Mesoarchean orogenic gold mineralisation within the Nuuluk Linear Belt, Tartoq Gold Province, South West Greenland

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Regional Geology

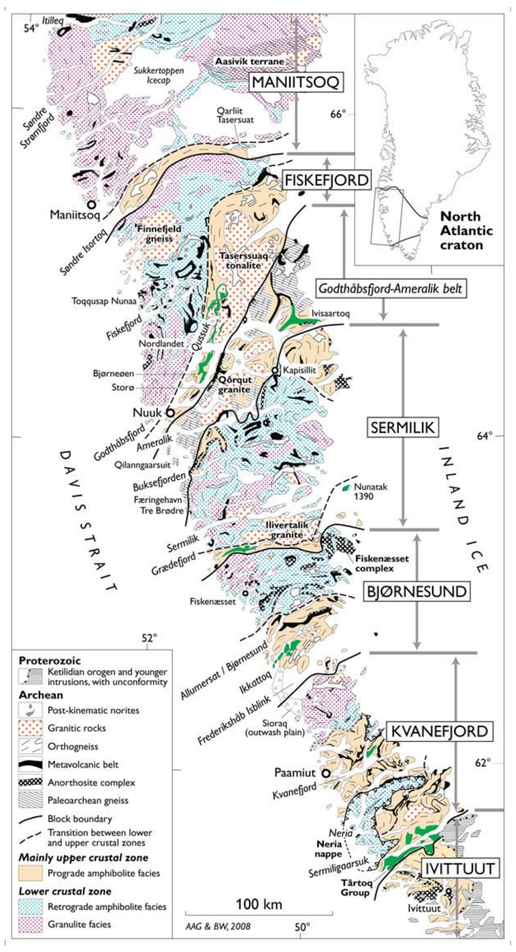

Fig. 1: *The West Greenland North Atlantic Craton is composed of six crustal blocks, with the Tartoq Gold Province located in Kvanefjord Block. Super crustal belts are shown in Green, with the Tartoq Group being the southern-most super crustal belt on the map (figure from Windley and Garde, 2009)*

The Tartoq Gold Province is located within the Mesoarchaean Tartoq Group greenstone belt, within the Kvanefjord Block of the West Greenland North Atlantic Craton (WG-NAC; Fig. 1; Windley and Garde, 2009). The Kvanefjord Block comprises of Mesoarchean to Neoarchean orthogneiss and intercalated units of supracrustal rocks (Windley and Garde, 2009). The Tartoq Group is the largest supracrustal belt in the WG-NAC and one of the very few in which greenschist-facies metamorphic grades are preserved (Kolb et al., 2013). Major Paleoproterozoic dykes of several generations are abundant throughout the region. Paleoproterozoic supracrustal rocks of Midternæs and Græseland occur to the E and SE of the Tartoq Group along the Inland Ice (Fig. 2). The Tartoq Group stands out clearly in stream sediment data as one of the most anomalous areas regionally for gold and arsenic; elevated antimony occurs locally (Fig. 2; Steenfelt, 2016).

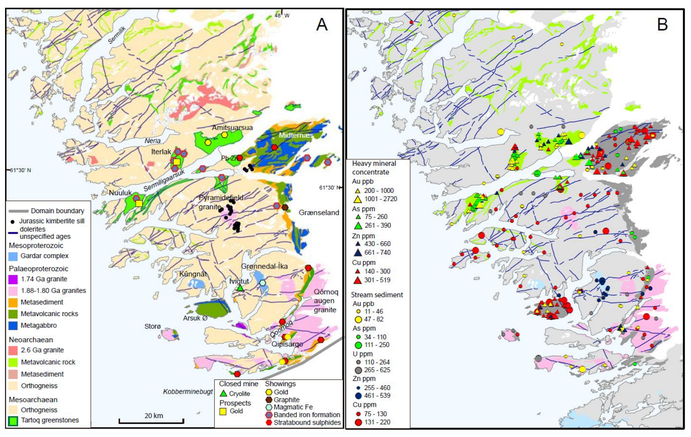

Fig. 2: *(A) Major lithological units in South West Greenland showing the location of mineral occurrences and (B) stream sediment (<0.1mm fraction) and HMC anomalies defined as values above 95th percentile of the frequency distribution of data for the entire South Greenland. Larger symbols are above the 99th percentile (figure from: Steenfelt et al., 2016).*

The Tartoq Gold Province

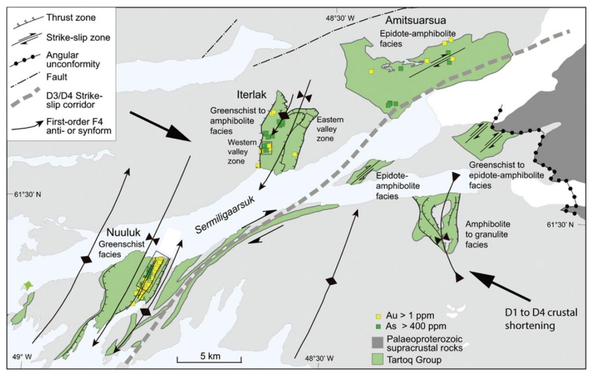

Fig. 3: *Structural map of the Tartoq Gold Province showing structural setting, metamorphic facies and the location of samples with high gold and arsenic values (figure from Steenfelt et al., 2016).*

The Tartoq Group consists of tectonically imbricated slices of basalt (preserving relict pillow structures locally), gabbro, peridotite, felsic mylonite and sedimentary rocks, interpreted as Mesoarchaean oceanic crust formed in a supra-subduction zone geodynamic setting (Szilas et al., 2013). The Group occurs in six individual km-scale synclinal structures (Fig. 3) tectonically overlaying orthogneiss, comprising from west to east, Nuuluk, Iterlak, Akuliaruseq, Amitsuarsua, Bikuben and Naalagaaffik (Fig. 4). Gold occurrences are reported for each of these areas (Kolb et al., 2013; Steenfelt et al., 2016). Metamorphic grade ranges from greenschist-facies at Nuuluk to granulite-facies at Naalagaaffik. The Tartoq Group has been modified by several phases of deformation including folding, shearing and thrusting (Fig. 3; Kolb, 2011; Kisters et al., 2012). Intrusive TTG sheets dated at 2944 ±7 Ma and 2966 ±6 Ma provide a minimum age for the deposition of the Tartoq Group (Szilas et al., 2013).

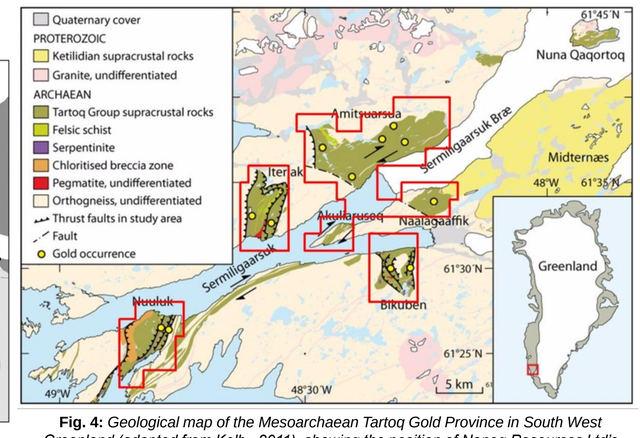

Fig. 4: *Geological map of the Mesoarchaean Tartoq Gold Province in South West Greenland (adapted from Kolb., 2011), showing the position of Nanoq Resources Ltd's Mineral Exploration Licence 2015/17 (boundaries shown in red), which comprises of 4 sub-blocks totalling 248 square kilometres incorporating the majority of the Tartoq Group, and all of the known gold occurrences. Inset map in the bottom right hand corner shows the position of Licence on the South West coast of Greenland.*

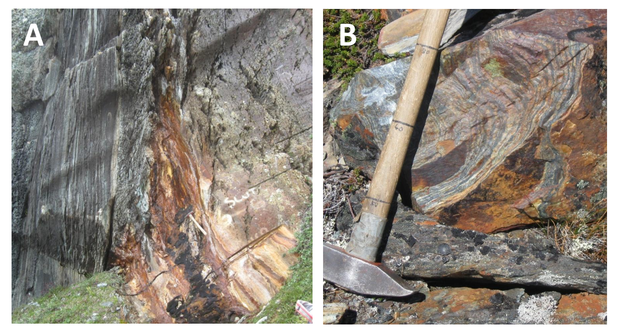

Fig. 5: *(A) auriferous hydrothermal alteration zone associated with intense shearing of the metavolcanic host rock within the Nuuluk Linear Belt; (B) finely laminated gold mineralised, sulphide-facies banded iron formation at Iterlak.*

Mineral Resource Assessment for Orogenic Gold in Greenland

Mentioned as far back as the Icelandic Sagas, it is thought that gold was first recognised in Greenland as early as the Viking period (Schlatter et al., 2015). Greenland is widely regarded as highly prospective for orogenic gold mineralisation within Archaean, Paleoproterozoic and Paleozoic orogens. The Tartoq Gold Province was recently ranked as **the area with the highest prospectivity for undiscovered orogenic gold deposits in Greenland** (Kolb, 2015). This was the result of a Mineral Resource Assessment Workshop in November 2014, co-hosted by the Government of Greenland's Ministry of Mineral Resources and the Geological Survey of Denmark and Greenland. The methods of assessment and ranking were designed to comply with the Global Mineral Resource Assessment procedures defined by the USGS. Geological, geochemical and geophysical data was assessed by a panel of experts from industry and academia, for 28 individual tracts including the Tartoq Gold Province (Tract #2 in the Table 1 below; Kolb, 2015).

Tract name	Tract Area (km²)	Consensus bid on the number of undiscovered orogenic gold deposits at different confidence levels					Summary statistics		
		N90	N50	N10	N05	N01	Number of unknown deposits	Deposit density	Mean estimate of undiscovered orogenic gold (metric tons)
1	702	1	2	4	7	10	3	3.6	44
2	866	2	5	7	11	13	5	5.7	87
3+10	1,543	0	1	2	4	6	1	0.8	22
4	1,961	0	0	2	3	5	1	0.4	14
5	2,078	0	6	10	16	23	6	3.5	110
6	787	0	2	3	4	5	2	2.5	32
7	205	0	0	0	1	3	0	0.7	3
8+9+15+26+27	12,277	0	0	2	5	7	1	0.1	15
11	4,367	0	0	1	2	3	0	0.1	7
12	4,402	1	2	4	6	8	2	0.5	41
13	635	0	0	0	1	3	0	0.2	2
14	7,967	0	0	2	4	6	1	0.1	15
16a	19,297	0	2	10	20	50	6	0.3	96
16b	14,985	1	2	3	5	10	2	0.2	40
16c	65,921	1	3	8	16	36	5	0.1	91
17+18	7,715	2	4	8	12	20	5	0.7	92
19	8,728	0	1	2	4	6	1	0.1	23
20	2,344	2	4	5	8	10	4	1.6	67
22	5,733	0	1	2	5	7	1	0.2	24
23	3,238	0	0	2	4	6	1	0.3	13
24	543	0	0	2	3	5	1	1.4	13
25	751	0	0	2	2	4	1	0.9	12
28	5,191	0	0	2	3	6	1	0.1	14
30+31	5,206	0	1	3	6	9	2	0.3	29
32	5,211	4	7	11	20	33	8	1.6	150
33a	29,440	0	2	6	11	15	3	0.1	55
33b	25,338	0	0	2	3	5	1	0.1	12
37	16,892	0	1	3	5	7	2	0.1	28

N90, N50, N10, N05, N01 = Confidence levels; a measure of how reliable a statistical result is, expressed as a percentage that indicates the probability of the result being correct. A confidence level of 10% (N10) means that there is a probability of 10% that the result is reliable. Deposit density = The total number of deposits per 1000 km².

The Nuuluk Linear Belt

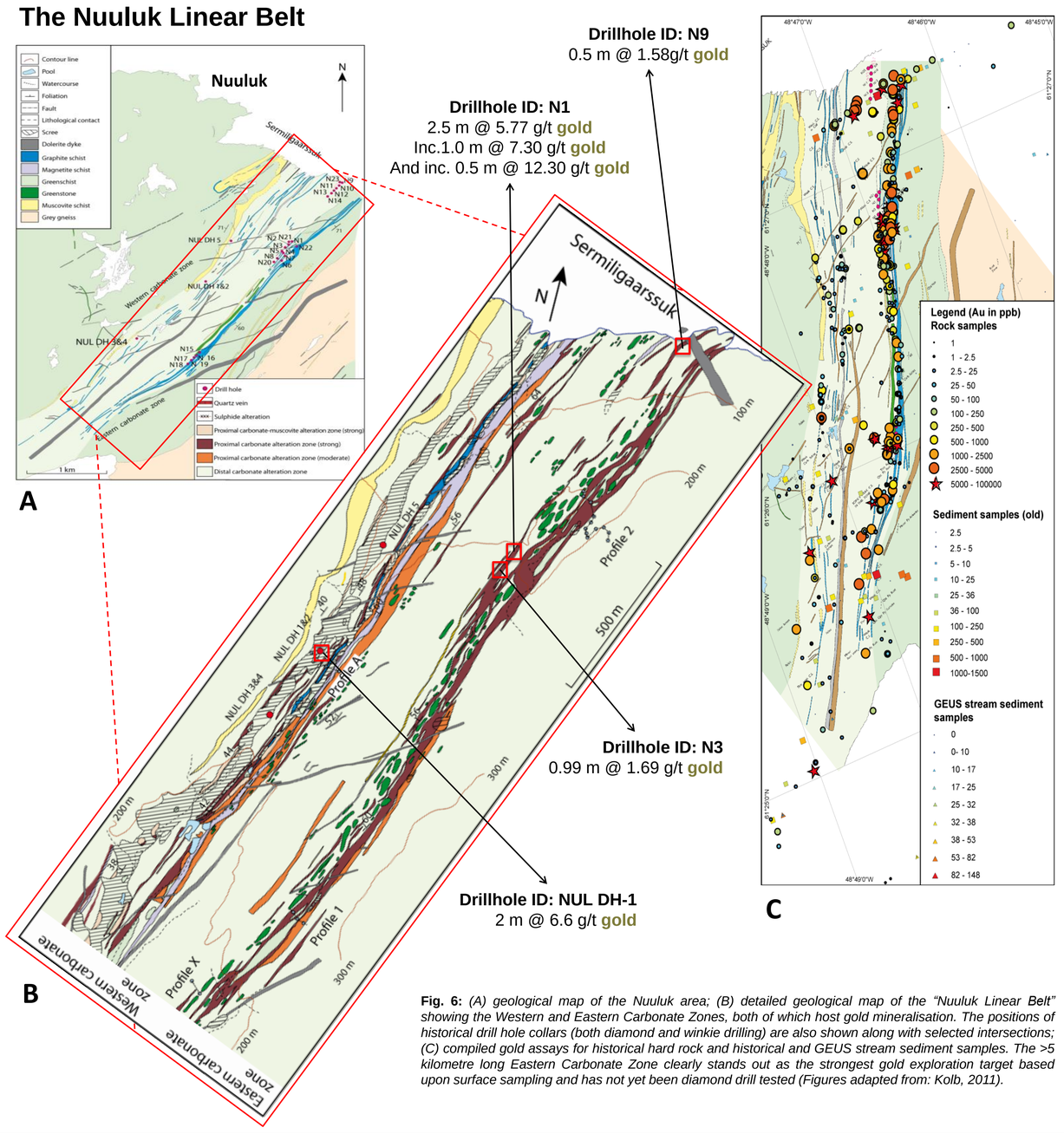

Fig. 6: *(A) geological map of the Nuuluk area; (B) detailed geological map of the "Nuuluk Linear Belt" showing the Western and Eastern Carbonate Zones, both of which host gold mineralisation. The positions of historical drill hole collars (both diamond and winkie drilling) are also shown along with selected intersections; (C) compiled gold assays for historical hard rock and historical and GEUS stream sediment samples. The >5 kilometre long Eastern Carbonate Zone clearly stands out as the strongest gold exploration target based upon surface sampling and has not yet been diamond drill tested (Figures adapted from: Kolb, 2011).*

Historical Gold Exploration Results

Table 2: Selected Winkie Drillholes (Greenex A/S) from the Nuuluk Linear Belt

Drillhole ID	Azi	Dip	Length (m)	From (m)	To (m)	Interval (m)	Gold Grade (g/t)
N1	117	- 45	14.8	7.8	10.3	**2.50**	**5.77**
Including	"	"	"	7.8	8.8	**1.00**	**7.30**
and Including	"	"	"	9.8	10.3	**0.50**	**12.30**
N3	112	- 45	25.6	9.85	10.84	**0.99**	**1.69**
N9	108	- 45	18.7	8.42	8.92	**0.50**	**1.58**

Table 3: Selected Diamond Drillholes (Nunaoil A/S)

Drillhole ID	Azi	Dip	Length (m)	From (m)	To (m)	Interval (m)	Gold Grade (g/t)
Area: Nuuluk Linear Belt							
NUL DH-2	110	- 85	109.4	88	90	**2.00**	**6.65**
Area: Iterlak							
IDT DH-1	050	- 45	63.7	15.6	18	**2.40**	**1.23**
ITD DH-2	050	- 85	54.6	15.7	18	**2.30**	**1.24**
ITD DH-4	088	- 85	79.0	41.1	43	**1.90**	**8.28**

Table 4: Selected historical chip (and channel) samples exceeding 7 g/t from the Nuuluk Linear Belt

ID	Company	Width (m)	Gold Grade (g/t)	Description
7072	Nunaoil	**0.6**	**50.2**	Qtz-ankerite in carb-ank schist *(channel sample)*
1178	Greenex	**2.5**	**19.4**	Pyritic quartz vein
7031	Nunaoil	**0.3**	**14.9**	Qtz vein w. flanking mass. sulphide in carb-ank schist
7030	Nunaoil	**0.3**	**14.6**	Qtz vein w. mass. sulphide lens in carb-ank schist
1176	Greenex	**1.5**	**14.3**	Pyritic quartz carbonate
7032	Nunaoil	**0.2**	**14.3**	Qtz vein w. flanking mass. sulphide in carb-ank schist
769	Greenex	**2.5**	**14.2**	Mass. sulphide zone in carb. schist
1172	Greenex	**1.0**	**13.5**	Pyritic zone in andestitic metavol.
7073	Nunaoil	**2.0**	**12.0**	Qtz-ankerite in carb-ank schist *(channel sample)*
7089	Nunaoil	**1.7**	**10.2**	Ank-schist with minor quartz
24530	Greenex	**1.0**	**9.5**	Qtz vein w. 2% py+cpy
1182	Greenex	**0.6**	**8.6**	Massive py in unaltered andesite
7105	Nunaoil	**0.2**	**8.5**	Massive py-apy without qtz
7101	Nunaoil	**2.0**	**8.3**	Qtz-ank w. Massive sulphide in ank-schist
7059	Nunaoil	**2.0**	**8.2**	Qtz-ankerite w. massive sulphide in ank-schist
7102	Nunaoil	**2.0**	**7.4**	Qtz-ank in carb-ank schist
7107	Nunaoil	**2.0**	**7.2**	Qtz-ank in carb-ank schist

Gold Mineralisation at Nuuluk

Gold was first reported from the Tartoq Gold Province in 1971 when Renzy Mines Ltd identified gold in grab samples up to 8.7 g/t gold during regional reconnaissance (Table 4). Minor follow up work by Renzy Mines and Cominco Ltd located samples up to 15 g/t gold. Cominco, through its subsidiary Greenex A/S subsequently carried out exploration episodically through the 1980's which yielded up to 2.5 metres at 19.4 g/t gold in surface profiles and numerous >10 g/t gold samples (Table 4). As a result Greenex carried out minor winkie drilling (averaging 20 metres depth) at the Nuuluk Linear Belt totalling 460 metres over 23 holes (Fig. 6). Gold was intersected in the majority of holes (Table 2). Minor diamond drilling at Nuuluk by Nunaoil A/S (555 metres; 5 holes) targeted VMS mineralisation after VLF-EM anomalies were incorrectly interpreted based upon their close association with what were thought to be felsic volcanic rocks, and the presence of gold mineralised sulphide-facies BIF at Iterlak (Fig. 5b; Gowen, 1994). Subsequently, field relationships and petrology has demonstrated that these units are actually quartz-feldspar-sericite schists that have a completely unreleated petrogenesis to VMS deposits (Kolb, 2011). Replacement textures in the sulphide-facies BIF are interpreted to be overprinting of magnetite BIF by orogenic gold mineralisation. Remarkably, despite not targeting gold mineralisation drilling intersected commercially significant gold grades (Table 3).

Four parallel tabular zones have been identified forming the *Nuuluk Linear Belt* a 350 to 500m wide and 5 km long NNE-SSW trending, moderately (40-60°) WNW-dipping gold mineralised, mesozonal hydrothermal alteration zone (which is divided into two distinctive zones, the *Western and Eastern Carbonate Zones'*each with two gold horizons). This is located 100-200m into the footwall of a major, 100m wide thrust zone (Kolb, 2011; Kolb et al, 2013).

Gold is generally hosted either in geochemically favourable rocks (e.g. graphite and magnetite schists) or in more competent greenschists as quartz veins in the footwall of the main thrust zones. Mass change calculations by Schlatter and Kolb (2011) reveal that the hydrothermal alteration at the Western Carbonate Zone (WCZ; Fig. 6) is characterised by gains in K and CO_2 and loss of Na, and the Eastern Carbonate Zone (ECZ; Fig. 6) by gains in K, Si, Na, Fe and CO_2. Gold shows a good correlation with Ag in mineralised samples. Though gold shows a weak correlation with As and Cu, a halo of elevated As and Cu occurs in the hydrothermal alteration zones suggesting the gold bearing fluids were enriched in As and Cu (Kolb, 2011).

Arsenopyrite thermometry suggests mineralisation and hydrothermal alteration occurred in a temperature interval of 350-450°C (Evans and King, 1993). Dating of the gold mineralising event(s) has not yet been undertaken, but is planned as part of a collaboration between Nanoq Resources and GEUS.

The distal hydrothermal alteration assemblage at the WCZ comprises of carbonate (calcite, dolomite or ankerite depending upon the composition of the host rock), chlorite, pyrite and tourmaline in foliation-parallel veins and extensional veins. Proximal alteration at the WCZ comrises ankerite, muscovite (fuchsite), chlorite, quartz, pyrite, arsenopyrite, pyrrhotite, chalcopyrite, tennantite and gold, Gold occurs in disseminated pyrite and in pyrite associated with disseminated to semi-massive aggregates of arsenopyrite (Kolb, 2011; Steenfelt et al., 2016). The ECZ is typified by quartz veins (up to 20 cm wide) in hydrothermally altered greenschist. The highest known gold grades from the Tartoq Gold Province (Table 2, 4) occur here. The hydrothermal alteration assemblage is similar to the WCZ, here the proximal alteration zone surrounds quartz-ankerite veins which host the bulk of the gold mineralisation within the Nuuluk Linear Belt.

Nanoq Resources Ltd and Exploration Plans

Established in 2014, Nanoq Resources Ltd ("Nanoq" or "the Company") is a private UK based mineral exploration company focussed upon project generation and development in the Arctic. The company currently holds a 248 square-kilometre exclusive mineral exploration licence covering the highly prospective, yet underexplored, Tartoq Gold Province (Fig. 4; Mineral Exploration Licence 2015/17).

Nanoq are planning to re-log and analyse existing drill core, which is currently housed in a Government core repository in Kangerlussuaq, West Greenland. During 2016 a geophysical programme comprising of a helicopter-borne combined magnetic and electromagnetic survey over the entire exploration licence and a ground magnetic survey over the Nuuluk Linear Belt and Iterlak is planned. Concurrent with these activities the company plan to undertake channel sampling and detailed structural mapping over the Eastern Carbonate Zone of the Nuuluk Linear Belt. An initial NI-43-101 Technical Report is expected by Q4-2016. These activities will assist in the selection and prioritisation of targets for an initial diamond drilling programme in 2017.

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