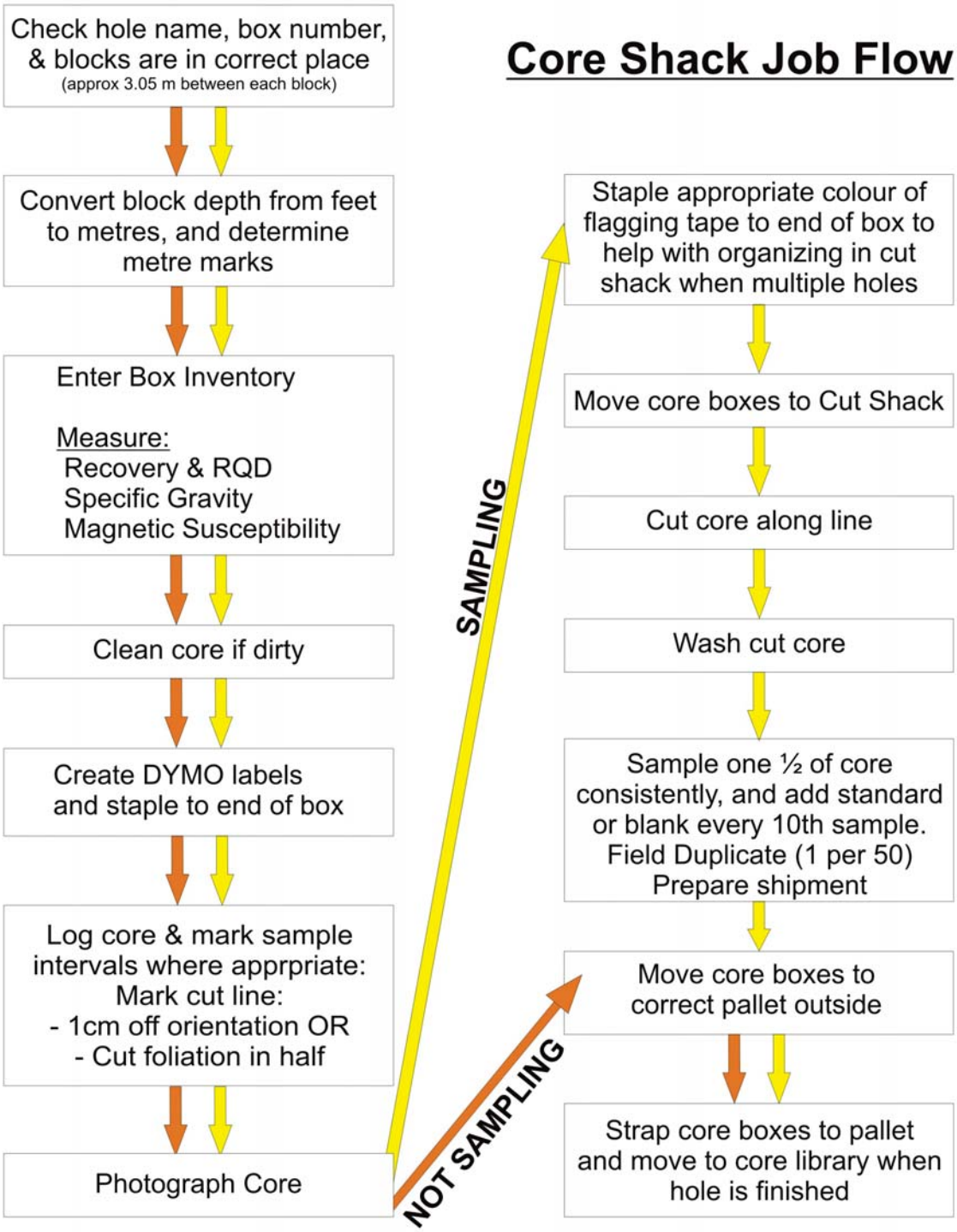


Figure 10-2

Auryn Resources Inc.

Homestake Ridge Project
Skeena Mining Division
British Columbia, Canada

Core Shack Job Flow Chart

September 2017 ***Source: Auryn Resources Inc., 2017***

11 SAMPLE PREPARATION, ANALYSES AND SECURITY

HISTORIC SAMPLING

The following is taken from Macdonald and Rennie (2016).

The property has been explored by numerous historic trenches and adits. Auryn is not aware of any written procedures for sampling that predates Homestake's acquisition of the property. However, insofar as the trenching and underground sampling were not used in the Mineral Resource estimate, they are not discussed in detail in this report.

On acquiring the property in 2003, HSR conducted several traverses to orient and ground truth existing database sites such as drill collars and individual sampling locations. Homestake concluded that Teck's sampling was accurately located, but discrepancies were found with respect to the Noranda, Cambria, and Newmont sampling. Generally, previous operators' sampling sites were clearly marked with flagging, tags, and paint. Samples that could not be verified in the field were dismissed.

HOMESTAKE RESOURCES SAMPLING

The following is taken from Macdonald and Rennie (2016).

Homestake has conducted surface grab, chip, and soil sampling, plus diamond drilling on the property. A total of 417 grab and chip samples were taken from outcrops and old excavations. A total of 847 soil samples were collected at 25 m to 50 m intervals along a series of lines spaced from 100 m to 200 m apart in the 2004, 2011, and 2012 exploration programs. Soil samples were collected from the B-horizon, where possible, and placed in Kraft paper bags.

Rock samples were placed in plastic sample bags with sample tags and sealed with zip ties. Sample locations were marked with metal tags and flagging tape. Samples were secured in

a locked facility until they were transported by a local freight to the assay laboratory. The assay laboratories used are summarized in below.

Drill core was delivered to the logging facility by helicopter where it was inspected by the logging geologist and subjected to a quick log. The quick log comprised a brief description of lithology, alteration and mineralogy, as well as a description of any significant structural characteristics. The core was photographed and stored for future comprehensive logging.

All drill core was logged for lithology, mineralization, type and intensity of alteration, vein mineralogy and component percentage, breccia intensity, fracture intensity and structural components such as faults, fractures, contacts, bedding, cleavage (primary and secondary) and veining, measured relative to the core axis. Geotechnical logging included recovery, RQD and, occasionally, bulk density.

Sample intervals, to a maximum length of three metres, were designated by the logging geologist based on lithology, mineralogy, alteration, and structure. Each sample was given an identifier from a three-part tag system. The core was cut in half longitudinally using a diamond saw, with half being sent for analysis and half remaining as a permanent record. One part of the waterproof tag was placed in the sample bag, one was placed with the remaining core at the start of the sample interval, and the third tag remained in the tag book as a reference. Unmarked standards and blanks were included in the samples submitted, roughly once in every 20 samples with a ratio of 2:1 standard to blank. Samples were secured in a locked facility until they were transported by local freight to the assay laboratory.

All of the core has been transported to Prince Rupert and placed in a storage facility and has been reviewed periodically by Homestake Geologists.

Homestake took bulk density measurements of the core, using a water immersion method. Intact core specimens were weighed in air, then on a pan immersed in a bucket of water. The weight of displaced water was determined by subtracting the wet weight of the sample from the dry weight. The density is the ratio of the dry weight to the weight of the water displaced by the specimen. A total of 7,330 bulk density determinations had been collected to the end of the 2012 program.

In RPA's opinion, the core was transported, handled, and stored in a safe and secure manner. Sampling and logging procedures are appropriate for the deposit type and style of mineralization. The drill samples are representative of the mineralization.

ASSAYING OF DRILL CORE

HOMESTAKE 2003 TO 2006 PROCEDURE

The primary laboratory for most of this period was Acme Analytical Laboratories Ltd. (Acme) of Vancouver, although Eco-Tech Laboratories Ltd. (Eco-Tech) of Kamloops, BC was the primary laboratory in 2003. One kilogram samples were crushed to 80% passing 10 mesh from which a 250 g split was taken. This subsample was homogenized, riffle split, and pulverized to 85% passing 150 mesh. A one assay ton (AT) split was taken and subjected to fire assay fusion (FA) with Inductively Coupled Plasma Atomic Emission Spectroscopy (ICPAES) analysis for gold and silver. Samples above 10 ppm Au or 200 ppm Ag were rerun using atomic absorption (AA) with gravimetric finish. Base metals were also commonly run on over-limit samples (Bryson, 2007).

All samples were analyzed by ICP-MS for 41 elements. A 0.25 g sub-sample was digested in an acid solution of H_2O-HF-$HClO_4$-HNO_3 (2:2:1:1) and 50% HCl was added to the residue and heated. After cooling, the solutions were transferred to test-tubes and brought to volume using dilute HCl and then assayed.

Metallic analysis was done for over-limit samples during the 2005 to 2008 programs. Samples were crushed, pulverized, and a 500 g sub-sample was extracted. The samples were sieved and the +200 and -200 mesh fractions were collected and weighed. These fractions were assayed by FA with gravimetric finish. The final grade was calculated from a weighted average of the assays for the +200 and -200 mesh fractions.

HOMESTAKE 2007 TO 2008 PROCEDURE

Initially, samples were sent to Acme, but in order to address processing delays, some samples were sent to International Plasma Labs Ltd. (IPL) of Richmond, BC, an ISO 9001:2000 accredited facility. The sample preparation consisted of:

- Crushing samples to approximately 80% passing 10 mesh and the entire charge was reduced to 250 g by repeated splitting through a riffle splitter.,

- Ground the 250 g split using and Ring and Puck pulverizer until approximately 90% passes 150 mesh.
- Rolling the split to ensure homogeneous particle distribution and transferred to a computer labelled sample bag.

A one AT aliquot was assayed by FA with AA finish. Samples with gold values greater than 1,000 ppb Au (over-limit) were re-assayed using FA with gravimetric finish. In addition to the FA, each sample was subjected to a 30 element analysis by (AR)/ICP with aqua regia digestion.

HOMESTAKE 2009 TO 2012 PROCEDURE

Acme was the primary laboratory for the 2009 and 2010 programs. Sample preparation procedures consisted of a one kilogram split being crushed to 80% passing 10 mesh from which a 500 g split was taken. This split was pulverized to 85% passing 150 mesh (later 200 mesh). A one AT split was taken and subjected to FA with Inductively Coupled Plasma Emission Spectroscopy (ICP-ES) finish for gold and silver. Upper detection limit for this method is 10 ppm Au and 200 ppm for Ag. Any determinations that exceeded 10 ppm Au or 200 ppm Ag were rerun by AA with gravimetric finish. Over-limit samples were also commonly run for base metals using four-acid digestion and ICP-ES analysis. A 0.25 g split was taken for all samples and run by Inductively Coupled Plasma Mass Spectrometry (ICP-MS) after three-acid (HNO_3-HCl_4-HF) digestion.

In RPA's opinion, the assaying was done using conventional methods, commonly used and accepted within the industry and appropriate for the type of mineralization. The laboratories were certified commercial facilities. A reasonable practical level of sample security has been maintained throughout all of the drill programs.

AGNICO EAGLE SAMPLING

The following is taken from Swanton et al., (2013).

Half core samples were collected using a gas-powered core saw onsite at the site core shack. Samples were placed in sealed poly rock bags and sent to the ALS Minerals (ALS) preparation facility in Terrace for sampled preparation (crushing and pulverising). ALS re-directed some sample shipments directly to Vancouver for sample preparation depending on

capacity at the Terrance facility. Geochemical analyses were completed at the main ALS facility in Vancouver. Samples were analyzed for gold via fire assay (method code Au-AA23) and a 48-element ICP package utilizing four-acid, "near total" sample digestion (method code ME-MS61). Sample lengths varies between 1.5 m and 0.5 m at the prerogative of the logging geologist and a total of 3,658 (including QA/QC) samples taken. Samples of CRMs or blanks were inserted every ten samples on sample numbers ending in zero, alternating between one of three CRMs (CDN-GS-2L, CDN-GS-13A and CDN-CM-24) which were supplied by CDN Resource Laboratories Ltd (CDN) of Vancouver, British Columbia. Blank material comprised of gardening limestone acquired from a Canadian Tire retail outlet. Similarly, a duplicate was inserted every ten samples, on sample numbers ending in '5'. Half of the duplicates were "field" duplicates, where the half of the split core which would normally remain in the box was instead sampled. The other type of duplicate was a "preparation" duplicate, in which an empty bag (with sample tag) was inserted into the sample sequence and the preparatory laboratory instructed to take a split of the material after crushing and analyze it as the duplicate sample.

ALS prepared additional splits of the master pulps and returned them to the Homestake camp for analysis using a portable X-ray Fluorescence (XRF) analyser rented from Innov-X Systems. A total 326 samples were analyzed using both "Soil Mode" and "Mining Plus Mode" – a procedure designed to detect both trace and high concentration elements.

AURYN SAMPLING

Core recovery is generally very good to excellent, allowing for representative samples to be taken and accurate analyses to be performed.

Sawn core samples, two metres long, were taken along the entire length of each hole. A total of 2,273 split core samples were taken.

Individual core samples were placed in rice bags which were sealed using uniquely numbered zip ties and flown to the staging area on a twice per week basis where they were immediately transferred to Rugged Edge Holdings Ltd., acting as Auryn's expeditor, for transportation to Smithers. From Smithers, the samples were trucked by Banstra Transportation System Inc. to the ALS sample preparation facility in Terrace/Vancouver, BC.

In Terrace/Vancouver, the samples are logged into ALS's sample tracking system, dried and fine crushed to better than 90% passing 2 mm. The sample is then split using a riffle splitter and a 250 g portion is pulverized to better than 85% passing 75 μm (ALS Sample Preparation Code Prep-33D. The pulverized samples were the forwarded to ALS's analytical facility in Vancouver for analysis.

In Vancouver, each sample was assayed for gold and analysed for a multi-element suite. Gold was determined by fire assay on a 30 g sample with an Atomic Absorption Spectroscopy (AAS) finish (ALS Code Au-AA23). Samples assaying greater than 5 g/t Au were re-assayed with a gravimetric finish (ALS Code Au-Grav21). One kilogram of pulverized material from samples assaying greater than 20 g/t Au were re-assayed by screened metallics fire assay (ALS Code Au-SCR21).

A one gram sample of pulverized material was analysed for a 48-element suite, including silver and copper, by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS) after a four-acid digestion (ALS Code ME-MS61). Samples yielding analyses of silver greater than 100 ppm were re-analyzed by HCl leach with AAS finish after a three-acid digestion (ALS Code Ag-OG62). Thirty grams of material yielding analyses of silver greater than 1500 ppm were fire assayed with a gravimetric finish (ALS Code Ag-Grav21).

Figure 11-1 illustrates Auryn's sampling flow chart.

ALS is accredited laboratory No. 579 and conforms with requirements of CAN-P-1599, CAN-P-4E (ISOMEC 17025-20905)). Auryn and RPA are independent of ALS.

Given the early stage of the project, RPA concurs with the adequacy of the samples taken, the security of the shipping procedures, and the sample preparation and analytical procedures at ALS. In RPA's opinion, the QA/QC program as designed and implemented by Auryn is adequate and the assay results within the database are suitable for use in a Mineral Resource estimate.

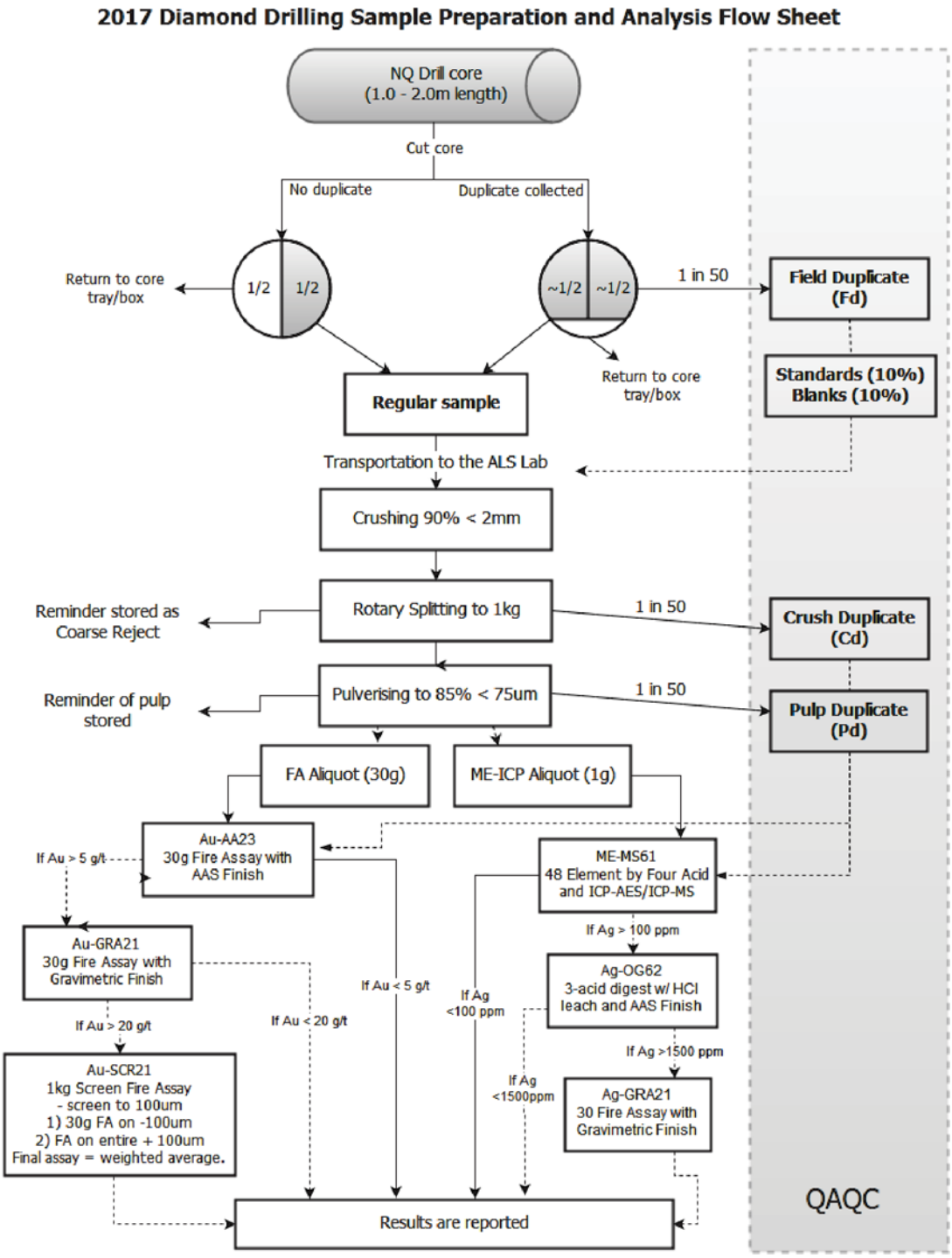


Figure 11-1

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

Sampling Flow Chart

September 2017 ***Source: Auryn Resources Inc., 2017***

12 DATA VERIFICATION

SITE VISIT

Paul Chamois, P.Geo., Principal Geologist with RPA and an independent QP, visited the Project from August 26 to 28, 2017. During the visit, Mr. Chamois examined core from the on-going drilling program, confirmed the local geological setting, reviewed the core handling and data collection methodologies and investigated factors that might affect the Project. Because of the advanced nature of the Project, no independent samples were taken during the visit.

DATA VERIFICATION

Comprehensive data verification was performed by RPA both for the 2010 and 2011 Mineral Resource estimates as outlined in supporting NI 43-101 reports (Rennie D et al. 2010, Rennie, 2011). These included checks against original data sources, standard database checks such as from/to errors, and basic visual checks for discrepancies with respect to topography and drill hole deviations.

For the 2011 to 2012 data, Homestake and RPA conducted data validation procedures similar in some respects to those carried out for earlier drilling campaigns. The resource database was imported by Homestake into Gemcom SURPAC software for management and manipulation of exploration and mining data. All samples and all tables in the database relevant to the resource estimate were audited using the database audit facility and no errors were found. As a secondary check, RPA extracted 4,229 samples from the 2011 to 2012 drilling results, representing 14% of the total samples in the database, and compared them to the original assay certificates. No errors were found (Rennie, pers. comm., 2013).

RPA is of the opinion that database verification procedures for the project comply with industry standards and are adequate for the purposes of Mineral Resource estimation.

13 MINERAL PROCESSING AND METALLURGICAL TESTING

HISTORICAL METALLURGICAL TESTING

The following description of earlier testwork is taken from Rennie et al. (2010).

MAIN HOMESTAKE DEPOSIT

Metallurgical test work has been undertaken by SGS Mineral Services in Lakefield, Ontario (SGS), under the close direction of Melis Engineering Ltd. (Melis). Melis issued five interim status reports throughout the test work program, which began in July 2009 and was mostly completed in April 2010. RPA has reviewed the work via the Melis reports as the test program progressed. In addition, SGS has issued three separate mineralogical reports.

The metallurgical test work has been preliminary in nature, with the initial objective of understanding the most amenable processing route. A number of different samples were created to spatially represent the different zones of the deposit and a number of different processing options have been investigated. These include:

- Gravity concentration with whole ore cyanidation
- Gravity/flotation of cleaner concentrate for sale to a smelter
- Gravity/flotation of cleaner concentrate for sale to a smelter plus cyanidation of various flotation tails streams
- Gravity/flotation of rougher concentrate/cyanidation of rougher concentrate

SAMPLES

Four individual sub-composite samples were constructed representing four spatially distinct zones of the deposit:

- Bodnar Upper Zone A (between 900 m and 950 m) – Composite BUA
- Bodnar Upper Zone B (between 840 m and 900 m) – Composite BUB
- Middle Zone (between 780 m and 840 m) – Composite MZ
- Silver Zone – Composite SZ

The Silver Zone has subsequently been referred to as the Silver Cap Composite to more accurately describe its location in the deposit. The Lower Zone (600 m to 650 m) is deeper mineralization which may be tested later. A fifth composite, the overall Homestake Ridge composite or Composite HR, was made from three of the sub-composites (BUA, MZ and BUB). The head grade assay analysis of the five composites is shown in Table 13-1.

TABLE 13-1 COMPOSITE SAMPLE ANALYSIS
Auryn Resources Inc. – Homestake Ridge Project

Composite	Mass (kg)	Au (g/t)	Ag (g/t)	Cu (%)	S (%)	Hg (g/t)
BUA	74	3.52	17.8	0.070	3.42	1.2
MZ	53	7.05	7.3	0.30	3.30	1.1
BUB	46	6.70	14.4	0.067	3.37	1.3
HR		**6.24**	**12.7**	**0.14**	**3.25**	**1.2**
SZ	26	12.4	1,366	0.068	5.10	18.4

Notes:
1. Au and Ag assays reported are metallics assays. Fire assay values were typically higher, but metallics assays are generally considered more accurate.
2. Composite HR is comprised of 40% BUA, 30% MZ and 30% BUB

The samples were prepared from quartered drill core. BUA was made up from samples from six drill holes, while MZ and BUB were made up from samples from 11 drill holes and five drill holes respectively. The HR composite was then constructed from blending of the BUA, BUB, and MZ composites.

In RPA's opinion, the selection of drill holes and intercepts in obtaining the sub-composite samples has been done in a reasonable manner. Composite HR is reasonably representative of a potentially mineable resource head grade from the deposit.

Composite SZ was made up from samples from five drill holes but does provide a reasonable representation of the overall Silver Cap resource as the grade is significantly higher than that expected to be mined. It still provides an indication of the metallurgical response, but care must be taken in considering the results obtained from this sample.

RESULTS

The test work at SGS was intended to be completed in three phases, however, only Phase 1 has been completed to date. The Phase 1 program included:

- Mineralogy by QEMSCAN Gold and Silver Mineralogical Analysis by SEM/EDS and electron microprobe as well as submicroscopic gold analysis by SIMS
- Gravity testing including gravity recoverable gold (GRG) testing
- Flotation testing, including 11 batch rougher tests, 14 batch cleaner tests, and four locked cycle tests
- Cyanidation testing, including nine tests on gravity tailings and three on flotation tailings.
- Environmental testing

Test work focused on Composite HR. In summary, the initial assessment of four flowsheet options suggests that recovery of a combined gravity/flotation concentrate for sale to a smelter would be the simplest process and may prove the most economical, thus being the best option to pursue for future test work. A reasonable combined concentrate grade from this process is expected to be 200 g/t Au and 5% Cu. Silver concentration will depend on how much SZ material is blended in.

In RPA's opinion, based on the test work completed to date, the recoveries using this process route would be:

- 85% – 90% for gold
- 75% – 80% for silver
- 85% – 90% for copper

MINERALOGY

The HR sample consisted mainly of potassium feldspar ($KAlSi_3O_8$) (35%) and quartz (28%), with moderate amounts of calcite and dolomite (7.8%) and pyrite (FeS_2) (7.1%). Clays, chlorite, other silicates and iron-titanium oxides, as well as chalcopyrite ($CuFeS_2$) make up minor components. Trace amounts of sphalerite ((Zn,Fe)S), galena (PbS), arsenopyrite (FeAsS), and pyrrhotite ($Fe_{1-x}S$) are also present.

Pyrite accounts for 92% of the sulphide present in the sample and is 79% free or liberated. Chalcopyrite accounts for 91% of the copper and tetrahedrite [$(Cu,Fe)_{12}Sb_4S_{13}$] for 4.2% of the copper. Chalcopyrite is 88% free or liberated. The analysis indicated that liberation will require relatively fine grinding with the D_{50} size, being 50 µ for pyrite and 45 µ for chalcopyrite.

Gold and silver deportment show that gold is present as free particles, attached to or locked in particles in pyrite and silicate minerals. Numerous gold grains were observed, some as large as 100 μ. Submicroscopic gold accounts for just 3% of the gold.

Silver is present as native silver, electrum, kustelite, hessite, silver tetrahedrite, acanthite, pyrargyrite and as an alloy with antimony. Silver has a greater association with gangue minerals and tends to be locked up to a greater degree than gold.

GRAVITY CONCENTRATION

Three 5 kg samples of Composite HR ground to 165 μ P_{80} were tested for gravity concentration using a Knelson concentrator followed by a Mozley table. The concentrate was assayed and the tails collected and saved for further test work. For two of the tests, the gravity tailings were used for flotation test work while in the other test the gravity tailings were used for cyanidation testing. The gold recovery ranged from 23% to 37%, while the silver recovery was 7% to 11% in 0.17% to 0.28% of the mass. The concentrate assayed on average 780 g/t Au.

A single GRG test on Composite HR provided values of 51.2% for gold and 28.3% for silver. It is expected that approximately 35% of the gold and 20% of the silver could be recovered in a gravity circuit. Composite SZ behaved similarly to Composite HR.

FLOTATION

A total of 21 batch tests were completed on Composite HR (eight rougher tests, one scavenger test, two one-stage cleaner kinetics tests, and ten cleaner tests to produce a final grade concentrate). All of these tests were conducted on gravity tailings.

The best rougher kinetics results were achieved using potassium amyl xanthate (PAX), TNC-312 (a sodium diethyl dithiophosphate) and methyl isobutyl carbinol (MIBC). A primary grind size of 120 μ to 135 μ P_{80} provided the best results. Finer grinding did not improve the results.

Cleaner tests with no pH adjustments (lime) produced the best results obtaining a 3rd cleaner concentrate of 131 g/t Au, 261 g/t Ag, and 5.1% Cu with recoveries of 68% Au, 57% Ag, and 84% Cu. A concentrate regrind of 22 μ P_{80} provided the best results.

Two locked cycle tests (LCT) were completed on Composite HR with similar conditions to those used in the optimum batch cleaner test with a fourth stage of cleaning used. LCT-1 utilized a coarser primary grind and regrind of 230 μ P_{80} and 60 μ P_{80}, respectively, compared to LCT-2 where the primary grind was 128 μ P_{80} and the regrind was 35 μ P_{80}. The results from the locked cycle tests on Composite HR are shown in Table 13-2.

The results are fairly comparable, indicating there is little impact on metallurgical performance from varying grinding size, however, the stability of these tests was poor and they did not achieve the same concentrate grade as seen in the optimized batch test. Further work will be required to more accurately assess metallurgical performance and improve concentrate grade.

TABLE 13-2 COMPOSITE HR LOCKED CYCLE TEST RESULTS
Auryn Resources Inc. – Homestake Ridge Project

		Grade			Recovery (%)		
Test #	**Mass (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (%)**	**Au**	**Ag**	**Cu**
LCT-1							
Concentrate	5.0	67.3	173	2.4	85.2	82.4	96.0
Tailings	95.0	0.62	2.0	0.005	14.8	17.6	4.0
Calc Head	100.0	4.18	11.1	0.13			
LCT-2							
Concentrate	4.9	67.6	178	2.8	85.7	85.1	95.2
Tailings	95.1	0.58	1.6	0.007	14.3	14.9	4.8
Calc Head	100.0	3.83	10.2	0.14			

The concentrate from LCT-1 was analyzed for impurity elements. The concentrate is essentially a fairly clean pyrite concentrate, assaying 42% Fe, with a moderate amount of chalcopyrite. Impurities of note include 1.1% Zn, 0.58% Pb, and 12.6 g/t Hg.

A small amount of flotation testing was carried out on Composite SZ. Four batch tests and two locked cycle tests were completed. A test on Composite SZ gravity tails, under flotation conditions established for Composite HR, yielded a 4th cleaner concentrate assaying 66 g/t Au and 15,856 g/t Ag and 0.87% Cu at recoveries of 70% Au, 74% Ag, and 63% Cu. A differential Cu/Pb/Zn float yielded poor results due mainly to the low base metal grade of the sample. The locked cycle results are shown in Table 13-3.

TABLE 13-3 COMPOSITE SZ LOCKED CYCLE TEST RESULTS
Auryn Resources Inc. – Homestake Ridge Project

		Grade			Recovery (%)		
Concentrate	**Mass (%)**	**Au (g/t)**	**Ag (g/t)**	**Cu (%)**	**Au**	**Ag**	**Cu**
LCT-3	10.2	50.3	11,902	0.62	90.4	91.6	91.5
LCT-4	9.3	54.1	12,599	0.66	86.3	88.1	88.1

Impurities of note include 9.2% Zn, 3.88% Pb, and 124 g/t Hg, indicating this concentrate would be better suited to a lead/zinc smelter.

CYANIDATION

Eight cyanidation tests were performed on Composite HR, as well as one carbon-in-leach (CIL) test and one carbon-in-pulp (CIP) test. The main focus was on leaching gravity tailings, with a total of seven tests completed. In addition, two tests were completed on batch flotation cleaner scavenger tails and one on batch flotation rougher scavenger tails. Two cyanidation tests were completed on Composite SZ gravity tailings.

An average of 87% cyanide gold extraction can be achieved from Composite HR gravity tails with a 48 hours leach time and 1.0 g NaCN/L free cyanide at pH greater than10.5 with a net consumption of 0.65 kg/t NaCN, and a lime consumption of approximately 0.5 kg/t CaO. The corresponding silver extraction from gravity tails averaged 49%.

The cyanidation tests on cleaner scavenger tailings indicated that an additional 2% of the gold could be extracted, while an additional 8% could be extracted from rougher scavenger tailings. The additional recovery is likely too low to be economic.

For Composite SZ, gold and silver extractions reached 84% and 80%, but only with extended leach times of approximately 200 hours. The abnormally long leach time, high copper levels in the leach solution (257 mg Cu/L), and relatively low extraction renders cyanidation an unsuitable option for the SZ mineralization.

TAILINGS ENVIRONMENTAL TESTING

A tailings sample from Composite HR LCT-2 was submitted for testing, including:

- Modified Acid-Base Accounting (ABA) tests

- Net Acid Generation (NAG) tests
- Solids analyses
- Liquid analyses and decant aging test
- Short term leach test
- Toxicity tests
- Humidity cell tests

The ABA test on a Composite HR tailings sample resulted in a relatively high neutralization potential (NP) with a Net NP of 79.7 t $CaCO_3$/1,000 t. The NAG was 0.0 kg/t H_2SO_4, suggesting the flotation tailings have very low potential for acid generation. Leach tests and toxicity tests indicated there were no real problems. Humidity cell testing of Composite HR tailings products is continuing.

A tailings sample from Composite SZ LCT-4 was submitted for ABA and NAG testing. The Net NP of -29.3 t $CaCO_3$/1,000 t is low and strongly suggests the SZ tailings are acid generating. The NAG at pH 7.0 was 23.0 kg/t H_2SO_4.

HOMESTAKE SILVER DEPOSIT

In May 2011 Kevin Scott, Principal Metallurgist of RPA - Vancouver office was asked to design and oversee a preliminary evaluation of processing options for mineralization from the Homestake Silver deposit. A total of 58 samples from eight holes from the 2010 drill core were taken for a total weight of approximately 87 kg on the basis of quartering 64 m of NQ2 core and an average density of 2.73. On a weighted basis providing an average grade of 3.7 g/t Au and 121 g/t Ag (Pers. Comm., Kevin Scott, May, 2011). The average grade of the sample approximated the average grade of the 2010 Mineral Resource Estimate for the Homestake Silver (HS) zone, at a 3.0 g/t AuEq cut-off, and is believed to be representative of average.

The samples were collected and delivered to SGS Canada Ltd. in Vancouver, BC. The test work performed included mineralogical characterization as well as gravity, flotation, and cyanide testing. The following is taken verbatim from the final report from SGS Canada dated March 8, 2013, under the project number 50150-001.

One master composite was submitted for characterization and testwork from the HS zone. Head sample chemical characterization was completed on the composite and the main assay results are presented in Table 13-4:

TABLE 13-4 COMPOSITE HS ASSAY HEAD GRADE
Auryn Resources Inc. – Homestake Ridge Project

	Au (g/t)	Ag (g/t)	Cu (%)	Pb (%)	Zn (%)	S (%)
Head Grade	3.43	119	0.03	0.17	0.20	3.92

Bond Ball Mill Work Index of the master composite was 17.5 kWh/t, putting it in the 77th hardness percentile amongst the samples in our database. The sample was characterized as hard.

Gravity concentration (Knelson concentrator followed by Mozley table) at a grind size of 75 µm recovered 54% of the gold and 21% of the silver from the whole ore.

Three rougher flotation tests were conducted to evaluate the performance of various collector combinations. A previous study on another deposit within the same property identified TNC 312 and PAX as the most favourable collector combination. The three rougher flotation tests confirmed that in terms of gold grade and recovery this collector combination did in fact outperform the other collector combination of TNC 312 and SIPX. TNC 312 and SIPX however did slightly better in recovering silver. TNC 312 and PAX was chosen as the collector combination going forward. The dosage used was 40 g/t each.

A series of four batch cleaner tests was completed on the gravity tailings. A three stage cleaning circuit with a cleaner scavenger stage was chosen because of its simplicity and conventionality. Regrinding the rougher concentrate for 10 minutes in a laboratory pebble mill improved the recovery for all the elements of interest (gold, silver, lead, zinc). The combination of gravity and flotation demonstrated the ability to recover 92% of the gold and 88% of the silver in the sample tested.

One locked cycle test at 75 µm was performed on the gravity tailings of this composite. The locked cycle test metallurgical projection is shown below, which includes the gravity concentration step prior to flotation. Gold and silver recoveries from the gravity and locked

cycle test are 93% and 88%, respectively. Overall, the locked cycle test gave comparable results to the batch cleaner test. (Table 13-5)

TABLE 13-5 75 µM LCT METALLURGICAL PROJECTION
Auryn Resources Inc. – Homestake Ridge Project

Product	Weight	Assays %, g/t					% Distribution				
	%	Pb	Zn	Au	Ag	S	Pb	Zn	Au	Ag	S
Gravity Conc	3.7	1.38	1.12	72.4	892.0	45.3	29.5	20.3	63.3	26.7	44.3
Cln 3 Conc	3.6	2.78	3.86	34.6	2126.9	44.9	57.6	68.0	29.3	61.7	42.6
Cln1 Scav Tail	16.3	0.05	0.07	0.70	28.8	1.85	4.7	5.6	2.7	3.8	8.1
Ro Tail	76.4	0.02	0.02	0.26	12.4	0.25	8.2	6.0	4.7	7.8	5.0
Head (calc.)	100	0.17	0.20	4.19	122.6	3.75	100	100.0	100	100	100
(direct)		0.17	0.20	3.43	119.0	3.92					
Gravity + Flotation	7.2	2.07	2.48	53.9	1504.8	45.2	87.1	88.3	92.6	88.4	86.9

A total of seven cyanidation bottle roll tests were performed on the gravity tailings. The effects of primary grind size and NaCN concentration as well as the use or pre-aeration and lead nitrate were explored. Primary grind (of gravity tailing) affects gold and silver recoveries the most, with the finest grind size of 35 µm giving the best recoveries. Cyanide (NaCN) dosage of 1 g/L to 1.5 g/L was found to be adequate. Likewise, the use of pre-aeration or lead nitrate does not improve recoveries. Gold recovery reached a plateau after 24 hours but silver recoveries increased over the next 24 hours and plateaued. Gold recoveries after 48 hours of leaching ranged from 84% to 88% and silver recoveries ranged from 70% to 88% (Table 13-6).

TABLE 13-6 RECOVERY OF GOLD AND SILVER, GRAVITY + LEACH VS. GRAVITY + FLOTATION
Auryn Resources Inc. – Homestake Ridge Project

	Recoveries							
	Gravity (%)		Leach (%)		Flotation (%)		Overall Flowsheet (%)	
	Au	Ag	Au	Ag	Au	Ag	Au	Ag
Gravity + Leach								
BG8-L1	60.6	24.9	84.9	79.2			94.1	84.4
BG8-L2	60.6	24.9	88.8	88.3			95.6	91.2
BG8-L3	60.6	24.9	85.8	78.9			94.4	84.2
BG8-L4	60.2	27.3	84.2	72.1			93.7	79.7
BG8-L5	60.2	27.3	85.3	70.2			94.1	78.3
BG8-L6	60.2	27.3	84.8	73.4			93.9	80.7
BG8-L7	60.2	27.3	88.7	72.9			95.5	80.3
Gravity + Flotation								
LCT1	63.3	26.7			79.9	84.2	92.6	88.4
F8	60.2	27.3			78.2	83.5	91.3	88.0

Comparing gravity separation followed by leaching vs. flotation, and also taking into consideration the grind size of the leach/flotation feed, it is clear that gravity followed by flotation (LCT1) gave the best overall recovery for both gold (93%) and silver (88%). BG8-L1 would be the best gravity followed by leaching option, as it gave high overall recoveries (94% and 84% for gold and silver) at 75 µm.

Finally, leaching tests were performed on gravity concentrate as well as rougher flotation concentrate. 93% of the gold and 48% of the silver in the gravity concentrate can be recovered through leaching. In the case of the rougher flotation concentrate, 84% of the gold and 68% of the silver can be recovered through leaching.

RECENT METALLURGICAL TESTING

As part of its due diligence process prior to acquiring the Project, Auryn commissioned Base Metallurgical Laboratories (BML) to investigate a hybrid flotation – leach process that would capitalize on the low operating cost and high metal recovery of flotation combined with the selective bullion production of cyanide leaching. The following is summarized from Shouldice and Coombs (2016).

Two composite samples were prepared from quartered drill core, one each for the Homestake Main (Main) and Homestake Silver (Silver) zones. Duplicate head cuts were taken from each composite and assayed for Au, Ag, Cu, Pb, Zn and Fe. The Main composite had a measured head feed of 4.62 g/t Au and 6 g/t Ag and represented the copper dominant part of the Main deposit. The Silver composite had a measured head feed of 7.76 g/t Au and 198 g/t Ag and was much higher in Ag, Pb and Zn than the Main deposit.

METALLURGICAL TESTING

For the Main zone, the process consisted of the sequential production of a gravity concentrate, copper concentrate, and gold bearing pyrite concentrate by flotation. The copper cleaner tailings and pyrite concentrate were cyanide leached together to extract gold and silver. For the Silver zone, the process was similar, however, the copper flotation stage was replaced by sequential flotation of lead and zinc concentrates. Tests were also conducted without gravity concentration to measure the effect on metallurgical performance.

The primary grinding was conducted in a mild steel rod mill using mild steel grinding charge. A 2 kg test charge was used for each test. Similarly, all regrinding was conducted in a smaller mill with stainless steel grinding charge.

Gravity concentration was conducted using a Knelson gravity concentrator with a 100 g bowl. The gravity concentrate was then panned to reduce the mass recovery and increase the grade of the gravity concentrate. The pan and Knelson tails were collected together and excess water was decanted for the following flotation stages.

Flotation was conducted with a Denver D12 flotation machine. Rougher flotation was conducted in a 4.4 L cell and cleaner flotation was conducted in 2.5 L and 1.5 L flotation cells. Very selective reagent schemes were used in the base metal flotation stage to increase the probability of producing marketable concentrates. For copper flotation, NaCN was added to depress pyrite and a selective collector was used (Cytec 3418A). The flotation pulp was modulated to pH 9 to 9.5 with lime. For selective flotation of lead and zinc, zinc sulphate and cyanide were used to depress sphalerite and pyrite. Once complete, the pH was increased to 10 with lime and copper sulphate was added to recover sphalerite. The use of Cytec 3418A was continued in the lead and zinc circuit to aid in pyrite depression. Pyrite flotation was conducted with PAX.

All leaching was conducted as 24-hour bottle roll tests at relatively high cyanide dosage.

GRAVITY CONCENTRATION

Gravity concentration was performed after primary grinding. The entire primary mill discharge was passed through a Knelson Concentrator then the Knelson concentrate was panned to reduce the mass recovery to more typical recovery values achieved in operating plants.

The Main composite recovered approximately 21% of the gold in the feed into a concentrate grading 83 g/t Au. Further upgrading would be required to make the concentrate marketable, which often results in a further drop in recovery.

The Silver composite showed more promise, gold in the feed was 28% recovered into a gravity concentrate grading approximately 249 g/Au, on average. At these grades and recoveries, the gravity concentrate would have potential for sale.

MAIN COMPOSITE ROUGHER FLOTATION TESTING

A total of three rougher flotation tests were completed, on the Main composite.

The selective flotation conditions applied to recover copper to a concentrate were mostly successful. Copper recoveries of between 85% and 90% can be achieved at rougher mass recoveries of 6% to 10%. The moderate level of mass recovery would indicate that process was somewhat selective against other sulphides and the rougher concentrate should be amenable to upgrading to high grade copper concentrates.

This copper recovery was insensitive to primary grind size. To assess gold metallurgical performance, the cumulative gold recovery of the gravity, copper rougher, and pyrite concentrates were compared to the total cumulative mass recoveries of these concentrates. For either grind size, gold recovery was about 95% to concentrates at 30% mass recovery. Gold recovery to concentrates did show some sensitivity at lower mass recoveries. Better gold recoveries were achieved at the finer primary grind size, with lower mass recovery. This is likely a result of improved mineral liberation at the finer grind size.

Similarly, the silver metallurgical performance data indicates that at 30% mass recovery, silver was about 90% recovered into concentrates. Marginally better silver recoveries were observed with the finer primary grind size at lower mass recoveries.

Finally, the inclusion of a gravity circuit was investigated with respect to overall gold recovery. The data was insensitive to gravity, indicating that high gold recoveries could be achieved with flotation alone.

SILVER COMPOSITE ROUGHER FLOTATION TESTING

Three rougher tests were performed on the Silver composite. Selective flotation conditions were utilized to float sequential lead, zinc then gold bearing pyrite concentrates.

Lead recovery to the lead rougher concentrate reached a maximum of 80%. The rougher mass recovery to achieve this lead performance ranged from 2% to 5%. There was considerable scatter in the data making it difficult to determine if primary grind size had an influence on lead metallurgical performance.

There was a limited amount of testing to investigate zinc metallurgical performance. Zinc was about 25% recovered to the lead rougher concentrate and 60% recovered to the zinc rougher concentrate. While it may still be possible to produce high grade concentrates, further process development studies would be required. The zinc concentrates were low grade and there was a high deportment of gold and silver to the rougher concentrates. Payment terms for gold and silver are not as favorable for zinc concentrates, therefore zinc flotation was not developed further in this program.

The finer primary grind size had better initial gold recovery at low concentrate mass recovery. As the concentrate mass recovery was increased to more that 20%, however, there was little effect on gold recovery. Total gold recovery to all concentrates was 95% at 20% mass recovery.

The effect of primary grind on silver was inconclusive. Overall total silver recovery to all concentrates ranged between 90% and 95% at 20% mass recovery.

The data indicates that omitting the gravity process will not reduce gold recovery to concentrates.

MAIN COMPOSITE CLEANER FLOTATION TESTING

Selective flotation conditions were employed to suppress pyrite during copper flotation by using a low dosage of cyanide (5 g/t) and a collector selective against pyrite.

The test results showed that copper in the feed was 70% recovered into concentrates grading up to 28% copper. These results were achieved in batch cleaner tests and improvements in copper recovery would be expected during closed circuit operation.

During the testing, the regrind discharge size was relatively constant, ranging between 21 µm and 25 µm K_{80}. This size is relatively fine; more testing would be required to fully optimize this parameter.

Tests indicated that gold grade and recovery were reduced when gravity was utilized, indicating that some of the gold was already captured in the gravity concentrate.

Without gravity in the circuit, gold recoveries of between 50% to 55% would be expected at final copper concentrate grades that are marketable. The gold content at this recovery would be between 300 g/t and 380 g/t.

Similarly, including gravity concentration slightly reduced the recovery and grade of silver reporting to the copper concentrate. Overall, silver recovery to the final concentrate averaged 40% to 45% at grades of between 550 g/t and 650 g/t.

The batch cleaner tests clearly demonstrate that high grade copper concentrates can be produced with selective flotation conditions. Furthermore, the copper concentrate would be high value due to the gold and silver content.

Parameter optimization was limited and there is potential to improve the metallurgical results or reduce the cost of the process with additional optimization testing.

SILVER COMPOSITE CLEANER FLOTATION TESTING

The batch cleaner testing for the Silver zone utilized selective conditions to recover a lead concentrate. In lead flotation, cyanide and zinc sulphate were used to depress pyrite and sphalerite. In some of the tests, production of a zinc concentrate was attempted after lead flotation. A gold bearing pyrite concentrate was recovered after the flotation of the base metal concentrates.

The inclusion of gravity concentration into the process resulted in poorer lead, gold and silver grade and recovery performance. Deportment of these metals to the gravity concentrate was the cause of the poor flotation performance.

Without gravity concentration included in the process, lead was about 65% recovered into a concentrate grading 30% lead. The concentrate grade and recovery profiles were relatively flat indicating potential to further improve lead concentrate grade.

Only two tests attempted to produce zinc concentrate. Low grade concentrates were produced at about 45% zinc recovery. These initial tests indicate that zinc concentrate production would be unlikely using basic conditions. It may, however, still be feasible to produce zinc concentrate with further testing and development.

Tests without gravity concentration demonstrated that gold in the feed could be 66% to 68% recovered to the final lead concentrate at gold grades of 800 g/t to 1,000 g/t.

Silver recovery to the lead concentrate demonstrated much more variability than the other elements. Without gravity concentration, final silver content in the concentrates ranged from 7,000 g/t to 12,000 g/t. Recovery of silver to the concentrate varied from 23% to 50% to the final lead concentrate. The recalculated silver head matches were highly variable and typically lower than the measured head for this element. Due to the high measurement values, it is possible concentrate grades were under-reported, unfortunately there was insufficient concentrate mass to verify the silver assays.

CYANIDE LEACHING OF FLOTATION PRODUCTS

To maximize the gold and silver extraction from the project, the pyrite concentrate and cleaner tailings streams were leached with cyanide.

The feed for each leach test was reground prior to leaching. Previous testing indicated that relatively fine grind sizes improved total extractions. Aggressive leach conditions were applied, primarily to accelerate the leaching of silver, which often has much slower leach kinetics than gold. Due to time constraints for project completion, 24-hour leach tests were performed. In retrospect, the kinetic rate curves for most of the tests indicated that leach was incomplete, particularly for silver.

For the Main composite, leaching of the pyrite concentrate and copper cleaner tailings without gravity indicated that extraction was 73% and 57% for gold and silver, respectively.

The silver composite demonstrated better leach performance. Indicated gold and silver leach performances on concentrates without gravity were on average 80% and 65% for gold and silver, respectively.

Cyanide consumption was typical of concentrate leaching, averaging about 4.4 kg/t of leach feed. Lime consumption averaged about 0.4 kg/t of leach feed.

The results achieved were relatively good, but there is considerable scope for improving the performance. Finer regrind sizes should be investigated along with leach additives like lead nitrate to improve leach kinetics.

CONCENTRATE QUALITY ESTIMATES

Additional assays on the final concentrates from each composite were performed to determine levels of critical minor deleterious elements. The analyses conducted were limited due to the amount of concentrate available for testing. Most tests produced only 10 g to 15 g of base metal concentrate, which was mostly consumed for gold, silver, copper, lead, zinc, and iron.

Arsenic, antimony and mercury are indicating high values that will likely attract smelter penalties. Normally, some smelters may reject concentrates on the basis of the high arsenic, antimony and mercury, however, due to the exceptionally high precious metal values of these concentrates, the concentrates should be readily marketable.

It is strongly recommended that these initial minor element assays are confirmed with additional assaying with element specific techniques. Due to the unusually high grade of the concentrates, advice on the concentrate marketing should also be sought from a concentrate marketing specialist.

CONCLUSIONS MADE FROM TEST WORK

The main results are summarized in Table 13-7.

MAIN COMPOSITE

Selective flotation testing successfully produced a high-grade copper concentrate from the Main zone composite. A conventional flotation process was used at 150 µm to 200 µm K_{80} primary grind size. Batch testing data indicated that copper in the feed was 75% recovered into a concentrate grading about 25% copper. In addition, gold and silver were 55% and 45% recovered to the copper concentrate. The gold and silver grades of the copper concentrate were, on average, 350 g/t and 500 g/t.

After copper flotation, a gold bearing sulphide concentrate, consisting mostly of pyrite, was recovered. The cumulative gold recovery into gravity, copper and pyrite concentrates averaged 95% at 30% mass recovery. Similarly, silver recovery was about 90% at the same level of rougher mass recovery. Again, these recoveries were achieved at relatively coarse primary grind sizes of 150 µm to 200 µm K_{80}.

Gravity concentration recovered about 20% of the gold from the feed. However, the grade of the concentrate was low and the addition of a gravity circuit did not influence the final gold recovery to concentrate. This step could be removed to simplify the process.

Leaching of the pyrite concentrate and cleaner tailings from the copper circuit (representing about 40% of the gold in feed) indicated fair leaching performance. About 73% of the gold in this stream was extracted. Therefore, the combined gold recovery from copper concentrate and leaching was estimated to be about 84%.

The copper concentrate did contain relatively high levels of arsenic, antimony and mercury. However, due to the high levels of gold and silver, the minor elements are not likely to be a

barrier to marketing the concentrate. Due to the high precious metal content, advice on the marketing of the concentrate should be sought by a specialist.

SILVER COMPOSITE

Selective flotation of a lead concentrate was demonstrated on the Silver composite. A conventional lead flotation process was used at 150 µm to 200 µm K_{80}. Lead was about 70% recovered from the feed into a concentrate grading 30% lead. The lead concentrate grade was somewhat low, 45% or better is typical. However, the precious metal content makes the concentrate extremely valuable. Gold was about 65% recovered into the lead concentrate and gold grades ranged between 800 g/t and 1,000 g/t. Similarly, silver was about 50% recovered into the concentrate at levels of 7,000 g/t to 12,000 g/t.

Attempts to produce selective zinc concentrates resulted in poor separation efficiency. It still might be possible to produce marketable zinc concentrates, but considerably more development would be required, or higher zinc feed grade material.

With the addition of pyrite flotation, total gold and silver recoveries to concentrates were 95% and 92% at a total concentrate mass of 20%. At this mass recovery, total gold and silver recovery were unaffected by primary grind size or the addition of a gravity recovery circuit.

The leach feed streams consisted of lead cleaner tails and pyrite concentrate, representing approximately 30% of the gold and 42% of the silver in the feed. The cyanide extraction rates for the leach were 80% and 65% gold and silver, respectively. Therefore, total gold extraction for this composite was estimated to be 90%. Silver extraction would be 77% when measured by batch testing.

Limited analysis of the lead concentrate indicated the same problematic elements; arsenic, antimony and mercury. However, because of the high precious metal content, the comments from the copper concentrate apply to the lead concentrate.

The estimates of performance would be considered conservative because they are based on batch testing data. There is also considerable scope to improve the copper, lead flotation and leaching performance.

TABLE 13-7 SUMMARY OF TEST WORK
Auryn Resources Inc. – Homestake Ridge Project

Process	Concentrate Grade	Recovery %
Gold Recovery - Main Deposit Composite		
Gravity Only - Au Recovery	83 g/t Au	21%
Flotation - Au Recovery	350 g/t Au	55%
Flotation - Ag Recovery	500 g/t Ag	45%
Flotation - Cu Recovery	25% Cu	75%
Combined - Au Recovery (after cyanidation - silver is low)		84%
Gold & Silver Recovery - Silver Zone Composite		
Gravity Only - Au Recovery	249 g/t Au	28%
Flotation - Au Recovery	900 g/t Au	65%
Flotation - Ag Recovery	10,000 g/t Ag	50%
Flotation - Pb Recovery	30% Pb	70%
Combined - Au Recovery (after cyanidation)		90%
Combined - Ag Recovery (after cyanidation)		77%

RECOMMENDATIONS WITH RESPECT TO METALLURGICAL TESTS

As the project progresses, more metallurgical testing is recommended to improve the estimates of metal recovery for the project. Acquisition of key engineering data is also required. The following items should be considered:

- Continue parameter testing to optimize the lead and copper flotation process. Tests should investigate: different regrind sizes, coarser primary grinds, removal of cyanide, and different collectors, to name a few.
- Due to the low feed grade for the base metals, 4 kg test charges should be used.
- Locked cycle tests should be conducted to obtain dynamic metallurgical performance estimates.
- Detailed mineralogy should be included with the metallurgical testing. This work should include sulphide mineralogy but also include gold speciation mineralogy.
- Generate more concentrate for cyanide leach studies and fully optimize the leach process. Parameters to consider are, concentrate regrind size, cyanide dosage, addition of lead nitrate to name a few.
- Sub samples of varying feed grades and geological domains should be tested using the optimized flowsheet to understand variability in the deposit.
- The same subsamples should be subjected to comminution studies to determine energy requirements for grinding the rock. There was a significant grind time difference between the Main and Silver zone.

- The settling properties of the flotation and leach tailings should be measured.
- Whole ore leaching should be revisited as an alternative to the hybrid flowsheet for comparison purposes.
- Basic environmental measurements for the tailing should be measured.

14 MINERAL RESOURCE ESTIMATE

RPA updated the Mineral Resource estimate for the Homestake Ridge Project using the block model dated December 31, 2012 and a cut-off grade of 2 g/t (AuEq) based on adjusted metal price, exchange rate and operating cost assumptions. No new drilling information has been received within the resource area and therefore a new effective date of September 1, 2017 was assigned to the Mineral Resource estimate. Data from the drilling being carried out in the late summer and fall of 2017 is expected to be received in October or November of 2017, and the Mineral Resource model and statement will be updated.

Grades for gold, silver, copper, arsenic and antimony were estimated into the blocks using ID^3 weighting. Three block models, one for each of the three main deposit zones, were created in 2013 using GEMS software. Block size for all models was 5 m x 5 m x 5 m. The wireframe models were constructed in Surpac by Homestake personnel working in consultation with RPA. The assay data comprised drilling and trench sampling results from programs conducted by Homestake.

The main areas of the deposit are the Homestake Main Zone (HM), the Homestake Silver Zone (HS), and the South Reef Zone (SR). The HM is the more copper-rich of the zones, with both gold-rich and silver-rich variants and an apparent trend of increasing copper grade with depth. The HM consists of a broad corridor of sub-parallel anastomosing zones which strike approximately 137° and dip steeply to moderately to the northeast. Most of the zones dip at 75° to 80°, flattening to 45° in the central section between elevations 750 MASL and 900 MASL. Widths range from centimetre-scale to four metres in true thickness. Locally, the zones are observed to jog abruptly in a left-lateral sense which is attributed to cross-faulting. These disruptions can be 30 m or more. The HM has been traced on surface and in drill intercepts for a strike length of 750 m, and a vertical extent of approximately 500 m.

Grades for gold typically range from 0.1 g/t to 2 g/t with some intercepts measuring into the hundreds of grams per tonne. Silver grades are generally in the 1.0 g/t to 100 g/t range, but can be as high as hundreds and even thousands of grams per tonne. Copper grades vary from parts per million to several percent, and mean grades are observed to increase significantly with depth.

The HS, located approximately 0.5 km southeast of HM, contains very little copper, and is, as the name suggests, relatively higher in silver content. The zone comprises a cluster of parallel structurally-controlled zones, striking approximately 135° with near-vertical dips. The individual sub-zones in the HS are narrower than the HM zones on average, but are more consistent in orientation with little or no undulation and only minor cross-faulting. The zone has been traced by drilling for a total vertical extent of approximately 600 m, along a strike length measuring just under 800 m. At the southeast extremity of HS, two near-vertical, east-northeast-trending faults are interpreted to have displaced the zones in a dextral sense by as much as 100 m.

Silver grades at HS average 162 g/t, which is just over double HM at 72.6 g/t Ag and 43 times that of SR (3.8 g/t Ag). Gold grades at HS typically range up to several g/t Au, and averaged 3.6 g/t Au in the samples contained within the interpreted zone boundaries. Copper content is comparatively low, although geochemically significant, and generally measures between 10 ppm and 500 ppm. There are elevated levels of lead and zinc, typically measuring in the 10 ppm to 1,000 ppm range, with some intercepts assaying as high as several percent lead and/or zinc. In RPA's opinion, however, the lead and zinc are not consistently high enough in grade to contribute significantly to the project economics.

The SR zone comprises two narrow sub-parallel tabular bodies which strike at approximately 140° and dip 65° to the northeast. To date, only six holes have intersected significant mineralization, so characterization of the structure and grades is preliminary. The zones measure one metre to three metres in thickness and have been traced for approximately 300 m vertically and along strike. Silver grades at SR are comparatively modest, averaging 3.8 g/t Ag in the vein samples. This is offset by high gold values, which average 14.0 g/t Au.

All three zones have elevated arsenic and antimony contents, typically averaging in the tens to low hundreds of parts per million.

The updated Mineral Resource estimate is summarized in Tables 14-1 and 14-2.

TABLE 14-1 MINERAL RESOURCES BY AREA
Auryn Resources Inc. - Homestake Ridge Project

Classification	Area	Tonnage (Mt)	Gold (g/t)	Gold (oz)	Silver (g/t)	Silver (Moz)	Copper (%)	Copper (Mlb)
Indicated	HM	0.624	6.25	125,000	47.9	1.0	0.18	2.4
Total Indicated		**0.624**	**6.25**	**125,000**	**47.9**	**1.0**	**0.18**	**2.4**
Inferred	HM	2.098	5.53	373,000	28.0	1.9	0.30	14.0
	HS	4.810	2.71	419,000	124.4	19.2	0.02	2.6
	SR	0.337	12.88	140,000	3.6	0.0	0.04	0.3
Total Inferred		**7.245**	**4.00**	**932,000**	**90.9**	**21.2**	**0.11**	**16.9**

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources are estimated at a cut-off grade of 2.0 g/t AuEq.
3. Assumptions to calculate AuEq values are described below in the text of this report.
4. Mineral Resources are estimated using a long-term gold price of US$1,300 per ounce, and a US$/C$ exchange rate of 1.2.
5. A minimum horizontal width of two metres was used.
6. Bulk density ranges from 2.66 t/m^3 to 2.85 t/m^3 depending on the domain.

TABLE 14-2 MINERAL RESOURCES BY CUT-OFF
Auryn Resources Inc. - Homestake Ridge Project

Cut-off (g/t AuEq)	Tonnage (Mt)	Gold (g/t)	Gold (oz)	Silver (g/t)	Silver (Moz)	Copper (%)	Copper (Mlb)
Total Indicated							
5.0	0.274	10.44	92,000	86.7	0.8	0.25	1.5
4.0	0.357	8.95	103,000	70.4	0.8	0.23	1.8
3.0	0.482	7.44	115,000	57.1	0.9	0.21	2.2
2.0	**0.624**	**6.25**	**125,000**	**47.9**	**1.0**	**0.18**	**2.4**
1.0	0.666	5.93	127,000	46.3	1.0	0.17	2.5
Total Inferred							
5.0	2.283	7.91	581,000	164.5	12.1	0.15	7.7
4.0	3.170	6.64	676,000	138.3	14.1	0.13	9.2
3.0	4.522	5.38	783,000	117.1	17.0	0.11	11.3
2.0	**7.245**	**4.00**	**932,000**	**90.9**	**21.2**	**0.11**	**16.9**
1.0	8.169	3.67	964,000	85.7	22.5	0.10	18.2

Notes: The tonnage and grade at this cut-off is highlighted. See Table 14-5 for additional notes.

DATABASE

The sample database is comprised of diamond drilling results from the exploration work conducted by Homestake, along with trench channel samples. This database was provided to RPA in the form of an Access database, which was exported to ASCII and then imported into GEMS and validated. No new drill hole data has become available since the previous resource cut-off date of December 31, 2012. There were records for 252 drill holes in the database. One of these holes was a re-drill, and so the actual number is 251. RPA notes that several holes were drilled on exploration targets remote from the resource area and therefore were not included in the estimate. There were records for 29,277 sampled intervals in the database. Of these, 619 were contained within the interpreted zones (i.e. wireframes) in the HM, 436 in the HS, and 23 in the SR. Included among the sample data were tables for downhole surveys, lithology, and bulk density.

The assay table contained results for gold, silver, and copper along with the entire suite of elements from the ICP analyses. These results were indexed to hole and sample numbers, as well as the downhole from-to intervals.

Sample lengths ranged from 0.15 m to 3.35 m. Orientations of both the holes and the mineralized zones varied significantly, so the apparent widths of zones often differed substantially from the true width. In RPA's opinion, the interpretations prepared by Homestake personnel have adequately taken these orientations into account, and the sampling is representative of the deposit grades.

WIREFRAME MODELS

Wireframe models of the mineralized zones were constructed using a nominal AuEq cut-off grade of 2.0 g/t AuEq over a minimum horizontal width of 2.0 m. AuEq grades were derived using assumed metal prices, mill recoveries, and smelter terms (see section entitled Cut-off Grade below). The wireframe models were allowed to extend along strike and down dip to the next drill hole intercept, regardless of distance (generally 100 m or less owing to the drill spacing). On the external boundaries, the models were constrained to a nominal 50 m distance from the outermost intercept. Wireframes were constructed for 21 individual zones in HM, 20 zones in HS, and two in the SR (see Figures 14-1 to 14-9).

FIGURE 14-1 HM WIREFRAMES (VIEW LOOKING SOUTHWEST)

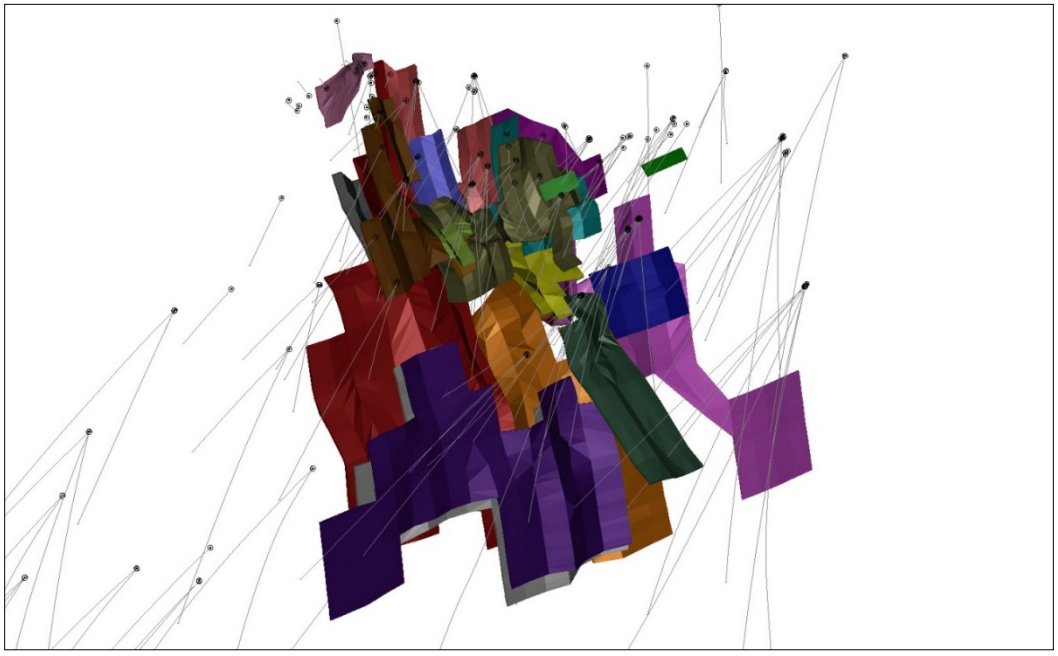


FIGURE 14-2 HS WIREFRAMES (VIEW LOOKING NORTH)

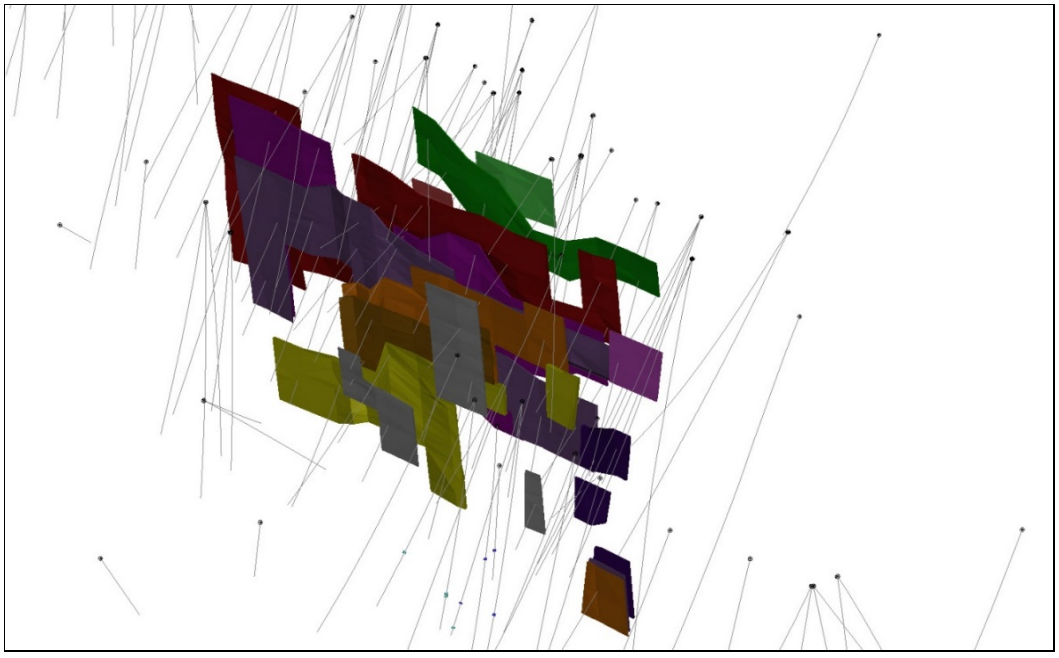
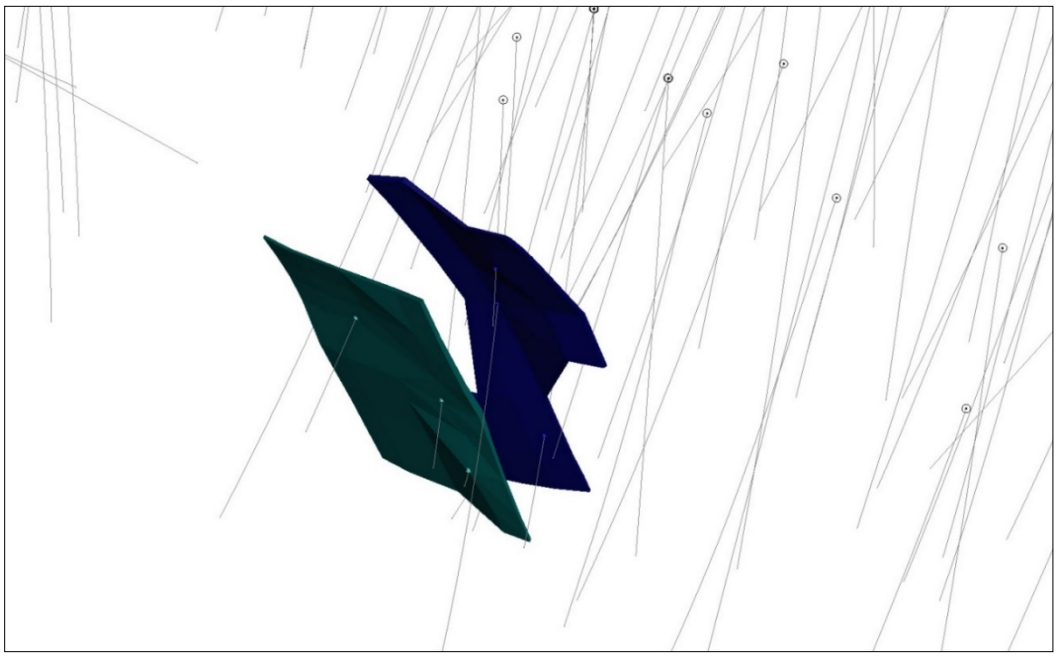


FIGURE 14-3 SR WIREFRAMES (VIEW LOOKING NORTH)



The wireframes were used to apply unique integer codes to the blocks and to the sample intervals, and to record the proportion of each block contained within the wireframes (termed a percent model). The integer codes were used to control which composites could be used in the interpolations for a particular zone. The percent models were used to refine the block tonnage estimates for each zone and minimize dilution. Zone codes and wireframes details are provided in Table 14-3.

The wireframe models also served to provide a means of assigning different average bulk densities to the various zones for tonnage estimation. The densities applied to each zone are also shown in Table 14-3. A discussion of the derivation of the average density values is provided below in the section entitled Bulk Density.

TABLE 14-3 RESOURCE WIREFRAME DETAILS
Auryn Resources Inc. - Homestake Ridge Project

Area	Zone	Code	Folder	Allow Comps From	Density(t/m^3)	Volume (m^3)	Tonnes
HM	MHM_tr	1000	MHM-1	1000	2.77	6,923	19,177
HM	MHM_a	1001	MHM-1	1001; 1003	2.76	111,759	308,008
HM	MHM_b	1002	MHM-1	1002; 1003	2.79	22,783	63,656
HM	MHM_c	1003	MHM-2	1001; 1002; 1003;	2.85	84,939	241,991
HM	MHM_d	1004	MHM-3	1004; 1005	2.78	36,275	100,808
HM	MHM_e	1005	MHM-2	1004; 1005; 1008	2.78	167,058	464,757
HM	MHM_f	1006	MHM-3	1006	2.72	102,331	278,750
HM	MHM_g	1007	MHM-1	1007	2.81	122,158	343,142
HM	MHM_h	1008	MHM-1	1003; 1005; 1008	2.79	192,997	537,883
HM	MHM_i	1009	MHM-3	1009	2.77	9,352	25,905
HM	MHMZ_a	1010	MHMZ-1	1010	2.77	10,984	30,425
HM	MHMZ_b	1011	MHMZ-1	1011	2.70	29,877	80,548
HM	MHMZ_c	1012	MHMZ-1	1012	2.77	8,730	24,181
HM	MHSC_a	1020	MHSC-1	1020	2.69	1,730	4,660
HM	MHSC_b	1021	MHSC-1	1021	2.72	1,562	4,245
HM	MHSC_c	1022	MHSC-1	1022	2.74	49,581	135,605
HM	MHSC_d	1023	MHSC-1	1023; 1024; 1025	2.73	78,864	215,299
HM	MHSC_e	1024	MHSC-2	1024; 1026	2.79	4,735	13,191
HM	MHSC_f	1025	MHSC-2	1025	2.79	3,375	9,422
HM	MHSC_g	1026	MHSC-3	1024; 1026	2.77	34,098	94,450
HM	MHFW	1030	MHM-1	1030	2.77	18,438	51,073
HS	HSM1a	2015	HSM1	2015	2.84	392,735	1,115,366
HS	HSM1b	2025	HSM1	2025	2.84	11,594	32,927
HS	HSM1c	2035	HSM1	2035	2.84	14,917	42,365
HS	HSM2a	2016	HSM2-2	2016; 2036	2.80	349,631	978,967
HS	HSM2b	2026	HSM2-1	2026; 2036	2.77	255,605	708,026
HS	HSM2c	2036	HSM2-1	2016; 2026; 2036	2.66	71,709	190,745
HS	HSM2d	2046	HSM2-1	2046	2.76	52,353	144,495
HS	HSM2e	2056	HSM2-2	2056; 2066	2.73	32,390	88,424
HS	HSM2f	2066	HSM2-2	2056; 2066	2.73	7,930	21,649
HS	HSM2g	2076	HSM2-2	2076	2.73	20,196	55,136
HS	HSM2h	2086	HSM2-1	2086	2.73	13,958	38,105
HS	HSM3a	2017	HSM3-1	2017; 2027; 2037	2.70	318,697	860,482
HS	HSM3b	2027	HSM3-2	2017; 2027	2.70	150,506	406,367
HS	HSM3c	2037	HSM3-1	2017; 2037	2.70	59,504	160,660
HS	HSM3d	2047	HSM3-2	2047	2.70	21,901	59,133
HS	HSM3e	2057	HSM3-2	2057	2.70	13,949	37,661
HS	HSFW1	2001	HSFW1	2001	2.71	62,257	168,716
HS	HSHW1	2014	HSHW	2014	2.85	62,548	178,263
HS	HSHW2	2024	HSHW	2024	2.85	27,104	77,248
HS	HSHW3	2034	HSHW	2034	2.85	63,298	180,399
SR	SRa	3001	SR	3001	2.75	65,911	181,255
SR	SRb	3002	SR	3002	2.75	81,528	224,203

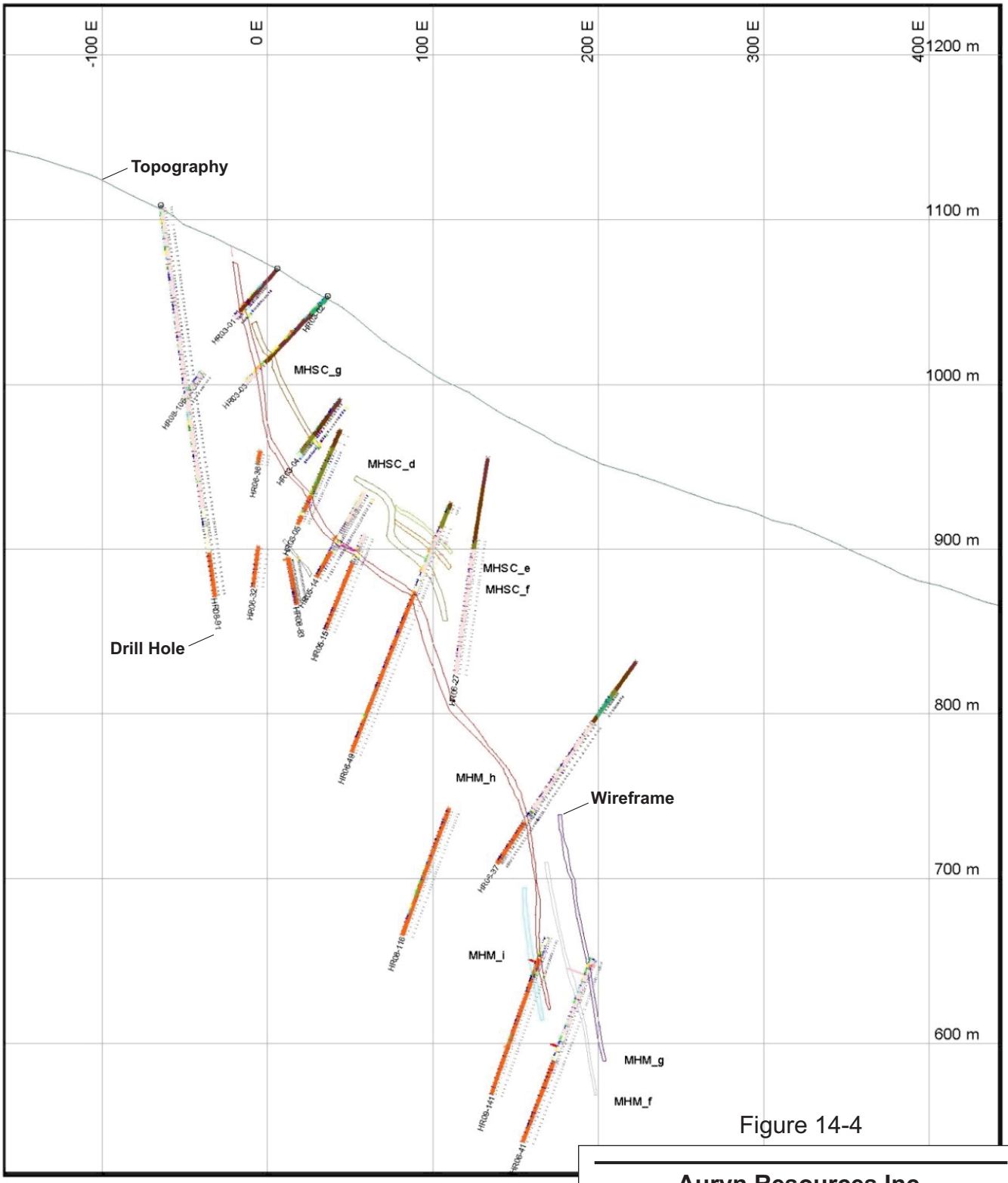


Figure 14-4

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

HM Vertical Section 2550SZ

September 2017

Source: Auryn, 2013.

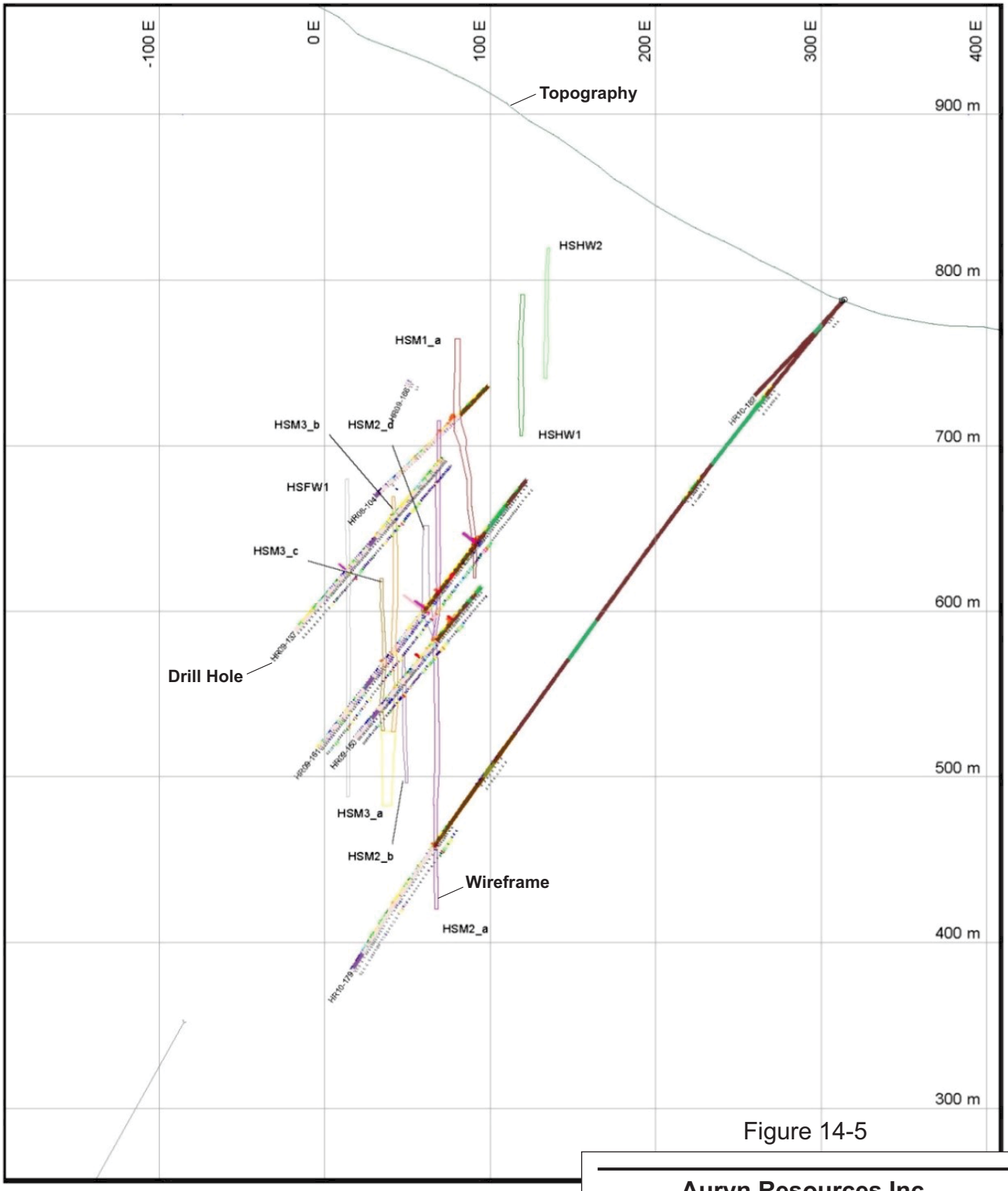


Figure 14-5

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

HS Vertical Section 1600SZ

September 2017

Source: Auryn, 2013.

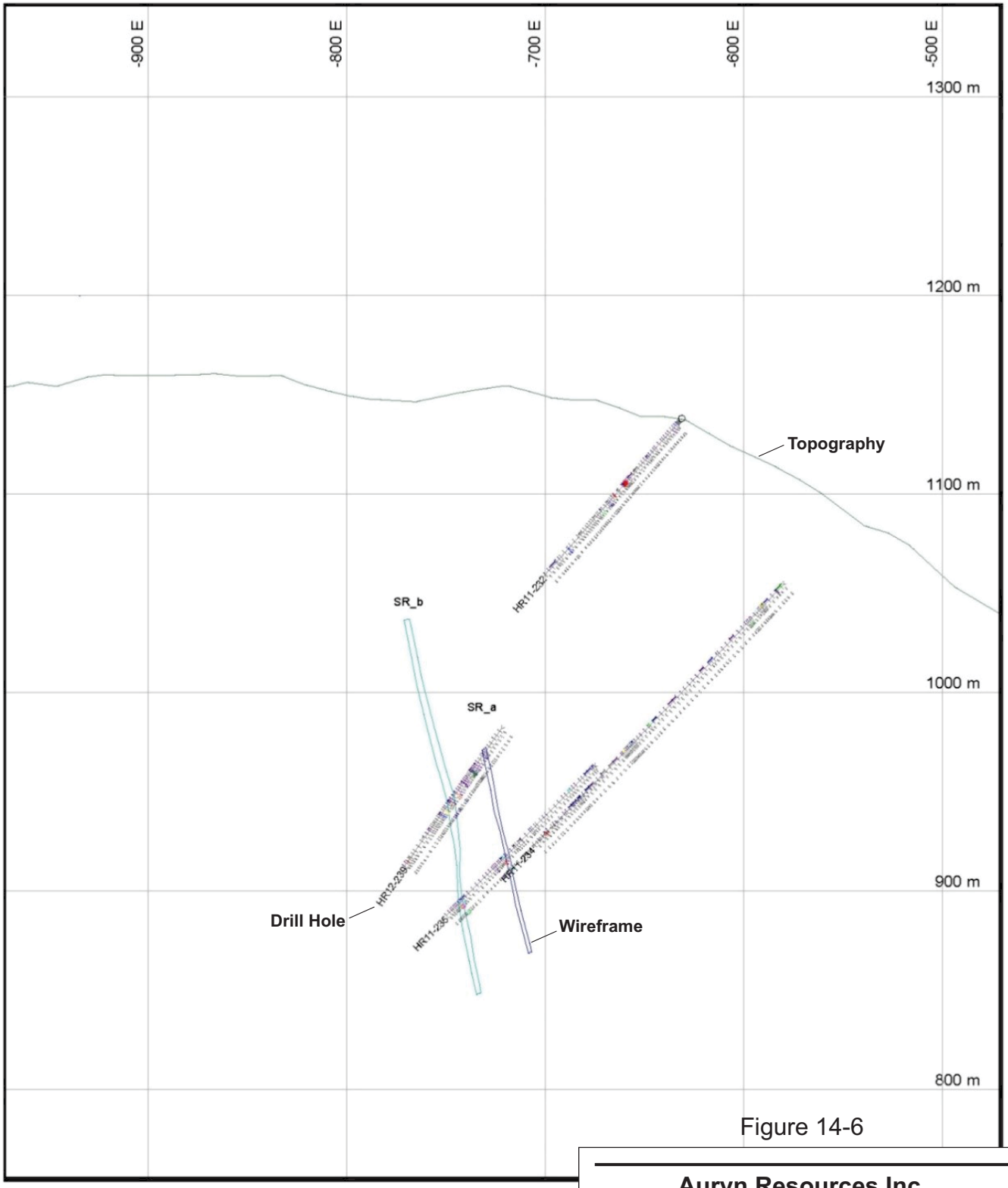


Figure 14-6

Auryn Resources Inc.

Homestake Ridge Project
Skeena Mining Division
British Columbia, Canada

SR Vertical Section 1000SZ

September 2017

Source: Auryn, 2013.

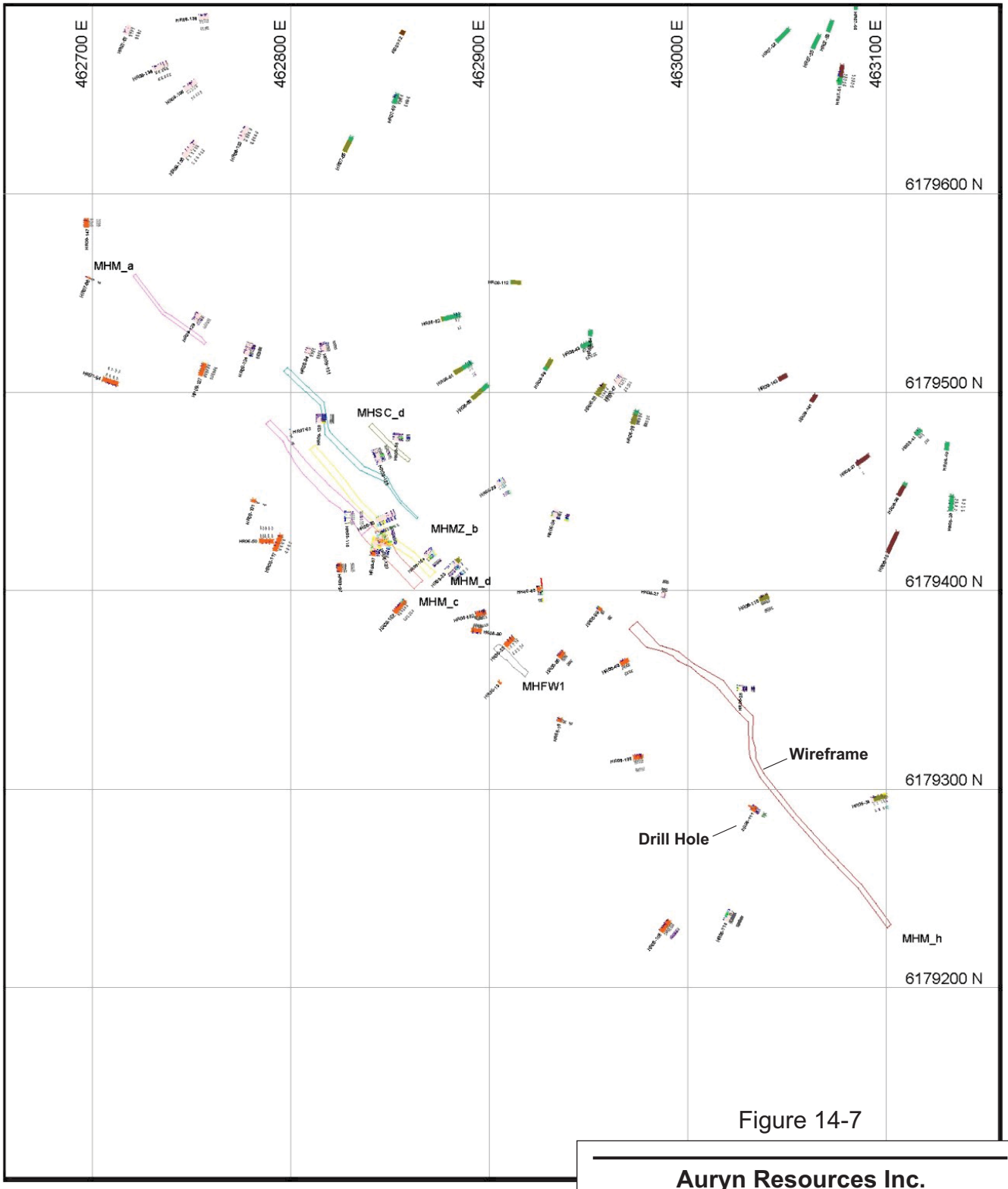


Figure 14-7

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

HM 850 Metre Level Plan

September 2017

Source: Auryn, 2013.

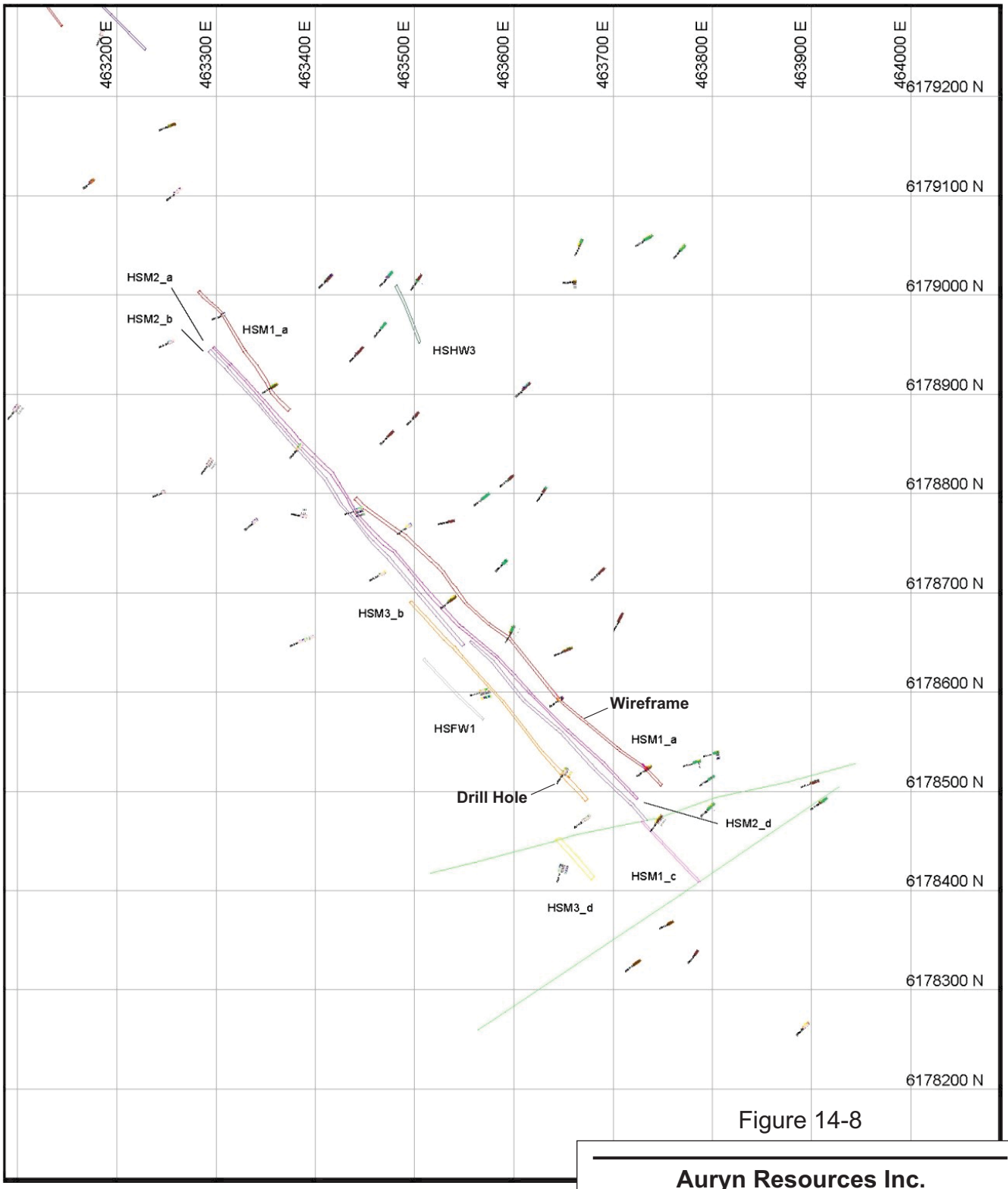


Figure 14-8

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

HS 650 Metre Level Plan

September 2017

Source: Auryn, 2013.

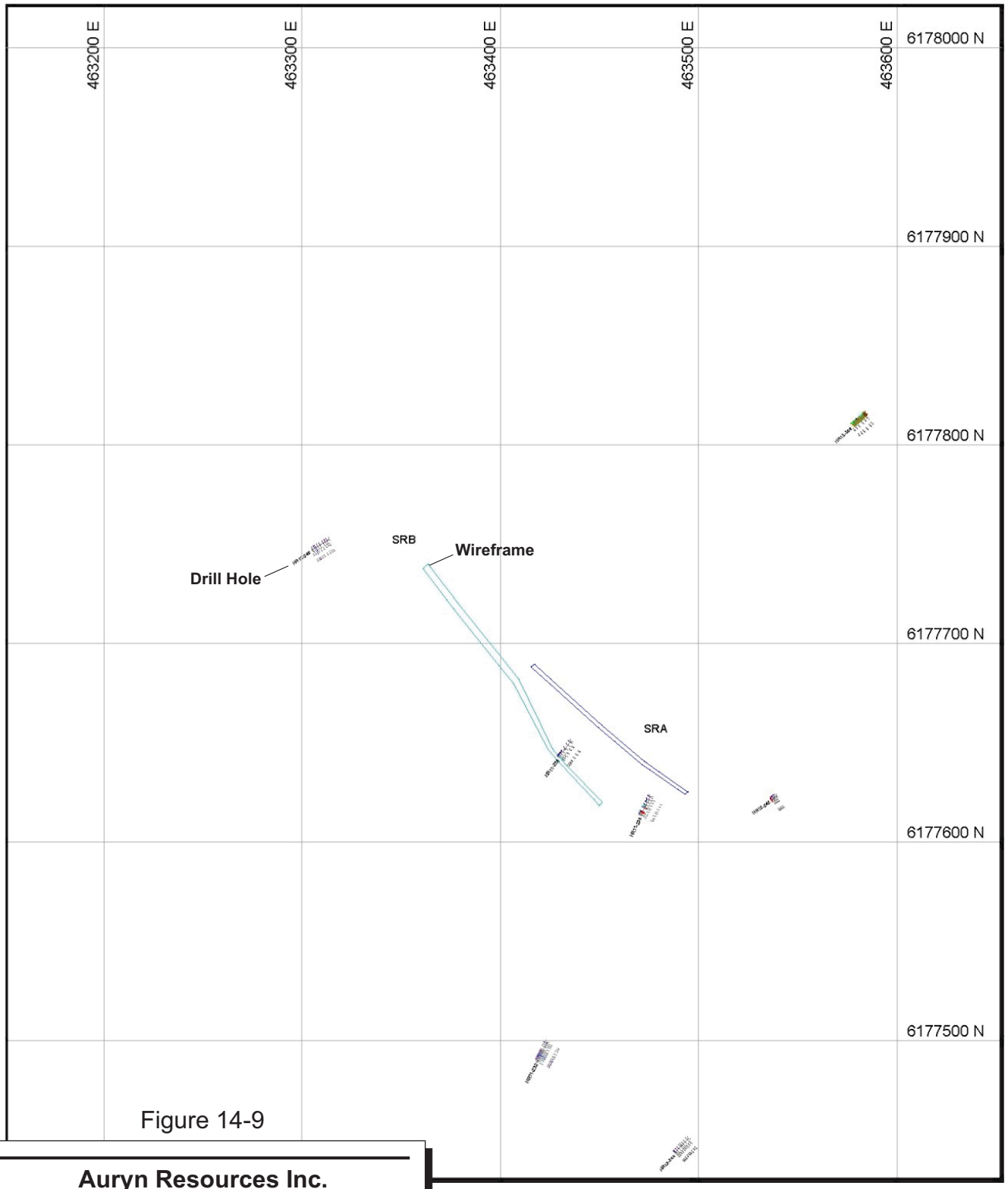


Figure 14-9

Auryn Resources Inc.

Homestake Ridge Project

Skeena Mining Division
British Columbia, Canada

SR 900 Metre Level Plan

September 2017

Source: Auryn, 2013.

SAMPLE STATISTICS

RPA carried out a statistical analysis of the sample assay results for Ag, Au, Cu, Sb, and As, as well as sample length. Statistics were generated for the global datasets in each of the principal zones, as well as the sub-domains. In some instances, it was necessary to group sub-domains in order to have enough samples for a valid analysis. The results of this analysis for the global datasets are shown in Table 14-4.

TABLE 14-4 DESCRIPTIVE STATISTICS OF RESOURCE ASSAYS
Auryn Resources Inc. - Homestake Ridge Project

	Ag (g/t)	Au (g/t)	Cu (%)	Sb (ppm)	As (ppm)	Length (m)
HM Zone						
Number	619	619	619	619	619	619
Mean	72.6	8.31	0.23	88.9	177.3	1.2
Median	6.3	2.46	0.02	16.6	93.0	1.2
SD	385	36.75	0.59	320	285	0.5
CV	5.3	4.42	2.51	3.4	1.6	0.4
Min	0.1	0.00	0.00	0.2	1.0	0.2
Max	6,798	696.4	6.96	4,000	3,600	3.4
HS Zone						
Number	436	436	436	436	436	436
Mean	162.0	3.61	0.03	133.7	158.1	1.2
Median	25.6	1.25	0.01	49.7	93.0	1.2
SD	544	9.95	0.06	251	199	0.4
CV	3.4	2.76	2.15	1.9	1.3	0.3
Min	0.4	0.00	0.00	5.3	3.0	0.3
Max	9,027	129.5	0.46	2,369	1,827	3.0
SR Zone						
Number	23	23	23	23	23	23
Mean	3.8	13.97	0.06	4.8	49.8	1.0
Median	2.4	9.02	0.00	4.8	45.6	1.0
SD	4	17.09	0.19	2	28	0.3
CV	1.1	1.22	3.27	0.4	0.6	0.3
Min	0.1	0.07	0.00	2.3	9.5	0.5
Max	17	58.1	0.89	12	168	1.0

RPA notes that the sample distributions are non-normal and are positively skewed. Sample distributions for some elements in some zones closely approximate a log-normal distribution, which is very common for deposits of this type. It is also noted that some of the zones display multi-modal distributions suggesting that the wireframe domains contain multiple

populations. Generally, it is desirable to segregate all distinct sample populations, although this is not always practical. RPA recommends that additional interpretative work be carried out on the wireframe models to see if other grade sub-domains can be resolved within the existing geological framework.

CUTTING OF HIGH ASSAYS

The sample distributions for all elements are moderately to strongly positively skewed. This can result in overestimation of interpolated block grades unless some measures are taken to moderate the skewness. A common method for dealing with this issue is the application of top cuts to the samples. The determination of appropriate top cuts is very difficult without production results for calibration, but first pass capping levels can be estimated by review and analysis of the assay data.

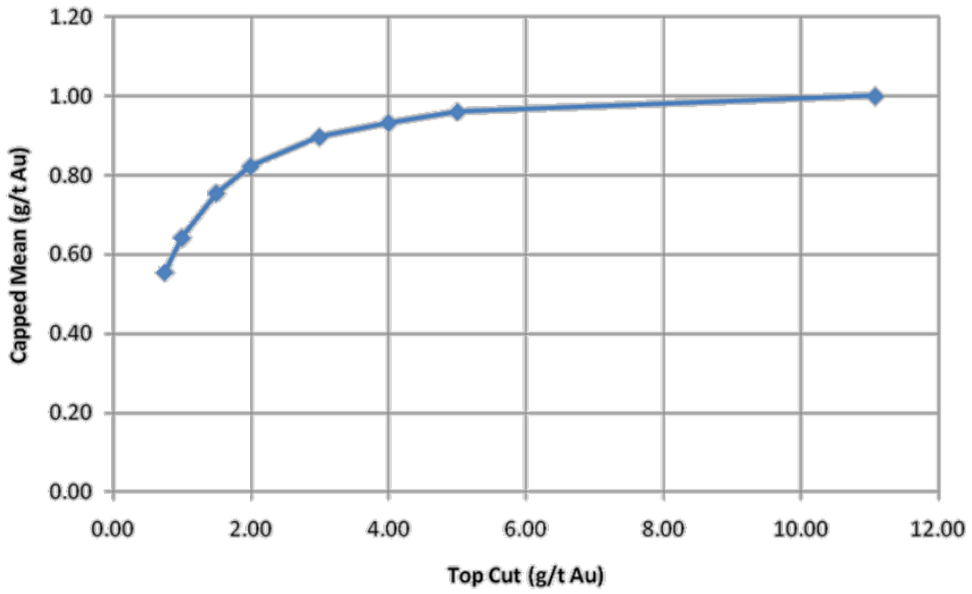
RPA carried out an analysis to determine reasonable top cuts for all of the zones. This analysis included the following:

- Inspection of histograms and probability plots
- Generation of “cutting curves”
- Decile analysis

The histograms and probability plots can sometimes indicate specific higher-grade samples or groups of samples that represent outliers to the general population. Top cuts can then be established to ensure that the effect these samples on the average grade is reduced.

Cutting curves are created by plotting the capped mean grades at a range of top cuts against those cuts. This resulting plot will typically curve downwards with a decrease in the cap value until it becomes asymptotic to the y-axis. In RPA’s opinion, a reasonable top cut value generally falls along the flatter portion of the curve just before it curves downwards towards the y-axis. In the case of the example in Figure 14-10, this would be in the range of 3 g/t Au to 6 g/t Au.

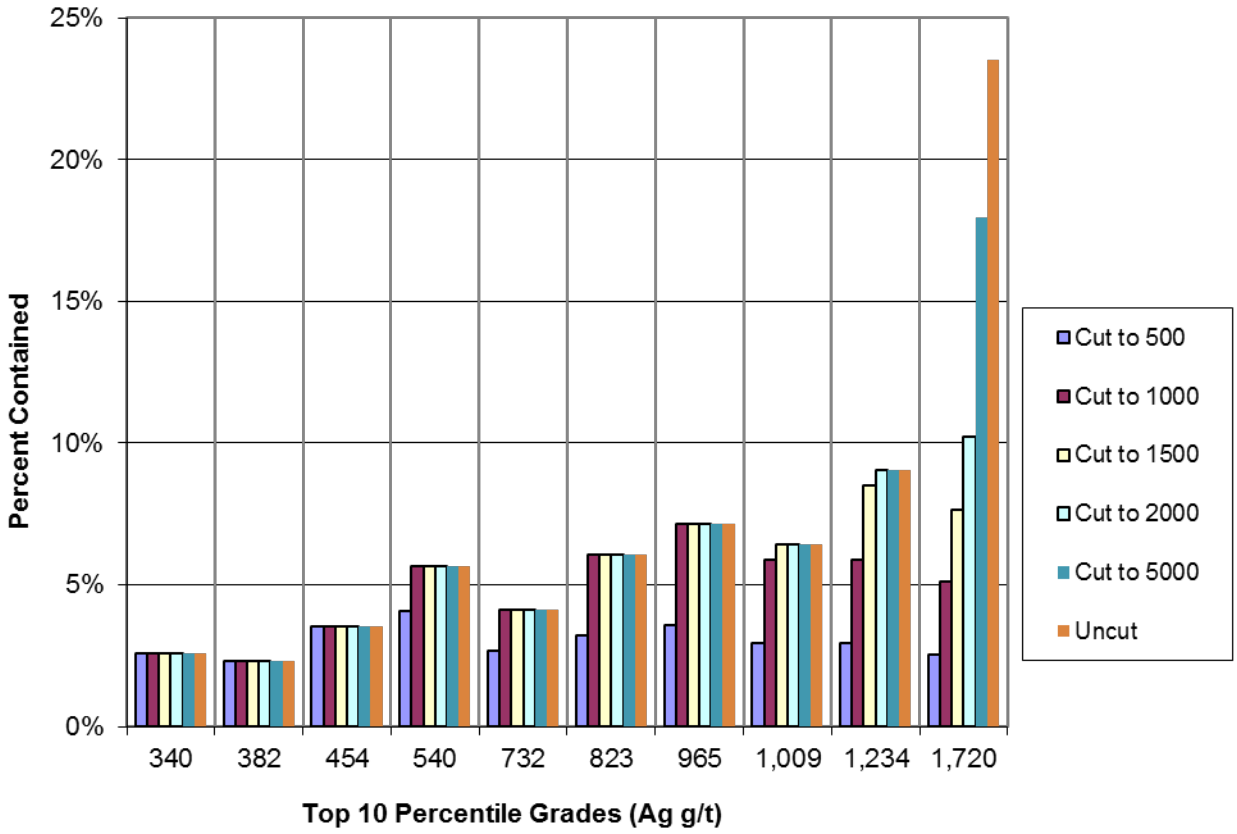
FIGURE 14-10 EXAMPLE CUTTING CURVE FOR GOLD



The decile analysis involves estimating the metal contained in the samples in the top ten percentiles of the sample distribution and gauging the effect on this metal content of capping at a range of values. The samples are ordered from highest to lowest and the relative metal contents are estimated by multiplying the sample grade by length. The cumulative metal contents are generated for the top ten percentiles and plotted. For some deposits, it has been determined that if more than 10% of the total metal content in the system is contained within the samples residing in a single percentile, then top cuts are warranted. The top cut can be determined by finding the value at which there are no percentiles which contain more than 10% of the total metal.

An example of a Decile Plot is shown in Figure 14-11. In this case, the top percentile appears to contain over 20% of the total silver metal content, which suggests that there is a risk of overestimation. At a top cut of 2,000 g/t Ag, the metal content for this percentile decreases to 10%, indicating that the data set should be capped to at least that value prior to grade interpolation.

FIGURE 14-11 EXAMPLE DECILE PLOT SILVER FROM HS



In practice, RPA determined that when the data were subdivided into the various domains, there were not enough samples to conduct a meaningful analysis using the Decile Plots. Consequently, these diagrams were only used as a general investigative tool for the global data sets at HM and HS to confirm that top cuts were appropriate.

Based on the analyses described above, as well as experience with similar deposits, RPA selected top cuts for the various zones. These top cuts are listed in Table 14-5.

TABLE 14-5 TOP CUTS
Auryn Resources Inc. - Homestake Ridge Project

		Ag (g/t)		As (ppm)		Au (g/t)		Cu (%)		Sb (ppm)	
Zone	Number	Cap	No. Capped	Cap	No. Capped	Cap	No. Capped	Cap	No. Capped	Cap	No. Capped
HSFW1	11	n/a		n/a		4	2	n/a		200	1
HSM1	85	2,000	1	n/a		20	2	n/a		650	3
HSM2	177	2,000	3	n/a		40	3	0.35	4	1,500	3
HSM3	121	500	2	n/a		45	2	0.35	1	n/a	
HWHW	42	800	1	n/a		n/a		n/a		n/a	
SR	23	n/a		n/a		40	3	0.35	1	n/a	
MHM	401	250	2	1,500	4	100	4	3.0	7	1,000	5
MHMZ	36	n/a		n/a		30	1	n/a		n/a	
MHM_TR	26	n/a		n/a		100	1	3.0	1	1,000	1
MHSC	148	1,000	8	1,500	2	100	1	n/a		1,000	5
MHFW	8	n/a		n/a		n/a		n/a		1,000	1

The caps were applied to the samples before compositing. The effect of applying the top cuts was to reduce the average grades typically by 5% to 15%. In extreme cases, where the mean grades were overly sensitive to very high outliers, the reduction was significantly higher, at times as much as 40% or more. Table 14-6 shows how the unweighted mean sample grades were affected by the top cuts for gold, silver, and copper.

TABLE 14-6 EFFECT OF TOP CUTS
Auryn Resources Inc. - Homestake Ridge Project

	Ag (g/t)			Au (g/t)			Cu (%)		
Zone	Raw Mean	Capped Mean	% Diff.	Raw Mean	Capped Mean	% Diff.	Raw Mean	Capped Mean	% Diff.
HSFW1	n/a			1.73	1.64	-5%	n/a		
HSM1	266.7	184.0	-31%	2.71	2.09	-23%	n/a		
HSM2	186.5	172.6	-7%	3.90	3.76	-4%	0.04	0.03	-2%
HSM3	50.9	47.2	-7%	5.14	4.02	-22%	0.03	0.03	-3%
HWHW	185.4	169.7	-8%	n/a			n/a		
SR	n/a			15.85	14.28	-10%	0.06	0.03	-42%
MHM	16.6	14.3	-14%	9.86	7.77	-21%	0.34	0.32	-7%
MHMZ	n/a			5.61	5.01	-11%	n/a		
MHM_TR	n/a			16.68	12.14	-27%	0.81	0.80	-2%
MHSC	279.2	148.0	-47%	6.95	5.57	-20%	n/a		
MHFW	n/a			n/a			n/a		

COMPOSITING

The cut samples were composited to a nominal 2.0 m length. The zones are commonly narrow, and a rigid 2.0 m composite length would have produced a high number of orphans, which are short remnants at the margins of the wireframe models. In order to eliminate the orphan composites, the compositing parameters were adjusted to allow the software to distribute the orphan sample length equally across all composites in an intercept. For example, if the intercept length was 5.5 m from hanging wall to footwall contact, instead of two 2.0 m and one 1.5 m composite, the software would produce two equal-length composites of 2.75 m apiece. This produced a range of composite lengths between 2.0 m and 4.0 m. RPA conducted an analysis to determine if the composite length was correlated with grades. No correlation was found. In RPA's opinion, the variable composite lengths should not impart a bias to the grade interpolation. Global composite statistics for all three zones are provided in Table 14-7.

TABLE 14-7 COMPOSITE STATISTICS
Auryn Resources Inc. - Homestake Ridge Project

	Ag (g/t)	Au (g/t)	Cu (%)	Sb (ppm)	As (ppm)
HM Zone					
Number	317	317	317	317	317
Mean	46.3	6.50	0.21	66.3	185.9
Median	8.4	3.14	0.04	21.6	103.2
SD	131.6	10.83	0.40	123.8	219.1
CV	2.8	1.67	1.85	1.9	1.2
Min	0.3	0.02	0.00	1.7	2.7
Max	996.1	94.76	2.50	990.5	1520.1
HS Zone					
Number	212	212	212	212	212
Mean	118.3	3.61	0.03	133.7	147.0
Median	29.2	1.25	0.01	49.7	90.0
SD	221.1	9.95	0.06	251.0	164.0
CV	1.9	2.76	2.15	1.9	1.1
Min	0.6	0.00	0.00	5.3	12.6
Max	1579.9	129.46	0.46	2369.1	12.6

SR Zone - Insufficient number of composites

VARIOGRAPHY

RPA carried out variogram analyses on the capped and composited samples for gold, silver, and copper in the databases for HM and HS. There were not enough composites in SR to generate meaningful variograms. The results were often difficult to interpret and yielded orientations counter to the interpreted structural directions, which rendered them highly suspect. Gold did not yield coherent variograms in either HS or HM. At HM, even with the major axis forced into alignment with the mineralized zones, silver yielded a model with the semi-major axis oriented counter to the interpreted strike and dip. The variogram for the semi-major axis direction for copper was not coherent.

RPA was able to generate interpretable results for copper and silver at HS by forcing the axes directions to the observed strike and dip of the zones. A summary of the variogram models is provided in Table 14-8. In Table 14-8, Sph means that a spherical structure model is applied to the variogram model.

TABLE 14-8 VARIOGRAPHY RESULTS
Auryn Resources Inc. - Homestake Ridge Project

				Orientations (°)			Ranges (m)		
Metal	**Model**	**Nugget**	**C1**	**Major**	**Semi**	**Minor**	**Major**	**Semi**	**Minor**
Homestake Main (HM)									
Ag	Sph	0.27	0.73	097/-59	358/-06	084/30	165	69	40
Au	Could not be interpreted								
Cu	Sph	0.20	0.80	133/-11	056/51	214/37	165	109	109
Homestake Silver (HS)									
Ag	Sph	0.27	0.73	137/00	035/-89	047/0.4	206	109	9
Au	Could not be interpreted								
Cu	Sph	0.17	0.83	137/00	039/-90	227/0.5	194	117	8

Notes:
1. The semi-major axis for the HS copper variogram model was not clearly defined and has only been estimated.
2. Gold variograms did not yield a coherent model.

SEARCH PARAMETERS

Geostatistical analyses carried out in 2010 generated a coherent variogram model for gold for the HM area. It measured 80 m x 35 m x 20 m, oriented with the major axis plunging slightly to the south of the down-dip direction. The model ranges for silver and copper in both 2010 and 2012 were significantly larger (Table 14-8). In RPA's opinion, for multi-element estimates such as this one, the element with the shortest range should dictate what the search distances should be. For the 2010 estimate, this range was set from the gold variogram model at a maximum of 75 m. For this estimate, the maximum range was extended to 100 m, and the interpolations were run in three passes. In the first pass, the search ellipsoid measured 30 m x 30 m x 10 m. For the second and third passes, the search distances were increased to 50 m x 50 m x 15 m and 100 m x 100 m x 25 m, respectively. RPA notes that the 100 m ellipsoid was rarely, if ever, required for the interpolations since almost all blocks were captured within the 50 m range. The 75 m range was retained, however, for classification of Inferred Mineral Resources.

For HS, the search was oriented such that the major and semi-major axes were parallel to a vertical plane striking 135°. The SR search ellipsoids were also oriented at a strike of 135°, except with a dip of 80° NE. At HM, the mineralized zones are deformed and display a range of strikes and dips. Seven different orientations were used for the HM search ellipsoids. The orientations are listed below:

1. MHM1 – 140°/-76° NE
2. MHM2 - 140°/-40° NE
3. MHM3 - 170°/-40° NE
4. MHM4 - 140°/-70° NE
5. MHM5 - 140°/-20° NE
6. MHM6 - 120°/-65° NE
7. Other - 135°/90°

The block grade interpolations were constrained to a minimum of three and maximum of eight composites for the first two passes, with a minimum of one and maximum of five for the third. In all passes, the interpolations used a maximum of two composites from a single drill hole.

BULK DENSITY

Bulk density measurements collected by Homestake were used to estimate the densities for each of the zones. The density measurements were taken using a water immersion method on intact pieces of drill core. Results for a total of 12,623 density determinations were provided to RPA, although only a relatively small proportion of these measurements were taken in the mineralized zones. The total number of density measurements taken on core from within the zones was 1,559. For each zone, the average of the measurements from that zone was used as the block density. If a zone had no measurements, then the global average was used. Table 14-9 lists the density values used for the tonnage estimates.

TABLE 14-9 BULK DENSITY
Auryn Resources Inc. - Homestake Ridge Project

Zone	Code	Wireframe	Folder	Density (t/m³)
Homestake Main (HM)				
MHM_tr	1000	mhm_trench_1	MHM-1	2.77
MHM_a	1001	mhm_a_1	MHM-1	2.76
MHM_b	1002	mhm_b_1	MHM-1	2.79
MHM_c	1003	mhm_c_1	MHM-2	2.85
MHM_d	1004	mhm_d_1	MHM-3	2.78
MHM_e	1005	mhm_e_1	MHM-2	2.78
MHM_f	1006	mhm_f_1	MHM-3	2.72
MHM_g	1007	mhm_g_1	MHM-1	2.81
MHM_h	1008	mhm_h_1	MHM-1	2.79
MHM_i	1009	mhm_i_1	MHM-3	2.77
MHMz_a	1010	mhmz_a_1	MHMZ-1	2.77
MHMz_b	1011	mhmz_b_1	MHMZ-1	2.70
MHMz_c	1012	mhmz_c_1	MHMZ-1	2.77
MHSC_a	1020	mhsc_a_1	MHSC-1	2.69
MHSC_b	1021	mhsc_b_1	MHSC-1	2.72
MHSC_c	1022	mhsc_c_1	MHSC-1	2.74
MHSC_d	1023	mhsc_d_1	MHSC-1	2.73
MHSC_e	1024	mhsc_e_1	MHSC-2	2.79
MHSC_f	1025	mhsc_f_1	MHSC-2	2.79
MHSC_g	1026	mhsc_g_1	MHSC-3	2.77
MHFW	1030	mhfw_1	MHM-1	2.77
Homestake Silver (HS)				
HSM1a	2015	hsm1_a_1	HSM1	2.84
HSM1b	2025	hsm1_b_1	HSM1	2.84
HSM1c	2035	hsm1_c_1	HSM1	2.84
HSM2a	2016	hsm2_a_1	HSM2-2	2.80
HSM2b	2026	hsm2_b_1	HSM2-1	2.77
HSM2c	2036	hsm2_c_1	HSM2-1	2.66
HSM2d	2046	hsm2_d_1	HSM2-1	2.76
HSM2e	2056	hsm2_e_1	HSM2-2	2.73
HSM2f	2066	hsm2_f_1	HSM2-2	2.73
HSM2g	2076	hsm2_g_1	HSM2-2	2.73
HSM2h	2086	hsm2_h_1	HSM2-1	2.73
HSM3a	2017	hsm3_a_1	HSM3-1	2.70
HSM3b	2027	hsm3_b_1	HSM3-2	2.70
HSM3c	2037	hsm3_c_1	HSM3-1	2.70
HSM3d	2047	hsm3_d_1	HSM3-2	2.70
HSM3e	2057	hsm3_e_1	HSM3-2	2.70
HSFW1	2001	hsfw1	HSFW1	2.71
HSHW1	2014	hshw1_1	HSHW	2.85
HSHW2	2024	hshw2_1	HSHW	2.85
HSHW3	2034	hshw3_1	HSHW	2.85
South Reef (SR)				
SRa	3001	sra_1	SR	2.75
SRb	3002	srb_1	SR	2.75

BLOCK MODELS

Three separate block models were created: one for each of HM, HS and SR. All were arrays of blocks measuring 5 m x 5 m x 5 m and rotated by 45° relative to the survey grid so as to be aligned with the general strike of the mineralization. Block model geometries are summarized in Table 14-10.

TABLE 14-10 BLOCK MODEL GEOMETRIES
Auryn Resources Inc. - Homestake Ridge Project

	Origin			Model Size (No. Blocks)		
Zone	X (m)	Y (m)	Z (m)	Row	Column	Levels
HM	463,129.3	6,179,000	1,125	80	205	135
HS	463,800	6,178,200	900	95	200	130
SR	463,694	6,177,106	1,200	95	170	130

The models were constructed using GEMS software, which is a commercial package commonly used in the industry. A separate model (called a “folder”) was created for each domain. Block variables stored in the folders included:

- Rock code
- Percent inside the wireframe
- Gold grade (g/t)
- Silver grade (g/t)
- Copper grade (%)
- Antimony grade (ppm)
- Arsenic grade (ppm)
- NSR value
- AuEq value (g/t)
- Resource class
- Anisotropic distance to the nearest composite
- Number of composites used in the estimate
- Average distance to the nearest composite

The percent model stores the proportion of each block contained within the wireframe model. Grades were estimated and stored for the mineralization component of each block only.

GEMS volumetric calculations were configured to report only the undiluted mineralized portion of the block models.

VALIDATION

The model was validated by the following methods:

- visual inspection of the block grades in plan and section views and comparison with the composite grades,
- Cross-validation (sequentially removing each sample from the data set and estimating its value using the surrounding samples), and
- comparison of global block grades with global composite grades.

The block grades were observed to honour the local composite grades reasonably well. Remote sections of the zones, informed by composites from only one hole or sometimes even just one composite, tended to be poorly estimated. Often large numbers of these outermost blocks ended up with the same grade, which could tend to bias the global average grade. Additional definition drilling would be required to improve the block grade estimates for these areas. RPA notes that any of these peripheral blocks included in the Mineral Resources were classified as Inferred.

Cross-validation, or “jack-knifing”, is a process wherein individual samples are sequentially removed from the database and their values interpolated from the surrounding samples. Table 14-11 shows the comparison of the mean grades of the composites compared to the means of the cross-validation estimates. For the most part, there is good agreement, suggesting that the estimates are unbiased. In some cases, particularly for copper, one high composite within a comparatively small data-set caused extreme variations between the original and estimated means. Examples of this can be seen in the copper for domains MHMz, MHSC_g, and HSFW1.

For most domains, the global block grades tended to be reasonably close to the global composite grades, particularly for the better-drilled areas. Table 14-12 shows the comparison between the average composite and block grades for the primary sub-domains within each major zone (i.e. HM, HS, or SR). The sub-domains represent groups of

wireframe models that shared composites in the grade interpolations. Within each sub-domain, there are up to ten individual wireframe models which were interpolated using their own composites as well as those in neighbouring zones.

TABLE 14-11 CROSS-VALIDATION RESULTS
Auryn Resources Inc. - Homestake Ridge Project

Zone	Silver (g/t)			Gold (g/t)			Copper (%)		
	Original	Estimate	% Diff	Original	Estimate	% Diff	Original	Estimate	% Diff
MHM_tr abgh fw	14.1	13.4	-5%	6.15	6.04	-2%	0.331	0.340	3%
MHM_ce	16.1	16.1	0%	8.76	8.86	1%	0.278	0.241	-13%
MHM_dfi	12.0	13.0	9%	6.82	7.58	11%	0.207	0.267	29%
MHMz	11.7	8.9	-24%	4.14	4.22	2%	0.094	0.055	-41%
MHSC_abcd	95.8	119.8	25%	5.52	6.16	12%	0.024	0.021	-13%
MHSC_ef	630.9	630.9	0%	1.80	1.66	-8%	0.051	0.050	0%
MHSC_g	142.4	147.9	4%	1.83	1.55	-15%	0.092	0.045	-51%
HSM1	156.6	168.7	8%	2.03	2.35	16%	0.016	0.016	3%
HSM2bcdh	188.8	189.3	0%	4.65	4.80	3%	0.035	0.035	0%
HSM2efg	112.2	103.4	-8%	1.88	1.81	-4%	0.021	0.025	20%
HSM3ac	10.9	8.3	-24%	3.44	3.40	-1%	0.028	0.026	-7%
HSM3bde	104.6	106.1	2%	4.27	4.67	9%	0.017	0.016	-7%
HSFW1	57.4	57.5	0%	1.55	1.85	20%	0.011	0.003	-70%
HSHW	175.8	193.4	10%	0.22	0.12	-45%	0.015	0.017	12%
SR	3.7	2.7	-28%	11.60	8.72	-25%	0.027	0.024	-12%

TABLE 14-12 COMPARISON OF MEAN COMPOSITE AND BLOCK GRADES

Auryn Resources Inc. - Homestake Ridge Project

	Ag (g/t)	As (ppm)	Au (g/t)	Cu (%)	Sb (ppm)
Composites					
MHM	14.0	189	7.41	0.290	54
MHMZ	11.7	136	4.14	0.094	26
MHSC	135.6	192	4.78	0.035	94
MHFW	35.3	76	2.48	0.184	222
HSM1	156.6	190	2.03	0.016	110
HSM2	153.2	162	3.36	0.028	138
HSM3	42.4	92	3.71	0.024	56
HSHW	175.8	227	0.22	0.015	193
HSFW	57.4	59	1.55	0.011	29
SR	3.7	51	11.60	0.027	5
Blocks					
MHM	11.1	121	5.75	0.326	57
MHMZ	11.0	122	4.05	0.089	21
MHSC	130.3	151	3.90	0.043	76
MHFW	31.4	97	2.23	0.208	243
HSM1	139.8	177	1.81	0.016	96
HSM2	139.7	152	3.04	0.024	129
HSM3	48.9	100	2.94	0.030	73
HSHW	178.5	229	0.24	0.015	202
HSFW	68.1	82	1.58	0.015	37
SR	3.6	50	12.70	0.038	5
Percent Difference					
MHM	-21%	-36%	-22%	13%	6%
MHMZ	-6%	-10%	-2%	-5%	-17%
MHSC	-4%	-21%	-18%	23%	-19%
MHFW	-11%	28%	-10%	13%	9%
HSM1	-11%	-7%	-11%	3%	-12%
HSM2	-9%	-6%	-10%	-16%	-7%
HSM3	15%	9%	-21%	23%	30%
HSHW	2%	1%	10%	-1%	5%
HSFW	19%	40%	2%	42%	27%
SR	-4%	-1%	10%	41%	0%

RPA notes that there is an apparent bias in the copper grades in HSFW and SR. This was found in both cases to be due to a single high-grade composite that was influencing the local block grades. Both zones were comparatively low in overall copper grade, and the individual high-grade composites did not have to be very high to have an impact on the global block

grades. In RPA's opinion, these are small zones and the impact of the apparent local biases will be insignificant relative to the overall Mineral Resource estimate.

CLASSIFICATION

Definitions for resource categories used in this report are consistent with those defined by CIM (2014) and adopted by NI 43-101. In the CIM classification, a Mineral Resource is defined as "a concentration or occurrence of solid material of economic interest in or on the Earth's crust in such form, grade or quality and quantity that there are reasonable prospects for eventual economic extraction". Mineral Resources are classified into Measured, Indicated, and Inferred categories. A Mineral Reserve is defined as the "economically mineable part of a Measured and/or Indicated Mineral Resource" demonstrated by studies at Pre-Feasibility or Feasibility level as appropriate. Mineral Reserves are classified into Proven and Probable categories.

Blocks within 75 m of a composite were provisionally assigned to the Inferred category. This distance was derived from the variogram analysis for gold conducted for the 2010 estimate. Blocks in HM within 20 m of the nearest composite, and estimated by composites from at least two drill holes, were provisionally upgraded to Indicated. The classifications for the provisional Indicated blocks in each wireframe model were inspected and manually adjusted. Isolated Indicated blocks were downgraded to Inferred. Similarly, small pockets of Inferred blocks contained within larger clusters of Indicated were upgraded to Indicated. This produced reasonably coherent volumes of Indicated Mineral Resources.

The 20 m radius was also derived from the gold variogram in the 2010 estimate. The major axis of that variogram model reached ¾ of the total sill at a range of 20 m.

The drill hole spacing in the HS and SR is too broad to allow classification of Indicated Mineral Resources, so all blocks were classified as Inferred. There are no Measured Mineral Resources at Homestake Ridge.

CUT-OFF GRADE

The cut-off grade was applied using AuEq values calculated from the interpolated grade of each block and assumed metal prices, mill recoveries, and smelter terms:

- Metal prices:
  - Silver – US$20/oz
  - Gold – US$1,300/oz
  - Copper – US$2.50/lb
- Mill recoveries:
  - Silver – 88.0%
  - Gold – 92.0%
  - Copper – 87.5%
- C$:US$ Exchange Rate:1.2:1

Metal prices used for Mineral Resources are based on consensus, long term forecasts from banks, financial institutions, and other sources.

The AuEq calculation included provisions for treatment charges, refining costs, and transportation. Metallurgical recoveries were based on test work completed by Homestake. It was assumed that the mill process would comprise conventional grinding, gravity separation, and flotation. Two mill circuits were contemplated, one producing a copper concentrate and the other a bulk concentrate. The copper circuit would treat only copper-rich material, which was defined in the model as anything with a grade of 0.1% Cu or higher. Separate estimates of the AuEq for each of the copper and bulk concentrates were derived. Multipliers were derived for estimation of the NSR for each unit (i.e. g/t or %) of metal in the resource blocks which were then converted to AuEq. For the copper-rich blocks these multipliers were as follows:

- Silver – US$0.62 per g/t Ag
- Gold – US$42.79 per g/t Au
- Copper – US$42.82 per % Cu

For the copper-poor portion, the multipliers were:

- Silver – US$0.56 per g/t Ag
- Gold – US$39.26 per g/t Au

The AuEq value was assigned to the blocks by dividing the NSR total by the gold factor. A cut-off of 2 g/t AuEq was select blocks to be included in the Mineral Resources. The cost cut-off was derived from preliminary engineering studies conducted by Homestake and RPA's experience with similar projects.

COMPARISON TO PREVIOUS ESTIMATES

The previous Mineral Resource estimate had an effective date of December 31, 2012 (Table 14-13) and is most recently described in an NI 43-101 report readdressed to Auryn and dated November 15, 2016 (Macdonald and Rennie, 2016). The current estimate was reported from the same block model as the estimated dated December 31, 2012, but with updated metal prices, exchange rate, and using an AuEq rather than an NSR cut-off value. A gold price of US$1,400/oz was used for the current estimate compared to the previous assumption in 2012 of US$1,500/oz. This change was offset by an updated exchange rate from US$/C$ of 1:1 in 2012 to US$/C$ of 1:1.2 for the current resource. This, combined with approximately the same cut-off grade, resulted in a current Mineral Resource estimate similar to the 2012 estimate. Since there have been no drill hole results available within the resource area, RPA re-reported the resource with a new effective date of September 1, 2017.

TABLE 14-13 MINERAL RESOURCE STATEMENT AS AT DECEMBER 31, 2012
Auryn Resources Inc. – Homestake Ridge Project

Classification	Tonnage (Mt)	Gold (g/t)	Gold (oz)	Silver (g/t)	Silver (Moz)	Copper (%)	Copper (Mlb)
Indicated	0.604	6.40	124,000	48.3	0.9	0.18	2.4
Inferred	6.77	4.19	911,000	93.6	20.4	0.11	16.6

Notes:
1. CIM definitions were followed for Mineral Resources.
2. Mineral Resources were estimated at an NSR cut-off value of $85/t.
3. Mineral Resources are estimated using a long-term gold price of US$1,500 per ounce, and a US$/C$ exchange rate of 1.
4. A minimum horizontal width of two metres was used.
5. Bulk density ranges from 2.66 t/m^3 to 2.85 t/m^3 depending on the domain.

OTHER CONSIDERATIONS

Mining projects are subject to a variety of influences, risks and constraints that include technical concerns as well as environmental, permitting, legal, title, taxation, socio-economic, marketing, and political issues. The project is at an early stage of development and the studies required to answer these potential concerns have not been completed.

RPA is not aware of any environmental, permitting, legal, title, taxation, socio-economic, marketing, political, or other relevant factors that could materially affect the Mineral Resource estimate.

15 MINERAL RESERVE ESTIMATE

There are no current Mineral Reserves estimated on the Homestake Ridge property.

16 MINING METHODS

This section is not applicable.

17 RECOVERY METHODS

This section is not applicable.

18 PROJECT INFRASTRUCTURE

This section is not applicable.

19 MARKET STUDIES AND CONTRACTS

This section is not applicable.

20 ENVIRONMENTAL STUDIES, PERMITTING, AND SOCIAL OR COMMUNITY IMPACT

This section is not applicable.

21 CAPITAL AND OPERATING COSTS

This section is not applicable.

22 ECONOMIC ANALYSIS

This section is not applicable.

23 ADJACENT PROPERTIES

The Project is contiguous with claims held by a number of companies and individuals. RPA has not relied upon any information from the adjoining properties in the preparation of this report.

The following is updated from Macdonald and Rennie (2016) and was derived from company websites and management documents posted on www.sedar.com. Figure 23-1 illustrates the locations of the properties referred to below.

Dolly Varden Resources

Located approximately 25 km north of Alice Arm, the Dolly Varden property comprises 9,374 ha and includes two former producing silver mines – the Dolly Varden Mine and the Torbrit Mine. The property is owned by Dolly Varden Silver Corporation (Dolly Varden), which holds surface rights over some of these mineral claims.

The Dolly Varden property adjoins the southern boundary of the Homestake Ridge property and is underlain by similar a volcano-sedimentary stratigraphy belonging mostly to the lower and middle Jurassic Hazelton Group. The most prominent mineralized zone on the property is an aerially extensive sheet of chemical sediment mineralization (the “DVT Exhalite”) which extends through most of the major occurrences on the property.

Historic production on the property is reported as: 1.5 million ounces Ag at an average grade of 35.7 ounces per ton (opt) from the Dolly Varden Mine in the early 1920’s; and 18.5 million ounces Ag at an average recovered grade of 13.58 opt from the Torbrit Mine from 1949 to 1959.

Recent exploration on the property by Dolly Varden in the 2011 and 2012 has focused on the Wolf deposit. The Wolf deposit was identified between 1911 and 1914 and has seen several phases of exploration and development work in its history. The most recent work includes: surface mapping and sampling; infrastructure work; inspection of underground workings and the completion of 21 surface diamond drill holes totaling 4,610 m.

The 2011 to 2012 exploration was successful in confirming grades and widths of the historical drilling on the Wolf and extending historical zones of mineralization and supports a syngenetic model for the mineralized zone.

Work in 2013 included geological mapping, lithogeochemical studies, rehabilitation of the Torbrit mine, underground sampling and a 14-hole drill program totalling 3,063 m. In 2014, work included detailed geological mapping, collection of 2,500 geochemical (soil, silt and heavy mineral) samples, geophysical (EM and IP) surveying and a 12-hole drill program totalling 5,280 m designed to test targets up to 2 km north of the Torbrit deposit. Hole DV14010 intersected 9.01 m grading 1,496.78 g/t Ag within a broader zone grading 712.19 g/t Ag over 25.95 m from the Kitsol vein.

In August of 2015, Dolly Varden published the results of a maiden 43-101 compliant resource estimate on the Dolly Varden, North Star, Torbrit and Wolf zones. The estimate included 3.07 million tonnes grading 321.6 g/t Ag for a total of 31.8 million ounces of silver in the Indicated Resources category and 0.89 million tonnes grading 373.3 g/t Ag for an additional 10.78 million ounces of silver in the Inferred category.

In 2016, work included regional and detailed geological mapping and a 2,311.6 m drilling program. Drilling results included 2 m grading 2,488.5 g/t Ag within a broader zone of 19.4 m grading 485 g/t Ag interval on the Torbrit zone and 3.25 m grading 405.7 g/t Ag on the Ace-Galena exploration target.

Dolly Varden's board of directors approved a 5,000 m drill program for 2017 for resource expansion and reconnaissance (www.dollyvardensilver.com)

Kinskuch Property

Homestake optioned the claim group in March 2011. Homestake could earn an 85% interest by making Advanced Minimum Royalty payments totaling $580,000 and spending $3,000,000 in work on the property over a four-year period. The remaining 15% interest could be purchased from the Optionor for $2,000,000 and granting a 2% NSR royalty, of which 1% may be purchased for $1,000,000. The vendors are an independent group that staked and previously explored the claims. Subsequently, Homestake let this option lapse and no longer has an interest in the property.

Kinskuch is a 64,500 ha property located directly east of Homestake Ridge and extends south approximately 30 km to tidewater at the community of Alice Arm. The property contains over 37 documented precious- and base-metal mineral occurrences, many of which are hosted in the same rocks as those hosting the Homestake Ridge deposits, in addition to several showings of possible copper and gold porphyry -related mineralization. The property also contains much of the access road to Homestake Ridge and several highly prospective areas that have not been explored with modern technology.

Exploration on the property during the 2011 field season included a 3,821 line-kilometre DIGHEM airborne survey over approximately 60% of the project area, aggressive surface exploration of the main mineralized trends throughout the property, and 856 m of diamond drilling in four holes.

The airborne data enabled both the mapping and delineation of controlling structures, and identification of anomalous conductivity suggesting locations of sulphide mineralization. Several zones of anomalous conductivity have been identified within key target areas throughout the project area.

The Illiance River trend was the main focus of the Company's 2011 and 2012 exploration efforts, which occurs in the airborne survey as both a broad magnetic low (alteration zone) and electromagnetic high (conductive zone) extending over a five kilometre strike length of strongly altered volcanic stratigraphy. The target in this area is high-grade silver-enriched polymetallic mineralization within a series of structures and VMS horizons occurring along the altered trend. Exposed mineralization is similar to high-grade silver deposits identified at the Dolly Varden mine and at the Homestake Ridge property, located approximately 25 km to the northwest in the same host rocks.

RPA is not aware of any CIM Definition (2014) compliant Mineral Resource estimates on the property.

Avanti Mining Inc.

Located at the head of Alice Arm, the property is the host of the rehabilitated Kitsault open pit mine. The property is 100% owned by Avanti Kitsault Mine Ltd., a wholly owned subsidiary of Avanti Mining Inc. (Avanti). A 1% NSR is held by Aluminerie Lauralco Inc. which may be

purchased for US$10 million within 90 days of the presentation of a Bankable Feasibility Study.

The property contains three known molybdenum deposits, Kitsault, Belly Moly and Roundy Creek, and consists of 8,286 ha of mineral leases and mining claims. Mineral Resources were estimated at Kitsault in 2009 by Avanti, and audited by SRK, using historic assay data derived from drilling conducted from 1967 to 1982 and drilling from 2008. Earlier in 2008, SRK conducted a Preliminary Economic Assessment which was revised in 2009 and was publicly disclosed. In 2010 Avanti released the results of a Feasibility Study on the project prepared by AMEC. This was revised in February 2013. As part of the Feasibility update undertaken in late 2012, a new mine plan was used to re-estimate mine capital and operating costs. The result of this work yielded a new NI 43-101 compliant resource statement as follows: 129.0 Mt grading 0.092% Mo classified as Proven and 99.2 Mt grading 0.070% Mo classified as Probable Mineral Reserves. The Reserves are stated at a 0.026% Mo cut-off grade.

RPA has not independently verified this information relating to the properties mentioned above and this information is not necessarily indicative of the mineralization at the Homestake Ridge Property.

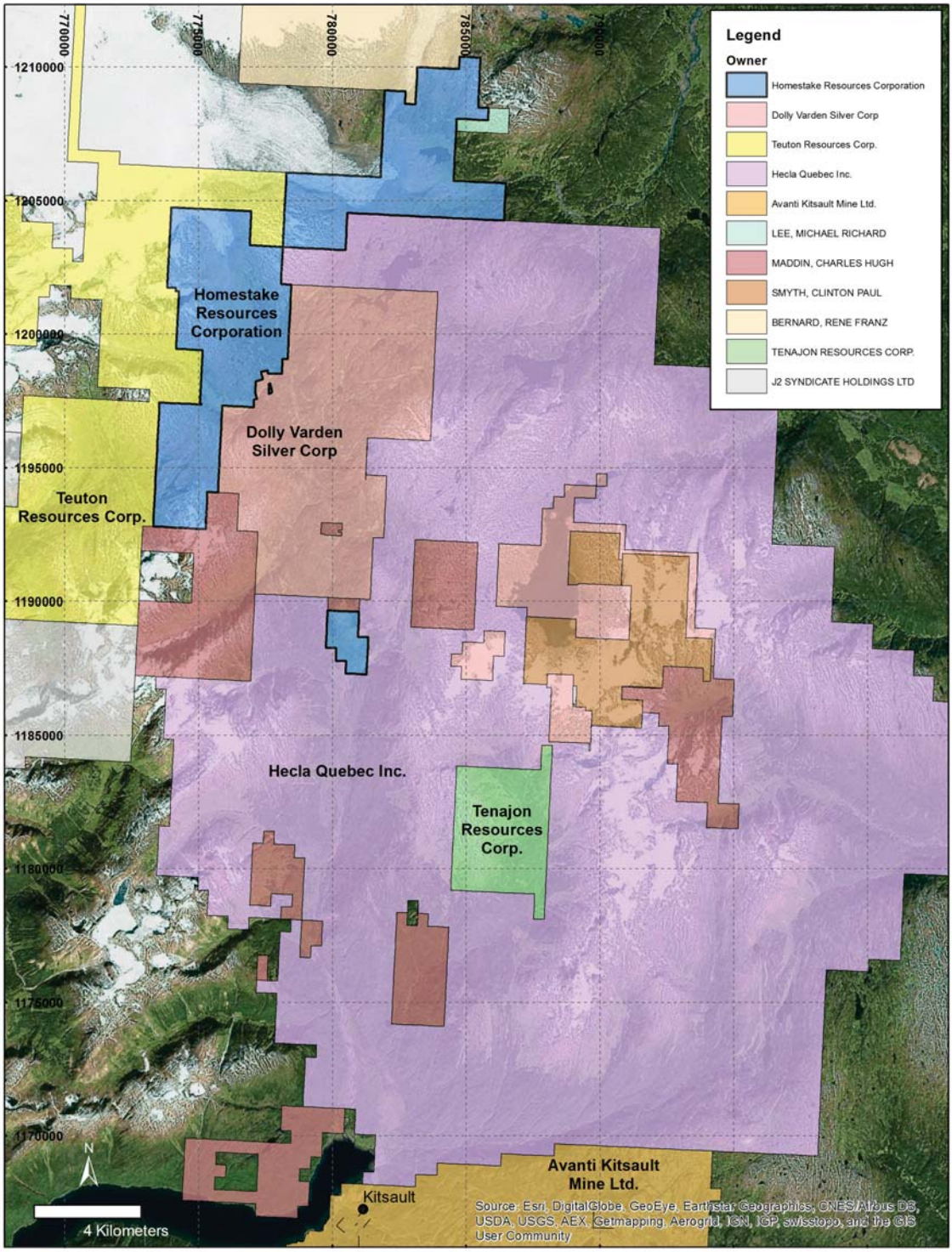


Figure 23-1

Auryn Resources Inc.

Homestake Ridge Project
Skeena Mining Division
British Columbia, Canada

Adjacent Properties

September 2017

Source: Auryn Resources Inc., 2017.

24 OTHER RELEVANT DATA AND INFORMATION

No additional information or explanation is necessary to make this Technical Report understandable and not misleading.

25 INTERPRETATION AND CONCLUSIONS

The Property is located within the prolific Iskut-Stewart-Kitsault Belt which hosts to several precious and base metal mineral deposits. Diverse mineralization styles include stratabound sulphide zones, stratabound silica-rich zones, sulphide veins, and disseminated or stockwork sulphides. Mineralization is related to Early Jurassic feldspar-hornblende-phyric sub-volcanic intrusions and felsic volcanism and commonly occurs with zones of pyrite-sericite alteration. Numerous genetic models can be proposed for the area and local deposits present a broad range of characteristics.

Drilling has outlined mineralization with three-dimensional continuity, and size and grades that can potentially be extracted economically. Project geologists have a good understanding of the regional, local, and deposit geology and controls on mineralization. The geological models are reasonable and plausible interpretations of the drill results. Exploration protocols for drilling, sampling, analysis, security, and database management meet industry standard practices. The drill hole database was verified by RPA and is suitable for Mineral Resource estimation work.

RPA updated the Mineral Resource estimate for the Homestake Ridge Project using the block model dated December 31, 2012 and a AuEq cut-off grade based on adjusted metal price, exchange rate and operating cost assumptions. No new drilling information has been received within the resource area and therefore a new effective date of September 1, 2017 was assigned to the Mineral Resource estimate. Data from the drilling being carried out in the late summer and fall of 2017 is expected to be received in October or November of 2017, and the Mineral Resource model and statement will be updated.

Mineral Resources were estimated considering a potential underground mining scenario. At a cut-off grade of 2 g/t AuEq, Indicated Mineral Resources were estimated to total 0.624 Mt at average grades of 6.25 g/t Au, 47.9 g/t Ag, and 0.18% Cu. At the same cut-off grade, Inferred Mineral Resources were estimated to total 7.245 Mt at average grades of 4.00 g/t Au, 90.9 g/t Ag, and 0.11% Cu. There are no Mineral Reserves estimated on the Property.

The wireframe models of the mineralization have done a reasonably good job of segregating the various zones (domains) within the deposit. The sample statistics show that there are still multiple populations within some of the domains. In RPA's opinion, this may be due to higher grade zones within the relatively lower grade wireframes. Additional interpretive work may be able to segregate these higher grade domains, which would result in more robust grade interpolations.

Results from metallurgical test work suggest that the expected recoveries from a combined gravity/flotation processing plant would be: 85% to 93% for gold; 75% to 88% for silver; 85% to 90% for copper.

26 RECOMMENDATIONS

Exploration work carried out at Homestake Ridge by previous operators and Auryn has identified significant gold, silver and base metal mineralization. Previous operators focused on stratabound mineralization models similar to that of Eskay Creek. Homestake highlighted several key structures that appear to be the main control on mineralization throughout the property. Work expanded the previously known mineralization in addition to identifying previously unknown mineralization corridors within the Project boundaries. Following up on these structures and structural corridors is highly recommended. A two phase multi-year program is recommended to complete additional exploration and resource definition drilling followed by a Preliminary Economic Assessment (PEA).

RPA has reviewed and concurs with Auryn's proposed exploration programs and budgets. Phase 1 of the recommended work program will build on the results of the 2017 exploration program by expanding and infilling both newly discovered zones of mineralization as well as known deposits with the aim of completing an updated mineral resource estimate. To complete Phase 1, it is recommended that a 20,000 m diamond drilling program be completed. Details of the recommended Phase I program can be found in Table 26-1.

TABLE 26-1 PROPOSED BUDGET – PHASE 1
Auryn Resources Inc. – Homestake Ridge Project

Item	C$
PHASE 1	
Head Office Expenses and Property Holding Costs	500,000
Geologic and Support Staff Cost	2,000,000
Geophysical and Drone Surveys	250,000
Surface Sampling and XRF	500,000
Diamond Drilling	7,500,000
Assaying/Analyses	1,125,000
Camp Costs	650,000
Helicopter Support	2,500,000
Engineering and Baseline Studies	500,000
Subtotal	15,525,000
Contingency	1,552,500
TOTAL	**17,077,500**

A Phase 2 exploration program, contingent on the results of Phase 1, will also be diamond drill focussed with the goal of determining the extent of mineralization around the existing deposits and increasing the confidence level in certain areas of the resource by way of additional in-fill drilling. The goal of the Phase 2 drilling would be to bring the resource to the point that it could support the preparation of a PEA in 2019. In addition to the resource targeted drilling, it is recommended that satellite mineralized zones be investigated to determine their significance as the Project advances. It is recommended that the Phase 2 program consist of 20,000 m of drilling in addition to environmental, engineering and metallurgical studies as required to support the PEA. Details of the recommended Phase 2 program can be found in Table 26-2.

TABLE 26-2 PROPOSED BUDGET – PHASE 2
Auryn Resources Inc. – Homestake Ridge Project

Item	C$
PHASE 2	
Head Office Expenses and Property Holding Costs	750,000
Geologic Staff and Support Staff Cost	3,000,000
Geophysical and Drone Surveys	250,000
Surface Sampling and XRF	350,000
Diamond Drilling	7,500,000
Assaying/Analyses	1,125,000
Engineering and Baseline Studies	1,500,000
Helicopter Support	2,500,000
Camp Costs	750,000
Subtotal	17,725,000
Contingency	1,772,500
TOTAL	**19,497,500**

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28 DATE AND SIGNATURE PAGE

This report titled "Technical Report on the Homestake Ridge Project, Skeena Mining Division, Northwestern British Columbia" and dated September 29, 2017 was prepared and signed by the following authors:

(Signed & Sealed) "*David Ross*"

Dated at Toronto, ON
September 29, 2017

David Ross, M.Sc., P.Geo.
Principal Geologist

(Signed & Sealed) "*Paul Chamois*"

Dated at Toronto, ON
September 29, 2017

Paul Chamois, M.Sc. (A)., P.Geo.
Principal Geologist

29 CERTIFICATE OF QUALIFIED PERSON

DAVID ROSS

I, David Ross, M.Sc., P.Geo., as an author of this report entitled “Technical Report on the Homestake Ridge Project, Skeena Mining Division, British Columbia, Canada” prepared for Auryn Resources Inc. and dated September 29, 2017, do hereby certify that:

1. I am Principal Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON M5J 2H7.

2. I am a graduate of Carleton University, Ottawa, Canada, in 1993 with a Bachelor of Science degree in Geology and Queen’s University, Kingston, Ontario, Canada, in 1999 with a Master of Science degree in Mineral Exploration.

3. I am registered as a Professional Geologist in the Province of Ontario (Reg. #1192). I have worked as a geologist for a total of 21 years since my graduation. My relevant experience for the purpose of the Technical Report is:
   a. Review and report as a consultant on numerous mining and exploration projects around the world for due diligence and regulatory requirements
   b. Exploration geologist on a variety of gold and base metal projects in Canada, Indonesia, Chile, and Mongolia.

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfill the requirements to be a "qualified person" for the purposes of NI 43-101.

5. I have not visited the Homestake Ridge Project.

6. I am responsible for all sections of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have read NI 43-101, and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

9. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 29th day of September, 2017

(Signed and Sealed) “*David Ross*”

David Ross, M.Sc., P.Geo.

PAUL CHAMOIS

I, Paul Chamois, M.Sc. (A), P. Geo., as an author of this report entitled "Technical Report on the Homestake Ridge Project, Skeena Mining Division, Northwestern British Columbia" prepared for Auryn Resources Inc. and dated September 29, 2017, do hereby certify that:

1. I am a Principal Geologist with Roscoe Postle Associates Inc. of Suite 501, 55 University Ave Toronto, ON M5J 2H7.

2. I am a graduate of Carleton University, Ottawa, Ontario, Canada in 1977 with a Bachelor of Science (Honours) in Geology degree and McGill University, Montreal, Quebec, Canada in 1979 with a Master of Science (Applied) in Mineral Exploration degree.

3. I am registered as a Professional Geoscientist in the Province of Ontario (Reg. #0771), in the Province of Newfoundland and Labrador (Reg. #03480), and in the Province of Saskatchewan (Reg. #14155). I have worked as a geologist for a total of 35 years since my graduation. My relevant experience for the purpose of this Technical Report is:
   - Review and report on exploration and mining projects for due diligence and regulatory requirements
   - Vice President – Exploration with a Canadian mineral exploration and development company responsible for technical aspects of exploration programs and evaluation of new property submissions
   - District Geologist with a major Canadian mining company in charge of technical and budgetary aspects of exploration programs in Eastern Canada
   - Project Geologist with a major Canadian mining company responsible for field mapping and sampling, area selection and management of drilling programs across Ontario and Quebec

4. I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and my past relevant experience, I fulfill the requirements to be a 'qualified person" for the purpose of NI 43-101.

5. I visited the Homestake Ridge Project from August 26 to 28, 2017.

6. I contributed to and share responsibility with my co-author for Sections 3 to 9, 13, and 23 to 26 of the Technical Report.

7. I am independent of the Issuer applying the test set out in Section 1.5 of NI 43-101.

8. I have not had prior involvement with the property that is the subject of the Technical Report

9. I have read NI 43-101 and the Technical Report has been prepared in compliance with NI 43-101 and Form 43-101F1.

10. At the effective date of the Technical Report, to the best of my knowledge, information, and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

Dated this 29th day of September, 2017

(Signed and Sealed) "*Paul Chamois*"

Paul Chamois, M. Sc.(A), P.Geo.