NORTHERN CoBALT

ASX: N27, N27O

ASX RELEASE

4 June 2019

ASSESSMENT OF SNETTISHAM IRON ORE POTENTIAL AND GEOPHYSICAL EXPLORATION TARGET

- **Northern Cobalt has completed an assessment of the potential for iron ore to contribute to the Snettisham Project**
- **A three (3) hole diamond drilling program testing the validity of the magnetic model and geophysical Exploration Target is due to commence before the end of the June 2019**
- **Historic metallurgical test work suggests the Snettisham material can produce a high grade and quality magnetite concentrate of 66.1% Fe, 2.85% TiO_2, 0.66% V_2O_5 and < 0.01% P**

Snettisham Iron Ore Potential and Geophysical Exploration Target

Previously the company had been primarily focussing on the vanadium content of the iron ore as the main value driver for the project, and now with the recent sustained price increases for iron ore we have undertaken an assessment of the value of the magnetite iron ore to contribute to the economics of the project in addition to vanadium.

There are several critical infrastructure requirements for processing a vanadium-rich magnetite concentrate and exporting it to market. These include:

- Cheap electricity to undertake magnetic separation and operate grinding facilities, a high voltage transmission line and several existing and proposed hydropower projects nearby.
- Access to bulk material handling and transport facilities to move the concentrate to steel markets in either the US or China, deep water channel adjacent to project.
- Access to an experienced mining workforce to support year-round operations.

Exploration Target Range

Table 1. Magnetite iron ore Exploration Target (ET) for the Snettisham Project

Prospect	Low-grade*		High-grade**	
	Tonnage (Bt)	Grade (Fe%)	Tonnage (Mt)	Grade (Fe%)
Snettisham	1.1-2.1	14-26	297-551	28-52

The potential quantity and grade of the ET are conceptual in nature, there has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

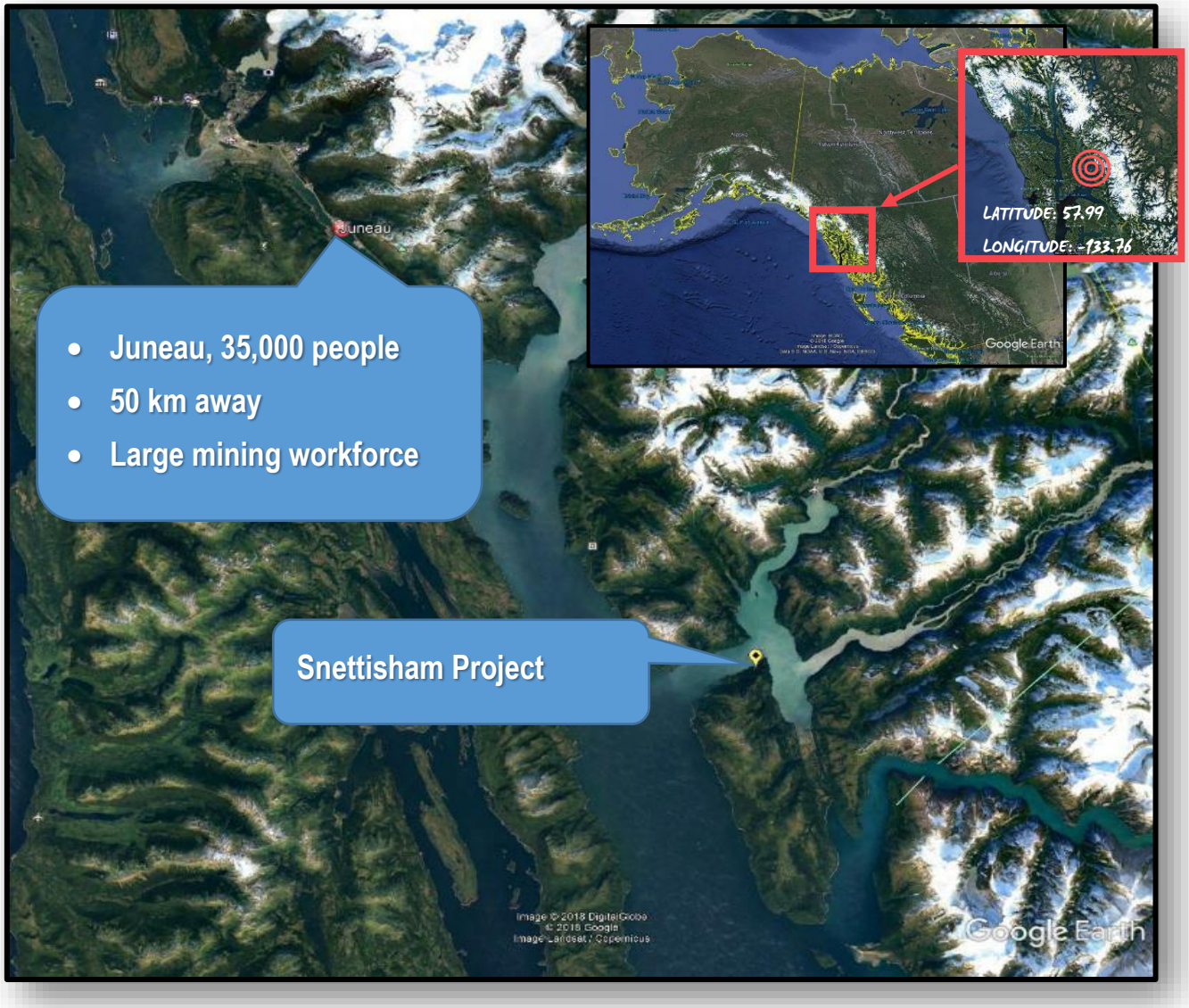

Figure 1. Location of the Snettisham Project in relation to the capital city of Juneau

Infrastructure

The Snettisham Project is uniquely situated to take advantage of infrastructure facilities already in place:

- The Snettisham Hydroelectric Power Plant is situated 18 km to the north-west and the main transmission line runs within 2.5 km of the project.
- The Sweetheart Lake Hydro Power facility is expected to start construction later this year with an interconnecting transmission line that runs right across the Snettisham Project.
- The project is located on the coast, adjacent to a deep-water channel capable of hosting Panamax and Cape class vessels.
- Juneau, the capital city of Alaska, with a population of 35,000 people, is located approximately 50 km to the north of the project. The population is a mining community supporting gold and base metal mines in the local area

Figure 2. Location of the Snettisham Project in relation to the Snettisham and proposed Sweetheart Lake Hydroelectric Facilities.

Exploration Target Methodology

Northern Cobalt has conducted an estimate of the iron ore exploration target on the Snettisham Prospect which has been based on actual exploration results obtained by both Northern Cobalt and previous explorers. The exploration target is based on outcrop mapping, airborne magnetics, rock chip sampling, metallurgical studies and drilling. University of British Columbia (UBC) modelling software was used to create an inversion of a detailed airborne magnetic survey commissioned by Northern Cobalt in February 2019. Magnetic susceptibility values from the airborne survey were used to calculate a percentage concentration of magnetite (iron ore mineral) for use in modelling of the exploration target. These values were cross checked with assays from drilling and rock chip sampling to confirm the validity of the model.

Isosurfaces were generated at a range of grade thresholds to determine a reasonable mineralised volume for the prospect. The low tonnage case used a high-grade average of 40% Fe based on the prediction of the main magnetic source in the UBC inversion model (0.7-1.5 SI units). The upper tonnage case is based on the low-grade cut-off of 20% Fe based on the average Fe content of the pyroxenite body and confirmed by the prediction of the UBC inversion model. The modelled mineralisation tonnage and grade was factored by minus/plus 30% reflecting the typical uncertainty in an inferred resource to produce the low and high cases.

The lower limit of the model considered to be economic is at -500m from surface and is based on a number of open cut magnetite iron ore operations around the world.

Historical Davis Tube Separation of composited low grade (20%) magnetite material produced concentrate grades of **66.1% Fe, 2.85% TiO_2, 0.66% V_2O_5 and < 0.01% P**. This material was collected from the beach adjacent to the main Snettisham body by Arrowstar Resources in 2012 and is thought to represent the broad distribution of rock types across the complex. It was targeted for magnetite iron ore beneficiation.

Mineralisation at the Snettisham Prospect is interpreted to be associated with a mafic-ultramafic Alaskan zoned intrusive complex and consists of a titaniferous magnetite style of mineralisation. The main host to mineralisation is a pyroxenite unit which outcrops over an area of approximately 3800m by 1500m along the coast of the Snettisham Peninsula. Magnetite mineralisation within this body averages approximately 20% Fe based on historical drilling and rock chip sampling undertaken by the United States Geological Survey. A higher grader body of magnetite mineralisation within the pyroxenite body is indicated by a significant magnetic anomaly extending for over 2500m by 600m in the south-eastern part of the intrusion. This body averages >40% Fe based on magnetic susceptibility calculations.

* = the low-grade exploration target is based on the calculated volume of 20% Fe material based on the UBC inversion with a +/- 30% variation applied. The volume of the 20% Fe material was calculated at 434 million m^3 which was then multiplied by the density of pyroxenite containing 20% Fe in the form of magnetite which has a specific gravity of 3.75 s.g. units. This gives a calculated weight of 434,000,000 m^3 x 3.75 = 1,628,000,000 t or 1.63 Bt (subject to rounding).

** = the high-grade exploration target is based on the calculated volume of 40% Fe material based on the UBC inversion with a +/- 30% variation applied. The volume of the 40% Fe material was calculated at 91.8 million m^3 which was then multiplied by the density of pyroxenite containing 40% Fe in the form of magnetite which has a specific gravity of 4.62 s.g. units. This gives a calculated weight of 91,800,000 m^3 x 4.62 = 424,000,000 t or 424 Mt (subject to rounding).

Exploration history and proposed exploration program

The Snettisham Project has been a focus of magnetite style iron ore exploration since the early 1950's.

- Based on work undertaken from 1950 to 1956, the U.S. Bureau of Mines produced a report titled "Studies of the Snettisham Magnetite Deposit South East Alaska, Bureau of Mines Report of Investigations 5195", United States Department of the Interior, February 1956. In this report they completed a magnetic survey, drilled 11 holes for a total depth of 1,995 metres (in 1953), completed detailed geochemistry and petrographic studies and collected enough samples to beneficiate the iron ore using dry magnetic separation.
- In 1969 Marcona Corporation completed a drilling program and feasibility study for production with Marubeni Corporation, unfortunately no reports from this work have been found.
- In 2011, Arrowstar Resources (Arrowstar) entered into an option agreement with Gulfside Minerals to acquire 100% of the property. Arrowstar undertook a detailed ground magnetic survey, rock chip sampling and Davis Tube Separation studies. A sharp decline in the iron ore price in 2013 led them to relinquish all interest in the project.
- In 2013 Arrowstar commissioned Burton Consulting Limited to undertake a NI43-101 Technical report on the Port Snettisham Iron Ore Property. In this report they detail eight rock chip samples of magnetite bearing pyroxenite sampled from scree and outcrop along the beach. These analytical results were as follows:

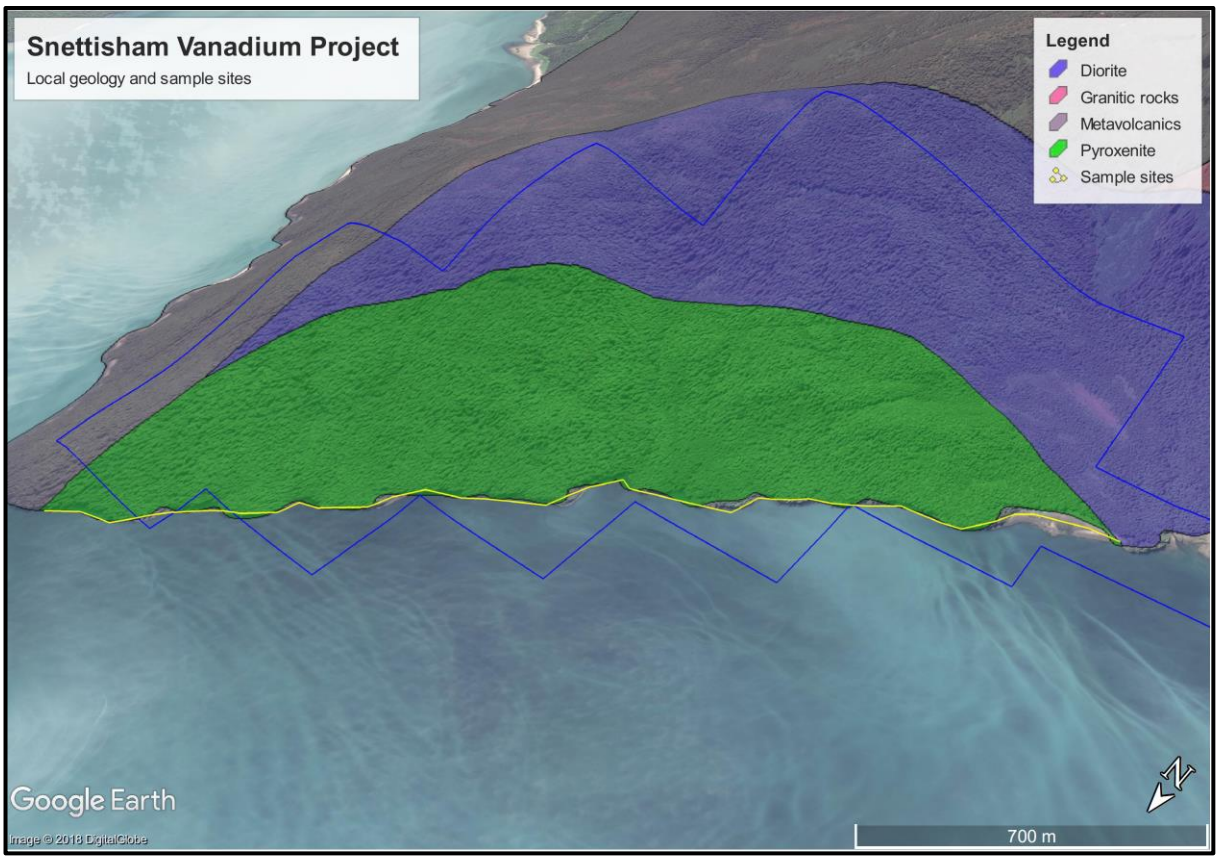

Figure 3. Samples were taken at various intervals along the coastline (yellow line) adjacent to the pyroxenite unit at Snettisham.

Table 2. Analytical results of target rock unit

Sample	Fe_3	FeCon	Al_2O_3	CaO	Cu	K_2O	MgO	Mn	Na_2O	P	S	SiO_2	TiO_2	V_2O_5	LOI
	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%
1	8.55	16.58	5.53	16.9	0.007	0.626	12.1	0.147	0.39	0.007	0.009	39.6	2.613	0.158	0.06
5	24.38	40.86	4.85	10.84	0.01	0.028	4.46	0.36	0.15	1.242	0.019	14.48	5.002	0.339	0.00
6	12.07	20.94	4.07	16.25	0.005	0.062	11.71	0.121	0.21	0.003	0.011	35.87	2.42	0.179	0.01
7	8.92	15.55	2.68	9.15	0.003	0.111	22.97	0.15	0.13	0.014	0.018	37.21	1.136	0.087	4.10
8	12.03	21.35	5.51	15.33	0.005	0.522	11.19	0.141	0.21	0.001	0.007	34.22	3.048	0.185	0.06
9	35.87	57.72	5.02	0.83	0.014	0.005	4.72	0.233	0.02	<0.001	0.008	2.31	6.471	0.564	0.00
10	10.25	19.72	6.66	17.42	0.005	0.284	8.24	0.263	0.77	0.668	0.017	34.74	2.956	0.147	0.00
11	7.26	16.12	10.34	15.01	0.013	1.013	9.38	0.19	1.42	0.959	0.252	34.4	2.704	0.124	0.23

Sample locations: Samples were taken at various intervals along the traverse indicated in figure 3. Discrete sample locations were not reported. The traverse runs between the points at 572949 mE, 64283321 mN and 570734 mE, 6472038 mN (UTM WGS84, Z8V).

Sample 9 with a V_2O_5 assay of 0.56% is believed to best represent the high-grade; massive magnetite being targeted by Northern Cobalt in its upcoming exploration program. There are numerous lines of evidence from detailed magnetic surveys and the visual observations of previous explorers to support the possibility of large bodies of massive magnetite within the pyroxenite body.

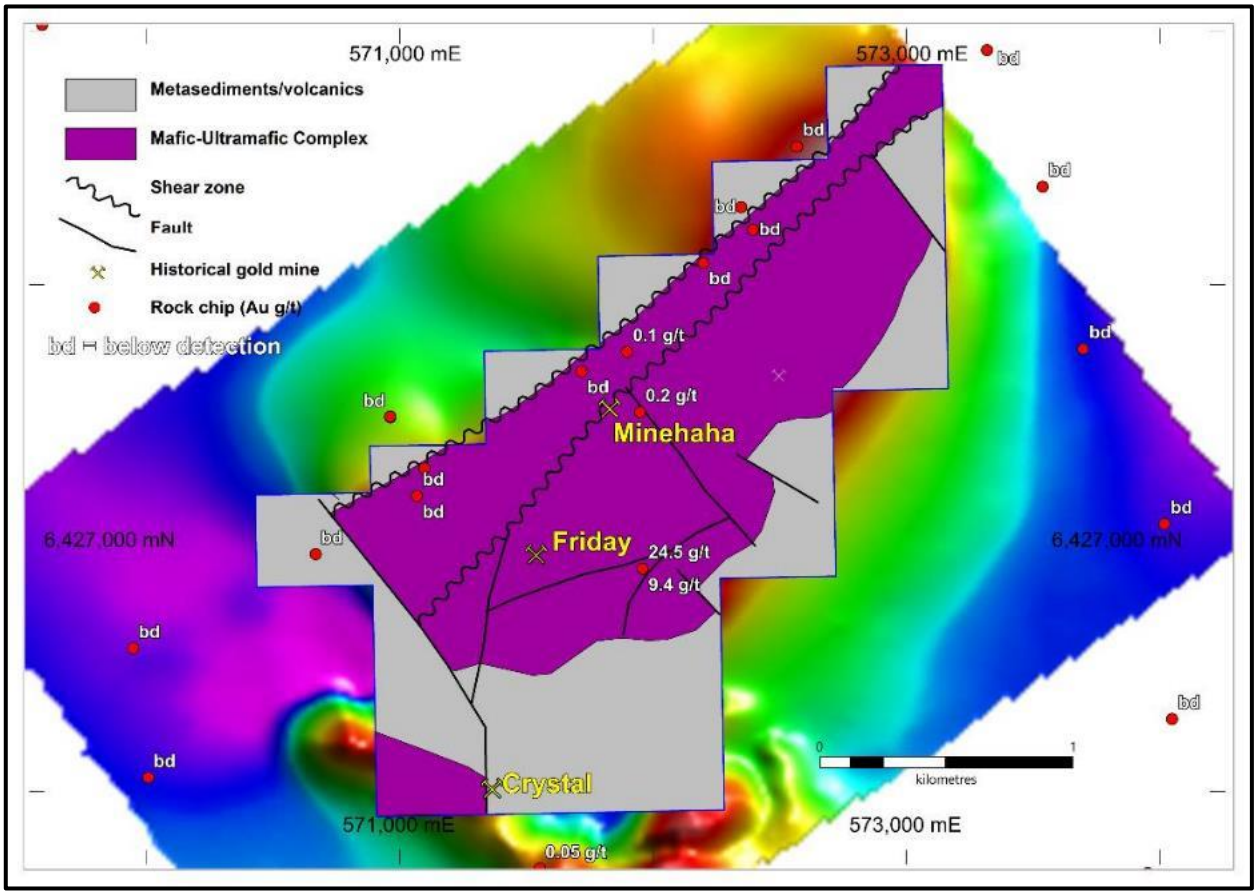

Figure 4. Snettisham Geology and Gold Rock Chip Values

Summary

- Historical surface samples of magnetite rich rock chips showed the **vanadium potential**, with values up to 0.56% V_2O_5, 35.9% Fe and 6.47% TiO_2
- Despite historical drilling by the USGS (United States Geological Survey) missing the main magnetic anomaly they did report an average grade of 20% Fe
- Modelling Results:
  - The top of the magnetite body modelled as being **close to surface** (~ 50m depth)
- Highlights where the magnetite content is 70% or greater (which equates to >40% contained Fe).
- Predicts a very large magnetite body, in the order of 2.5km long, up to 600m wide and over 2km total depth.
- Low-grade exploration target of 1.1-2.1 Bt @ 14%-26% Fe and high-grade exploration target of **297-551 Mt** @ **28%-52% Fe for iron ore**
- **3 diamond drill holes are planned** to test the 3D model for vanadium, iron, gold and obtain metallurgy samples for beneficiation test work.

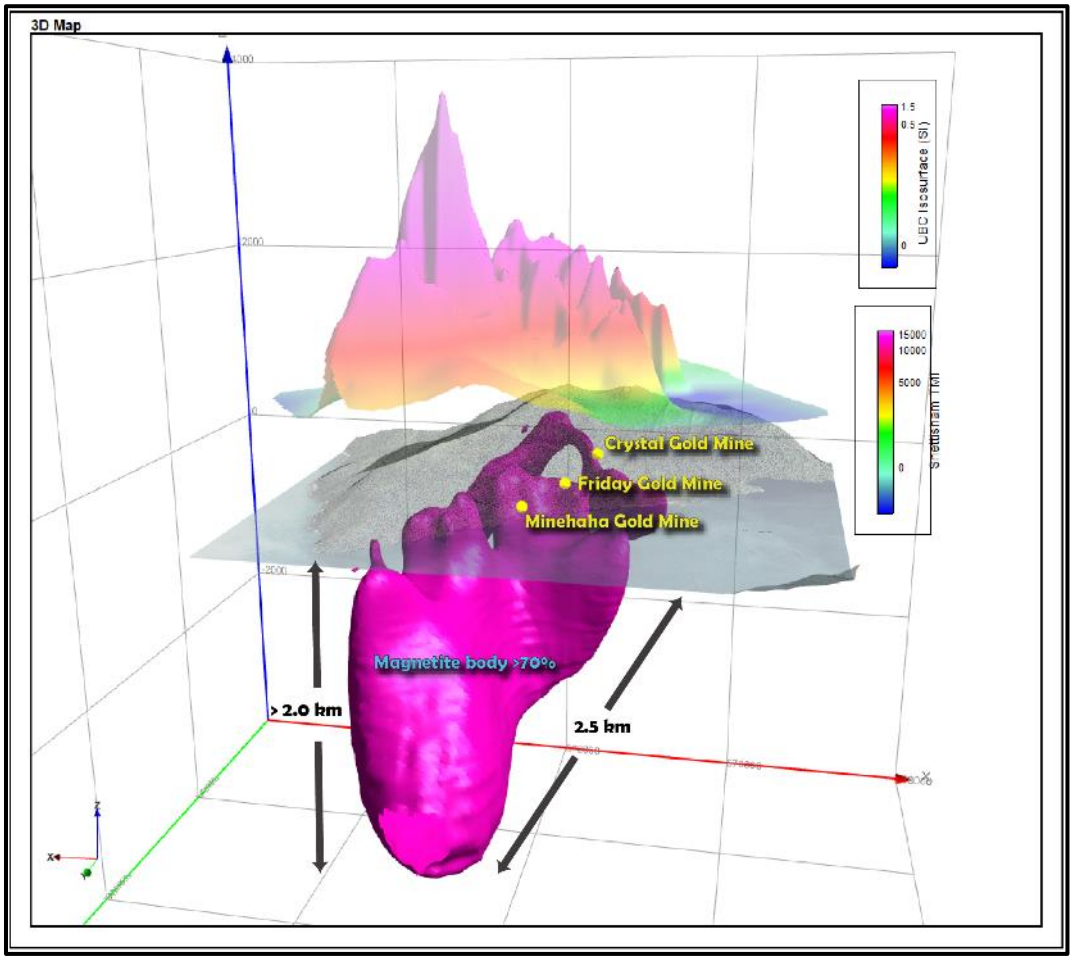

Figure 5. 3D Model (UBC Inversion) of the Snettisham Magnetic Anomaly

NORTHERN 27 CoBALT

ASX: N27, N27O

Competent Person Statement

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Michael Schwarz who is a member of the Australian Institute of Geoscientists. Mr Michael Schwarz is a full-time employee of the company and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Michael Schwarz consents to the inclusion in the report of the matters based on his information in the form in which it is appears.

The information in this report that relates to exploration results is based on, and fairly represents, information and supporting documentation compiled by Mr Michael Schwarz who is a member of the Australian Institute of Geoscientists. Mr Michael Schwarz is an employee of Northern Cobalt and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Michael Schwarz consents to the inclusion in the report of the matters based on his information in the form in which it is appears and confirms that the data reported as foreign estimates are an accurate representation of the available data and studies of the material mining project. This report includes results that have previously been released under JORC 2012 by the Company as "Southern Alaska Vanadium Project Acquired" on 18 December 2018,"Geophysics highlights potential at GregJo" on 23 January 2019, "Magnetic Survey Identifies Vanadium and Iron Ore Potential" on 26 February 2019 and "3D Model confirms Vanadium and Gold Potential at Snettisham" on 14 March 2019. The Company is not aware of any new information or data that materially affects the information included in this announcement and all material assumptions and technical parameters underpinning the Mineral Resource continue to apply and have not materially changed.

For further information please contact:
Michael Schwarz
Managing Director, Northern Cobalt Ltd
M: +61 402 101 790
E: mschwarz@northerncobalt.com.au

Appendix 1. The following tables are provided to ensure compliance with the JORC Code (2012) requirements for the reporting of the exploration results for the Snettisham Vanadium Project

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* *Aspects of the determination of mineralisation that are Material to the Public Report.* *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	Historical Data Sampling of rock chip were undertaken by BCI and Arrowstar Resources in 2012. The sampling was focussed on selecting samples of pyroxenite with varying concentrations of magnetite to get an indication of the chemical composition of the various ranges in concentration. Samples were taken of scree and outcrop along a beach exposure and are not considered to be representative of the entire magnetite bearing pyroxenite. Geophysics A Scintrex CS-3 caesium vapor magnetometer (S/N 0712302) was used to measure total magnetic intensity at 20 Hz on the survey. Two GEM GSM-19T base station magnetometers were used at all times while airborne data were being collected Terrain clearance was measured by an Opti-Logic RS800 Rangefinder laser altimeter
Drilling techniques	*Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	No drilling reported
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.* *Measures taken to maximise sample recovery and ensure representative nature of the samples.* *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	No drilling reported.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* *The total length and percentage of the*	No drilling reported

Criteria	JORC Code explanation	Commentary
	relevant intersections logged.	
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.* *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.* *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* *Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.* *Whether sample sizes are appropriate to the grain size of the material being sampled.*	No drilling reported
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	**Analytical Laboratory Analyses** The samples were sent to the Vancouver laboratory of Inspectorate Exploration & Mining Services Ltd., (a Bureau Veritas Group Company) Metallurgical Division, 11620 Horseshoe Way, Richmond, BC Canada V7A 4V5 for analysis using an Fire assay, ICP, XRF machines and wet chemistry assay to determine the Fe2 component **Inspectorate Testing Procedure for PerMr.oll and Sala Testing** Each composite was crushed to four (4) different sizes and subjected to a magnetic separation process as follows: 6.3 mm (1/4”) PerMr.oll Separator 3.4 mm (6 mesh) PerMr.oll Separator 1.7 mm (10 mesh) PerMr.oll Separator 0.15 mm (100 mesh) Sala Separator The three per Mr.oll tests produced a concentrate, middlings and tailings product, while the Sala test resulted in a concentrate and tailings. All products were analysed for Fe3O4 (magnetite content). The concentrate was produced by wet magnetic separation of minus-35-mesh material followed by regrinding the magnetic portion to minus-150mesh and re-treatment.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	No verification reported

Criteria	JORC Code explanation	Commentary
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* *Specification of the grid system used.* *Quality and adequacy of topographic control.*	The geodetic system used for the geophysical survey was WGS 84 in UTM Zone 8N
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *Whether the data spacing, and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* *Whether sample compositing has been applied.*	A total of 179 line km of magnetic data was collected on 57 survey lines and 4 tie lines. The survey was flown at 75 metre spacing at a heading of 145°/325°; tie lines were flown at 750 metre spacing at a heading of 055°/235°
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	Sample relationship to mineralisation and structure is unknown at this stage. The aeromagnetic survey was flown with flight lines at 90 degrees to the trend of the main magnetic body at Snettisham.
Sample security	*The measures taken to ensure sample security.*	No information reported
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No audits reported

Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The Snettisham Project consists of a series of mineral claims in the State of Alaska (USA) The claims have only recently been pegged and are currently in good standing. The claims overly federal controlled land administrated by the Bureau of Land Management
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other. parties.*	Based on work undertaken from 1950 to 1956, the U.S. Bureau of Mines produced a report titled "Studies of the Snettisham Magnetite Deposit South East Alaska, Bureau of Mines Report of Investigations 5195", States Department of the Interior, February 1956". In this report they completed a magnetic survey, drilled 11 holes for a total depth of 1,995 metres (in 1953), completed detailed geochemistry and petrographic studies and collected enough sample to beneficiate the iron ore using dry magnetic separation. In 1969 Marcona Corporation completed a drilling program and feasibility study for production with Marubeni Corporation, unfortunately no reports from this work have been found. In 2011, Arrowstar Resources entered into an option agreement with Gulfside Minerals to acquire 100% of the property. Arrowstar undertook a detailed ground magnetic survey, rock chip sampling and Davis Tube Separation studies. A sharp decline in the iron ore price in 2013 led them to relinquish all interest in the project.
Geology	*Deposit type, geological setting and style of mineralisation.*	The body in Port Snettisham is an elliptical intrusion about 3.2 kilometres maximum outcrop that is mainly composed of hornblende-magnetite clinopyroxenite, biotite-magnetite pyroxenite, and hornblende-biotite-magnetite clinopyroxenite. There appears to be numerous metasomatic replacement episodes. The pyroxenite locally grades into diorite. As in several other such bodies in south-eastern Alaska, the magnetite content is locally high enough to be considered as a source of iron, titanium, vanadium, and possibly platinum-group elements.
Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: easting and northing of the drill hole collar*	No drill holes reported

Criteria	JORC Code explanation	Commentary
	elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar *dip and azimuth of the hole* *down hole length and interception depth* *hole length.* *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* *Where aggregate intercepts incorporate short lengths of high-grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	No drilling results reported
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.* *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	No drilling results reported
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	See attached release.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	All relevant representative samples of the target unit have been reported
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	No other relevant data to report.
Further work	*The nature and scale of planned further work (eg tests for lateral extensions or depth*	Planned further work detailed in this release.

Criteria	JORC Code explanation	Commentary
	extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	