# ASSESSMENT REPORT ON FEBRUARY 2017 GROUND MAGNETIC AND ELECTROMAGNETIC SURVEYING TAK PROJECT, EUREKA RESOURCES INC.

NTS: 115J15

TAK 1-16 (YC95227 – YC95242), TAK 17 (YC98377), TAK 18 (YC98376), TAK 19 (YC98375), TAK 20 (YC98374), TAK 21 (YC98373), TAK22 (YC98372), TAK 23-31 (YC98371 – YC98363), TAK 32 (YC98362), TAK 33-38 (YC98361 – YC98356), TAK 39-50 (YC98334 – YC98345), TAK 51 (YC98347), TAK 52 (YC98346), TAK 53-60 (YC98348 – YC98355), TAK 61-81 (YC95281 – YC95301), TAK 82 (YC98333)

Location: UTM (Nad 83) co-ordinates: 7V 606954E, 6980341N

**DAWSON MINING DISTRICT, YUKON** 

Date of Work: Feb 21, 2017

Effective Date: April 7, 2017

Prepared for: **Eureka Resources Inc.** 

Prepared by:



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## ASSESSMENT REPORT TAK Property Target Evaluation Program

Effective Date: April 7, 2017

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#### **EXECUTIVE SUMMARY**

The Tak property, located in west-central Yukon, was the subject of a one-day ground magnetic and electromagnetic surveying program conducted by Aurora Geosciences Ltd (AGL) in service to Eureka Resources Inc., a Vancouver-based junior exploration company.

The Tak Property consists of 82 full-sized Yukon quartz mining claims covering 1,722 hectares (4,253 acres) and located within NTS Sheet 115J15. The property lies directly east of Ballarat Creek, the site of past and present placer gold operations.

Until 2009, the local area of the Tak property remained largely unexplored for hard rock mineralization, except for identification of black sand along Ballarat Creek. The present Tak Property was staked in 2009 by a syndicate of local explorationists during a 2009 staking rush following release of strongly favourable gold values from diamond drilling at the White Gold property to the west. Later in 2009 the Syndicate optioned the Tak property to Silver Quest Resources Ltd. (Silver Quest). Silver Quest performed soil and silt geochemical sampling in 2009 and 2010, revealing a weak gold-in-soil anomaly towards the headwaters of Tak Creek and anomalous gold-in-silt values towards the southwest property boundary. Although Silver Quest focused on gold exploration, analytical results also outlined an area of anomalous lead-zinc-silver mineralization in the southwest property area. The property was later returned to the Syndicate, which sold it to Eureka in late 2016.

The Tak property is located within the Yukon-Tanana Terrane (YTT), a major accreted terrane comprised of variably metamorphosed, highly deformed intrusive, volcanic and sedimentary rocks from Neoproterozoic to late Mesozoic in age. The stratigraphy of the Tak property area is contiguous with that of the Klondike placer mining district; the property marks the southern end of fairly continuous placer mining activity also extending to the Klondike. The major stratigraphic orientation of this region is NNW - SSE, conforming to that of most of southwestern Yukon.

The property itself is underlain mainly by an aerially extensive sequence of Simpson Range intermediate meta-intrusive rocks consisting of hornblende metagranodiorite, metadiorite and metatonalite. A narrow unit of Upper Devonian Finlayson Group intermediate to mafic metavolcanics and volcaniclastic rocks extends NW-SE across southwestern property areas, and further to the northwest, where it marks the course of Ballarat Creek and its associated placer workings.

The February 2017 program consisted of ground magnetic and electromagnetic (EM) surveying covering the weak gold-in-soil anomaly. Magnetic surveying revealed two linear magnetic lows roughly paralleling local stream drainages and intersecting within the anomalous area; these suggest potentially mineralized faults or other lineaments. The program also indicated that magnetic and EM surveying are appropriate tools for property-wide exploration.

Expenditures applicable for assessment stand at \$10,152.14.

The deposit model is that of orogenic gold, controlled by deep seated crustal faults, and believed to be the setting for gold +/- silver mineralization in the Klondike area and along the Coffee Creek fault

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somewhat to the south. The latter forms the locus of mineralization within the Coffee Creek property. Target mineralization consists of gold and/or silver bearing mesothermal veins, associated with arsenopyrite and, for silver, galena and sphalerite.

An alternate setting is that of skarn or replacement-style mineralization within the unit of Finlayson Assemblage volcanics, which may mark a significant NW — SE extending lineament hosting the source of placer gold along Ballarat Creek. The southeast extension is coincident with elevated lead, zinc and silver values from soil geochemical sampling. This model would suggest gold emplacement occurred either during the late Paleozoic era, or the lineament was subsequently reactivated, allowing for more recent emplacement.

A two-phased program is proposed for the Tak property later in 2017. An initial phase of airborne magnetic and EM surveying in late April to early May will be followed by a detailed surface exploration program comprising property-wide traverse-style soil and silt geochemical sampling and geological mapping, and ground Mag and EM surveying across areas prioritized from the airborne survey results. Phase 2 will utilize four personnel and have a 17-day duration.

The Phase 1 program will consist of 172 line-km of airborne surveying, at a projected expense of \$49,880, including mobilization, de-mobe and fuel. The projected costs for Phase 2, including 5% contingency, stand at \$145,066. Combined with the projected Phase 1 costs, total proposed expenditures stand at \$194,946.

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#### 1 INTRODUCTION

This report describes the February 2017 ground magnetic and electromagnetic surveys on a small portion of the TAK property held by Eureka Resources Inc. (Eureka). The property is located in the Dawson Range area of west-central Yukon.

This submission was written and submitted by Carl Schulze, BSc and Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC), in the employ of Aurora Geosciences Ltd. (AGL), agent for Eureka. This report was written to satisfy requirements for assessment work filed with the Dawson Mining Recorder, Ministry of Energy, Mines and Resources, Government of Yukon.

#### 2 PROPERTY DESCRIPTION AND LOCATION

#### 2.1 Property Location

The Tak Property consists of 82 Yukon quartz mining claims covering 1,722 hectares (4,253 acres), located within NTS Sheet 115J15. It is centered at UTM NAD 83 coordinates 7V 606954E, 6980341N, extending northeast from Ballarat Creek about 4.7 km north of the Yukon River. Placer leases cover the lower reaches of Ballarat Creek as well as a "right" tributary; its confluence with Ballarat Creek is roughly at the northwest property corner. Placer claims in good standing, and currently or recently active, extend along Ballarat Creek upstream from the confluence. Active placer mining occurs upstream as well, accessible by a road extending from Kirkman Table 2Creek to the west. Table 2 shows the claim status of the TAK 1-82 block as of March 15, 2017.

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**Table 1: Claim Status** 

Grant Nos.	Claim Name	<b>Expiry Date</b>
YC95227 - YC95242	TAK 1-16	1-Mar-18
YC95281-YC95301	TAK 61-81	1-Mar-18
YC98333	TAK 82	1-Mar-18
YC98334- YC98345	TAK 39-50	1-Mar-19
YC98346	TAK 52	1-Mar-19
YC98347	TAK 51	1-Mar-19
YC98348	TAK 53	1-Mar-19
YC98349 - YC98355	TAK 54-60	1-Mar-18
YC98361 - YC98356	TAK 33-38	1-Mar-18
YC98362	TAK 32	1-Mar-19
YC98371 - YC98363	TAK 23-31	1-Mar-18
YC98372	TAK 22	1-Mar-19
YC98373	TAK 21	1-Mar-18
YC98374	TAK 20	1-Mar-19
YC98375	TAK 19	1-Mar-18
YC98376	TAK 18	1-Mar-19
YC98377	TAK 17	1-Mar-18

## 3 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

The Tak Property is located about 124 km south of Dawson City, Yukon, and about 14 km southeast of the nearest point along local road access connecting placer operations along Barker and Thistle creeks, south of the Stewart River. Access is by helicopter from either of these locations to the proposed campsite located roughly mid-property along Tak Creek (Figure 8). An access road in unknown condition extends along lower Ballarat Creek to an airstrip (condition unknown) directly north of the Yukon River, itself utilized as a river transportation route. The property is also centered about 9 km ENE of the Coffee Creek airstrip, although permission to utilize the strip is required from Goldcorp Inc.

The terrain on the property is moderate, consisting of large rolling hills with few inaccessible areas. In most areas outcrop is fairly scarce, confined mainly to stream valleys and ridgelines. Elevations range from about 640 metres along lower Tak Creek (local name) to 1,190 metres along a ridgeline in the eastern area. The climate is continental subarctic, with short warm summers with daily highs commonly exceeding 20°C, and long, cold winters with low temperatures averaging -25° to -30°C, although temperatures below -40°C are not uncommon. North facing slopes and some east-facing slopes are typically underlain by permafrost. Precipitation is light to moderate, although showers and thundershowers are common in summer. Maximum snowpack averages from 0.4 to 0.6m, depending on elevation. The field season extends from late May to mid-September, depending on elevation and

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snow conditions, although drilling may extend into late autumn, provided that water lines can remain unfrozen.

The property size, aerial extent and fairly moderate terrain render the TAK Property as sufficient to accommodate mining facilities, potential mill processing sites, heap leach pads and waste disposal sites, although elevation ranges may require large tailings dams to be constructed for adequate tailings impoundment. There is sufficient water to supply mining and milling operations, including mine site accommodations, as well as for drilling. No known environmental liabilities or significant cultural footprints are known to exist on the property.

The property is located in an uninhabited area of Yukon, with limited local resources. The nearest location of the main Whitehorse to Dawson electric power grid is in Dawson, and additionally the community of Pelly Crossing, along the North Klondike highway, is located about 135 km to the east. The property is approximately 5.0 km north of the Yukon River, usable as a route for barged supplies in the summer. Pelly Crossing (2008 pop. 291, Wikipedia website, 2017) has limited grocery and fuel services, and a limited available workforce. Dawson City is a full-service community with a population reported in the 2011 census of 1,319 (Wikipedia, 2016), although this increases to roughly 2,000 if neighbouring communities in the Klondike area are included. Dawson City has bulk fuel, grocery and hardware services, abundant accommodation, an available skilled work force, and government services, including the mining recorder for the Dawson Mining District. Dawson City is roughly 550 road-kilometres along the North Klondike Highway from Whitehorse, Yukon, a full-service community of about 29,000 (including surrounding communities) with excellent available accommodations, grocery, hardware, camp supplies, bulk fuel and expediting services, and an available skilled work force.

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Figure 1: Location Map

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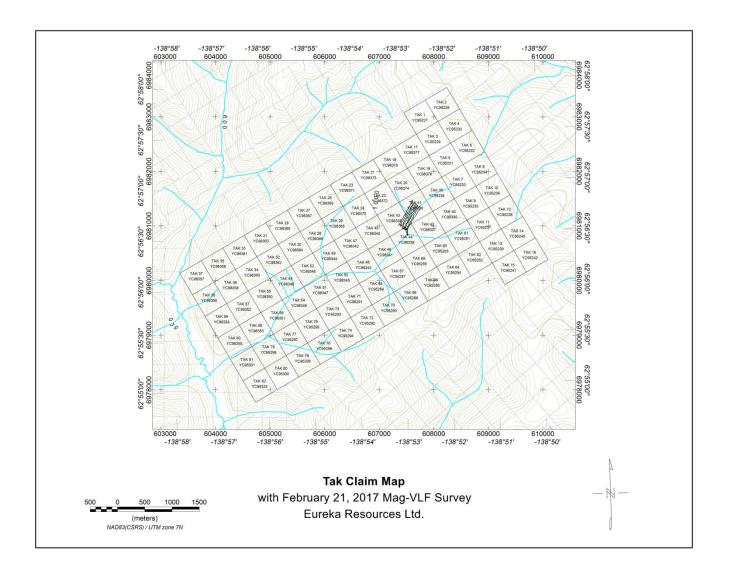


Figure 2: Claim Map

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#### 4 EXPLORATION HISTORY

Little exploration took place in the property area prior to 2009. One Minfile occurrence, the "Total" occurrence (Yukon Minfile # 115J 108) was identified along the west side of Ballarat Creek west of the property. This occurrence was first staked in 1988 by TP Resources Ltd, which conducted ground magnetometer surveying in search of concentrations of magnetic black sand known to be associated with placer gold deposits. The occurrence represents the strongest magnetic anomaly identified during this program although it is unknown if any follow-up work occurred.

The present Tak Property was staked in 2009 by a syndicate of local explorationists during early phases of a staking rush following release of strongly favourable gold values from a diamond drilling program on the White Gold property roughly 30 km to the west. During 2009 the surrounding area including land south of the Yukon River was staked, followed by delineation of the orogenic gold deposits within the Coffee Creek property held by Kaminak Resources Ltd. (now owned by Goldcorp).

Later in 2009 the Syndicate optioned the Tak property to Silver Quest Resources Ltd. (Silver Quest). In 2009, Silver Quest conducted a short program of stream sediment geochemical sampling along lower Tak Creek and a soil geochemical survey near a "right" tributary in the southwestern property area. Gold-in-soil sample results are background to weakly elevated; however, silt sampling returned values of 15 and 35 ppb Au respectively from two adjacent samples along the lower extent of Tak Creek near the west property boundary (Figure 5). In 2010 Silver Quest followed up with a somewhat larger program consisting of 3 rock, 8 silt and 195 contour soil geochemical samples. Soil sampling returned mainly subdetection gold values, except for a group of weakly elevated values towards the headwaters of Tak Creek and a single anomalous value of 36 ppb somewhat downstream. However, data analysis revealed consistently anomalous lead-zinc - silver values along the northeast side of the "right" tributary sampled in 2009, as well as anomalous values along its southwest side.

Silver Quest subsequently returned the property to the Syndicate, which sold the property to Eureka Resources Inc. in late 2016.

#### 5 GEOLOGY

#### 5.1 Regional Geology

The Tak property is located within the Yukon-Tanana Terrane (YTT), a major accreted terrane comprised of variably metamorphosed, highly deformed intrusive, volcanic and sedimentary rocks (Gordey and Makepeace, 2001). The majority of this terrane ranges from Neoproterozoic to late Paleozoic in age, but also includes significant Mesozoic- aged assemblages. The YTT abuts against Selwyn Basin shelf and offshelf sedimentary and volcanic rocks to the north, formed along the margins of the Ancient North American Continent. These two terranes are separated by the 65 Ma Tintina Fault Zone, a major transpressional fault with a dextral displacement of roughly 450 km.

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The major stratigraphic orientation in the Tak area extending towards the Klondike placer camp is NNW - SSE, conforming to that of most of southwestern Yukon (Figures 3a and b). Major stratigraphic groups and formations include a large assemblage of Permian Sulphur Creek Suite orthogneiss comprised of metamorphosed granodiorite to quartz monzonite (Yukon Geology Survey, "Mapmaker" website). The Sulphur Creek Suite units occur alongside, and may be coeval with large packages of Permian Klondike Schist, consisting of metaclastic, metavolcanic and minor ultramafic rocks, commonly chloritic, and underlying much of the main Klondike placer district. Also prominent in the area are large assemblages of Proterozoic to Devonian-aged Nasina Series, Snowcap Assemblage metaclastic rocks, comprised mainly of quartzite, psammite and pelites with minor greenstone and amphibolite. Large packages of Mississippian-aged Simpson Range meta-intrusive rocks, consisting of metamorphosed granodiorite, diorite and tonalite, occur to the west of the Snowcap Assemblage package, and specifically underlie much of the Tak property area. Late Cretaceous Carmacks Group rhyolitic to rhyodacitic tuffs, welded tuffs and lapilli tuffs occur throughout the study area.

#### 5.2 Property Geology and Mineralogy

The property is underlain mainly by an aerially extensive sequence of Simpson Range intermediate meta-intrusive rocks consisting of hornblende metagranodiorite, metadiorite and metatonalite (Yukon Geology Survey, "Mapmaker" website). A narrow unit of Upper Devonian Finlayson Group intermediate to mafic metavolcanics and volcaniclastic rocks extends NW-SE across southwestern property areas. A small unit of Minto Suite granodiorite to quartz monzonite occurs to the northeast of this; another small unit of Upper Triassic Stikinia Assemblage gabbroic orthogneiss occurs south of the Minto Group stock (Figure 4).

The Tak Property is located within unglaciated terrain marked by sparse outcrop and colluvial possibly mixed with aeolian overburden. Although RGS stream silt geochemical analysis returned no significant metal values from the property area, data analysis of soil sampling by Silver Quest in 2010 revealed an area of weakly anomalous gold values towards the headwaters of Tak Creek (Figure 5). Also during this program, consistently anomalous lead-zinc - silver values to 132.5 ppm Pb, 481 ppm Zn and 0.71 ppm Ag respectively were returned from soil sampling along the northeast side of the "right" tributary sampled by Silver Quest in 2009. Two consecutive samples at the east limit of a soil traverse along the southwest side of this tributary returned values to 54.9 ppm Pb and 223 ppm Zn. These results occur somewhat upstream of two gold-in-silt geochemical values of 35 and 15 ppb Au respectively from the 2009 program (Figure 5). Elevated copper-in-soil geochemical values were returned near a small "left" tributary in the west-central property area.

Results of 2010 soil geochemical sampling in the southwestern property area suggest the presence of vein-style lead-zinc-silver mineralization. Elevated lead, zinc and silver values along the north flank of a "right" tributary were returned from a roughly 500-metre extent of a contour soil traverse, suggesting a source of considerable size (Figure 6). Anomalous values returned from the most eastern two samples of a separate traverse along the south flank suggest the stream extends across a source area

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encapsulating both anomalous zones. This may be an area of multiple lead-zinc-silver zones rather than a single zone. Silver-bearing lead-zinc mineralization is favoured as a target setting, as opposed to more massive deposit settings, as similar mineralized zones of orogenic origin are known in the Klondike area within the same geological terrane and a similar stratigraphic setting.

The anomalous lead-zinc-silver values and elevated gold values to the northeast are coincident with a NW – SE extending unit of mafic volcanics and volcaniclastics of the Devono-Mississippian Finlayson Assemblage. This unit extends along the north side of Ballarat Creek NW of the Tak property, where it underlies much of the active and historical placer workings. This suggests the volcanic unit marks a significant lineament, possibly of Paleozoic age, that may have been the source of placer gold in Ballarat Creek and may host the source of gold and lead-zinc-silver geochemical anomalies within the Tak property. Black sand accumulations were discovered along Ballarat Creek suggesting skarn or replacement-style mineralization upstream. In addition to Mesozoic orogenic mineralization, potential for replacement-style mineralization within reactive metavolcanic rocks also exists.

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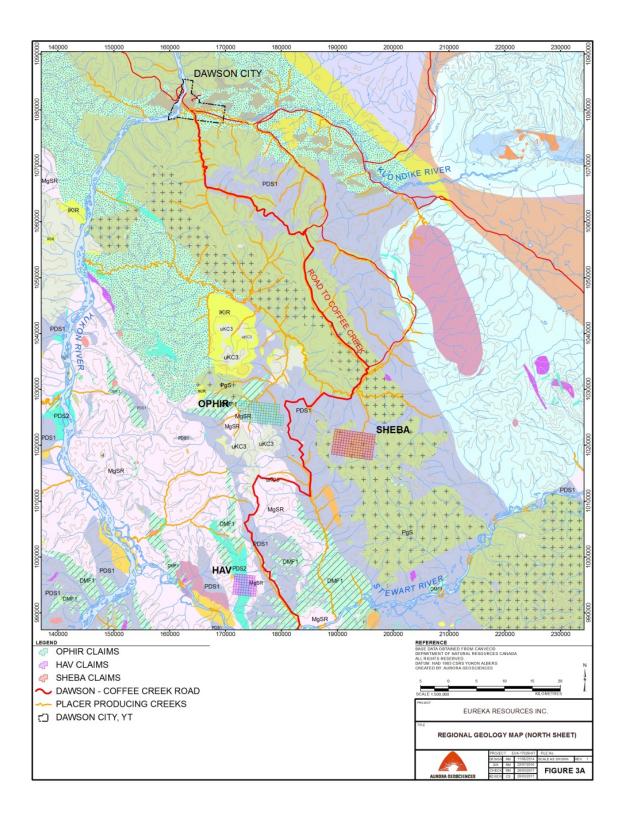


Figure 3a: Regional Geology of North Klondike Area

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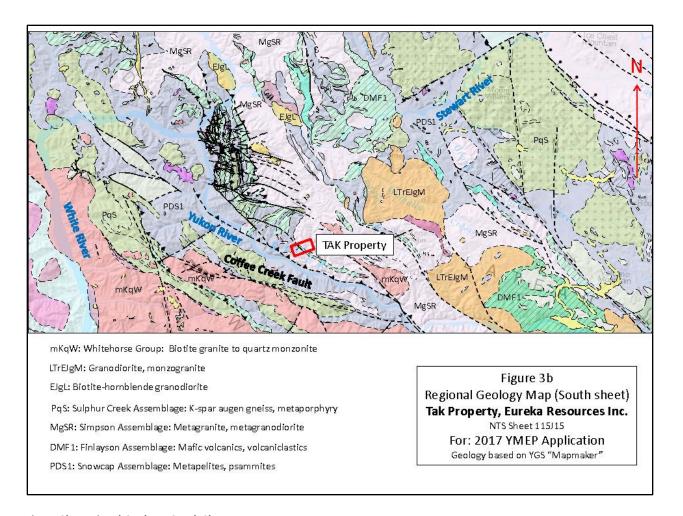


Figure 3b: Regional Geology, South Sheet 1

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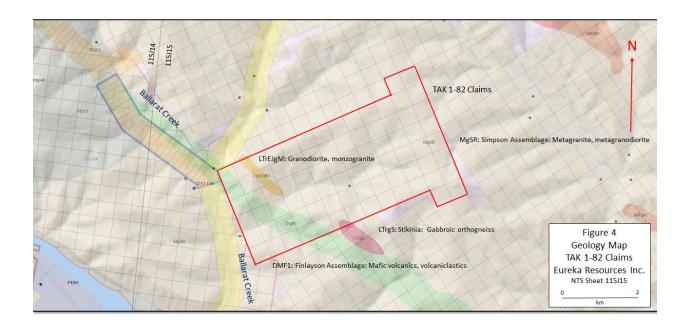


Figure 4: Property Geology Map

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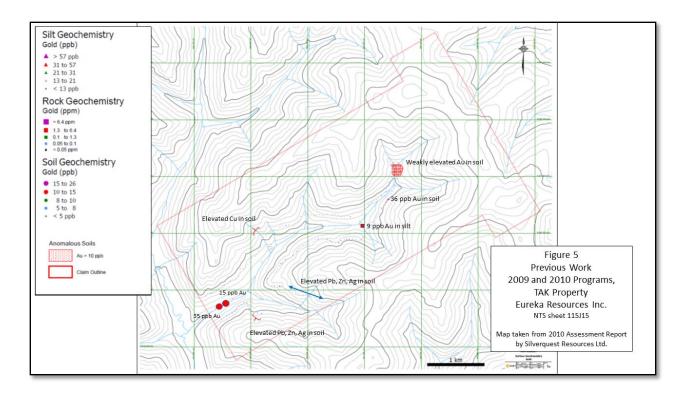


Figure 5: Previous Work, 2009 and 2010 Programs

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#### 6 DEPOSIT SETTING

The Tak Property is located towards the southern end of a large area of placer mining extending southeast from the Klondike placer mining camp. To date, hard rock gold +/- silver occurrences within this have been ascertained to have an orogenic origin, with fluid movement and emplacement related to deep-seated crustal faults rather than local, shallowly emplaced intrusive bodies. Mineralized zones in the Klondike to date do not have the characteristics of Tintina Gold Belt intrusion-related systems. Mineralization typically consists of mesothermal quartz veins, consisting of gold and/ or silver, marked by the typical gold pathfinder elements of arsenic (As) and antimony (Sb), and, for silver, the pathfinder elements of lead (Pb) and zinc (Zn). The dominant stratigraphic orientation within the Klondike gold camp and southern extension is NNW – SSE (Figure 3); mineralized structures likely parallel stratigraphic trends.

The Tak property area is also close to the Coffee Creek fault, extending ESE largely within the Coffee Creek property held by Goldcorp Inc. and located directly south of the Yukon River. The Coffee Creek Fault, forming the locus of gold deposits within the Coffee Creek property, is also considered to be a large crustal feature. Although located several kilometres to the north, the Tak property is close enough to be potentially affected by this crustal fault system.

The primary exploration target at the Tak property is mesothermal vein-hosted gold +/- silver, emplaced along pre-existing structural features such as local faults. Although the main lineation in this area is likely to be NNE – SSW, veins may also be oriented along conjugate faults or "Riedel" shears, possibly favouring a NE – SW orientation. "Economic" mineralization may include visible gold, arsenopyrite, stibnite, and, in areas of silver enrichment, galena and sphalerite.

An alternate model is suggested by the NW – SE extending lineament, coincident with the Finlayson Assemblage mafic volcanic and volcaniclastic unit along Ballarat Creek and extending southeast onto the property near the anomalous base metal values from soil sampling. An important distinction is the Paleozoic age of stratigraphy, specifically the Devono-Mississippian age of the Finlayson Assemblage metavolcanics and the Mississippian age of the surrounding Simpson Assemblage felsic metaigneous rocks. Black sand deposits along Ballarat Creek suggest a structurally controlled skarn or replacement-style setting within reactive volcanic rocks, which would indicate a Paleozoic hydrothermal emplacement system.

#### 7 EXPLORATION PROGRAM

#### 7.1 Survey Specifications

The 2017 exploration program consisted of a single day of combined ground magnetic and VLF-EM survey across the weak gold soil geochemical anomaly towards the headwaters of Tak Creek. The survey was performed on February 21<sup>st</sup> by Andre Lebel and Hannah Warrington, both employed by Aurora Geosciences Ltd.

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The centre of the grid was located at NAD 83, 607535 E, 6981185 N, UTM Zone 7, with this location set as LO N. Lines were approximately 500 m in length, with a nominal line spacing of 25 metres and a mean station spacing of 10 metres for VLF and 0.35 m for total magnetic field. A total of 6.375 km of line was surveyed. Other specifications utilized were as follows:

GPS gridding: Field locations were determined by GPS.

Station spacing: 10 m (nominal) for VLF, continuous magnetometer

readings.

Temporal geomagnetic variation: The base station magnetometer was installed in a

magnetically quiet area and cycled at 3 s during the field surveys. Base station and field magnetometers were synchronized to GPS time prior to surveying. Temporal

geomagnetic variation was removed by linear

interpolation and subtraction of the base station drift.

Noise threshold: The survey would have been suspended, with removal of

data collected, if geomagnetic variation exceeds 10 nT over 10s on a sustained basis. This did not occur during

the survey.

<u>VLF-EM station:</u> NLK (Jim Creek, Wa) – 24.8 kHz

NPM (Lualualei, Hawaii) - 21.4 kHz

VLF Components: In-phase, quadrature and total field strength.

The total magnetic field data were corrected for temporal geomagnetic variation by linear interpolation and subtraction of the base station measurements. Tie line data were collected but no levelling was necessary. A non-linear filter was used to remove any single station spikes and the data were then gridded with a minimum curvature algorithm using a cell size of 5 m. The final gridded data are plotted on a colour contoured total magnetic field map.

VLF-EM data for each of the two base stations were examined for polarity errors, despiked with a non-linear filter, smoothed with a 4-fiducial low-pass filter and transformed with a Fraser Filter. The resultant Fraser Filtered data were gridded with a minimum curvature algorithm using a cell size of 5 m and are plotted as colour contoured maps.

No geological mapping or geochemical surveying were done during the program.

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#### 7.2 Survey Results

Data are included as an ASCII text file attached digitally to this report. Channel descriptions are also included as an ASCII text file.

#### 7.2.1 Total Magnetic Field Survey Results

The 2017 Total Magnetic Field survey revealed an intersection of two linear magnetic lows (Figure 7) coincident with the weak gold-in-soil geochemical anomaly (Figure 6). Although the NE – SW extending anomaly is coincident with a small tributary, the NNW – SSE trending anomaly extends south of the confluence, suggesting this may be caused by structural rather than fluvial features. The NNW – SSE trending feature is roughly aligned with the regional structural and stratigraphic trends. Results of this survey suggest that magnetic linears likely represent structural features, such as fault zones, in bedrock and that a wider application of this survey, either in airborne or ground-based form, would be valid in identifying similar structures across the property.

#### 7.2.2 Fraser Filtered VLF-EM Results

Results of VLF-EM surveying utilizing the 21.4 kHz transmitter from Lualualei, Hawaii show a weak response in the approximate axis of transmission, accentuating conductors along an ENE – WSW axis (Figure 7). However, results from the 24.8 kHz transmitter based at Jim Creek, Washington State, show two WNW–ESE trending features suggesting conductors (Figure 8). These are roughly parallel to regional stratigraphy and, although not coincident with, roughly parallel to the WNW – ESE trending magnetic low feature marked by the left fork of Tak Creek. The actual strength of the conductors is fairly low, accentuated by the colour contour plots. However, these surveys, particularly the one utilizing the Jim Creek transmitter, may still prove useful in delineating similar features elsewhere on the property. Despite a lack of cohesive conductors imaged with the Hawaii station, the signal strength was sufficient that this transmitter may also prove useful in delineating conductors along an ENE – WSW axis elsewhere on the property.

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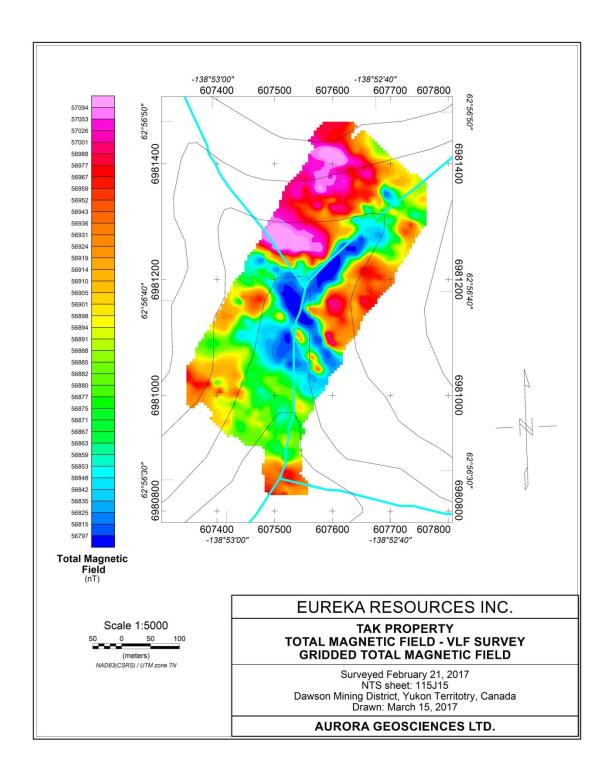


Figure 6: Total magnetic Field

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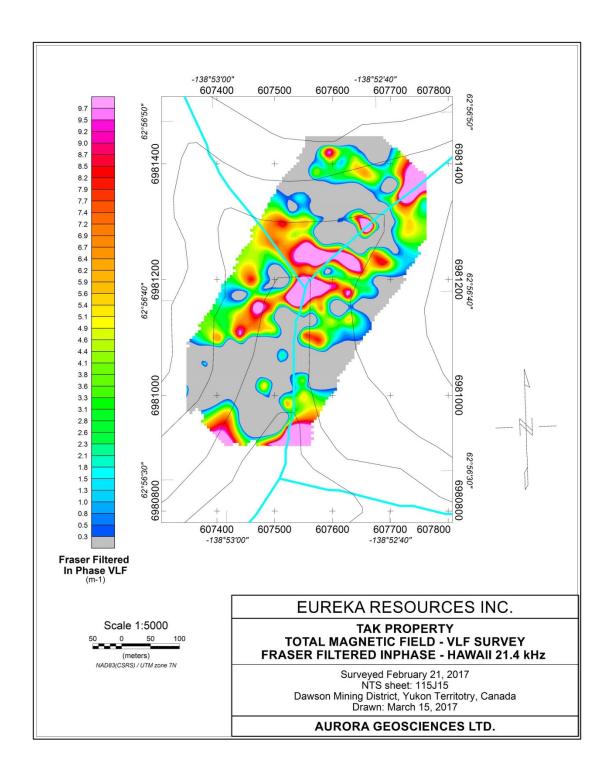


Figure 7: VLF: Fraser Filtered Inphase. Hawaii 21.4 kHz

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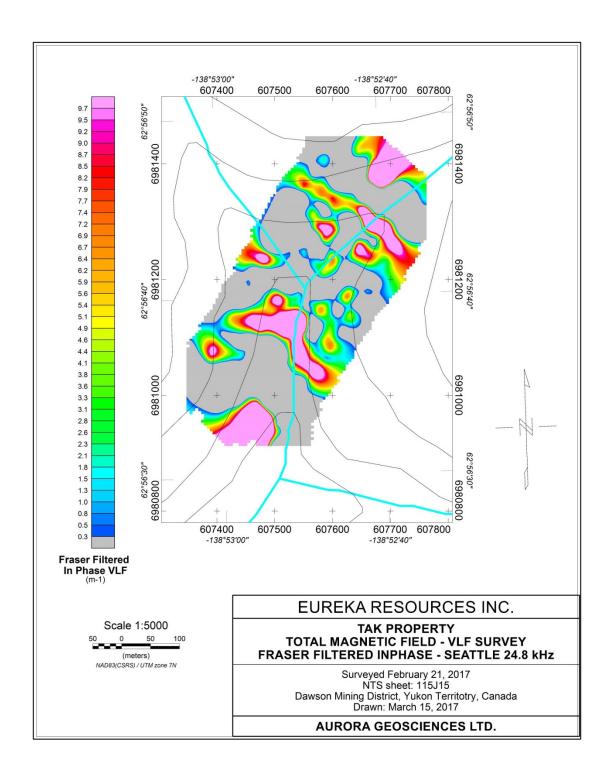


Figure 8: VLF: Fraser Filtered Inphase. Seattle 24.8 kHz

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#### 8 DISCUSSION AND CONCLUSIONS

#### 8.1 Discussion

The Tak property was originally staked during the 2009 staking rush to cover prospective geological terrain stratigraphically and structurally similar to the area of the White Gold property, where strong success during a recent diamond drilling program had just been announced. The property is located towards the southern end of a large area of intensive placer mining, itself extending south-southeast of the Klondike area. Ballarat Creek, directly west of the property, has undergone significant placer gold extraction; this creek and a "left" tributary are still covered by active placer claims. Active placer mining continues to the north along Scroggie Creek and its tributary, Mariposa Creek, as well as Barker Creek to the northwest and Thistle Creek to the west.

During the 2009 staking rush, the south side of the Yukon River was staked, including much of the present Coffee property, where exploration identified several large gold deposits along the Coffee Creek fault. Although the Tak property is located north of the river, it is sufficiently close to the fault trace to potentially be underlain by mineralized splays emanating from it.

Exploration by Silver Quest in 2009 and 2010 identified a weak gold-in-soil geochemical anomaly near the headwaters of Tak Creek (Figure 5), the subject area of the 2017 geophysical surveys. VLF-EM surveying utilizing the Jim Creek, Washington State transmitter identified two conductors roughly paralleling the regional WNW – ESE trending stratigraphy. Magnetometer surveying identified an intersection area of two linear magnetic low features, suggesting the presence of structural corridors and associated "structural preparation", such as fault zones. The intersection area may be a zone of increased permeability resulting from faulting and deformation, rendering it amenable to hydrothermal fluid flow and resulting mineral emplacement. The lineaments may be the source of the weak gold-insoil geochemical anomalies. The limited extent of geophysical surveying inhibits a more thorough analysis of property-wide magnetic signatures; however, the survey results support the potential for structurally controlled mineralization.

The deposit model is that of orogenic gold, controlled by deep seated crustal faults, and believed to be the setting for gold +/- silver mineralization in the Klondike area and along the Coffee Creek fault somewhat to the south. The latter forms the locus of mineralization within the Coffee Creek property. Target mineralization at the Tak property consists of gold and/or silver bearing mesothermal veins, associated with arsenopyrite and, for silver, galena and sphalerite.

A second plausible deposit setting is that of structurally controlled, hydrothermally-derived mineralization along a district-scale lineament marked by a NW – SE trending unit of Devono-Mississippian Finlayson Assemblage metavolcanics and volcaniclastics and by the course of Ballarat Creek to the northwest of the property. This section of Ballarat Creek is the site of historic placer gold extraction, as well as deposition of small lenses of black sand, indicating magnetite and suggesting skarn development. This unit extends across the southwestern property area, where geochemical exploration

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by Silver Quest Resources in 2009 and 2010 revealed anomalous lead-zinc +/- silver values from soil sampling, and anomalous gold values from silt sampling. The potentially reactive metavolcanic rocks along the fault trace may have provided a prospective setting for emplacement of metal complexes from hydrothermal fluids. All major rock units in the area are Paleozoic, suggesting that mineralization may be of a similar age. Alternatively, this lineament may have been reactivated during late Triassic to Cretaceous times, during collision of the accreted terrane with the Ancient North American Plate.

#### 8.2 Conclusions

The following conclusions can be made from the results of the February, 2017 program, combined with earlier programs.

- Exploration in 2009 and 2010 revealed a weak gold-in-soil geochemical signature along the headwaters of Tak Creek, as well as moderate to strongly anomalous lead, zinc +/- silver soil geochemical values in the southwestern area. Weak to moderate gold values were returned from silt sampling downstream of these.
- The 2017 ground Total Field Magnetic survey revealed intersecting linear magnetic low anomalies within the weak northeastern gold-in-soil anomaly. The WNW – ESE trending linear parallels the left fork of Tak Creek. This suggests local weakly elevated gold values may have a structurally controlled source.
- 2017 VLF-EM surveying indicates that both the 21.4 kHz (Hawaii) and 24.8 kHz (Washington) transmitters may be useful in delineating EM conductors.
- The main deposit setting model is that of orogenic lode mineralization, resulting in emplacement of NNW SSE trending mesothermal precious and/or base metal quartz veins.
- A second orogenic setting is indicated by the Coffee Creek Fault hosting the Coffee Creek gold deposits directly south of the Yukon River. Although the Tak property is north of this, it is close enough to be potentially underlain by mineralized splays from the main fault zone.
- A separate deposit model is suggested by the NW-SE trending Devono-Mississippian Finlayson
  Assemblage volcanic unit coincident with the placered extent of Ballarat Creek and extending SE
  through the property, including an area hosting anomalous lead-zinc +/- silver values from soil
  sampling and anomalous gold values from silt sampling. The linear nature of the unit and
  stream drainage indicates a district-scale structural feature, with potential for mineralized zones
  along splays.
- The above setting is of interest due to size potential, and may also represent a newly recognized deposit model for the area. Mineralization itself may either be of Paleozoic age, or subsequently emplaced along Paleozoic structures reactivated during the Mesozoic era.

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#### 9 RECOMMENDATIONS

#### 9.1 Work Plan

A two-phase exploration program, consisting of an initial phase of airborne combined magnetometer (Mag) and electromagnetic (EM) surveying is proposed for the entire Tak property. Phase 1 will consist of 172 line-km of surveying by helicopter at a 100-metre line spacing. The helicopter will be based at Dawson, but will stage from a fuel cache along the Maisy May Road. Results of this will assist in identifying targets for a Phase 2 program of follow-up surface exploration.

Phase 2 will consist of a field program of 17 days, focusing on property-wide rock, soil and silt geochemical sampling and geological mapping and ground Mag and EM surveying. A crew of four personnel, consisting of a project geologist, junior field geologist and two technicians, will conduct the program. Although the entire property will be covered, areas of interest determined from the airborne geophysical surveying will undergo more intensive sampling and traversing. Ground Mag and EM surveying will focus on specific areas revealed from results of the airborne program.

The Phase 1 survey is planned for late April to early May, 2017. Phase 2 will commence on or about mid-June, depending on data processing time for Phase 1 results. The expected time duration for the Phase 2 program, including mobilization, de-mobilization and one weather day, stands at 17 days.

Geochemical surveying will consist of 18 contour and ridge-and-spur soil sampling traverses with a station spacing of 50 metres (Figure 8). A further 6 traverses, focusing on stream sediment geochemical sampling at a 250-metre station spacing and of tributaries, are proposed to test for anomalous metal concentrations in specific drainages. Some of these involve multiple short drainages combined into a single traverse. Detailed geological mapping, including structural mapping and rock geochemical sampling, will be done across the property. A total of 630 soil, 90 silt and 60 rock samples are planned concurrent with geological mapping, with time duration of 8-9 days. The ground geophysical surveys will be done over 5 to 7 days, at a line spacing of 25 metres.

#### 9.2 Budget

The Phase 1 surveying will consist of 172 line-km of combined magnetometer and EM surveying at 100 m line spacing. The projected cost, including fuel, mobilization and de-mobe, stands at CDN\$49,880. The projected cost of Phase 2, including 5% contingency, stands at \$145,066. Combined with Phase 1 costs, total expenditures are anticipated at \$194,946.

A detailed budget is shown below in Table 2.

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Table 2: Projected Budget, 2017 Program, Tak Property

ITEM	Est. days/units	Cost per diem/unit	SUB-TOTAL
<b>Phase 1:</b> Airborne geophysical surveying, incl. fuel, mobe and de-mobe	172 ln-km	\$290, all-in	\$49,880.00
Phase 2: Surface Exploration			
Job Preparation:			
Job Preparation: Crew and gear prep, equipment checks (per hour)	12 hours	\$65.00	\$780.00
Mobe/Demobe			
Crew and Equipment Mobe/Demobe	1 mobe/demob	\$3,360.00	\$3,360.00
Vehicle and mileage cost (number of trips)	8 vehicle-days	\$175.00	\$1,400.00
Room and Board (hotel and meals)	8 person-days	\$250.00	\$2,000.00
Survey:			
Crew and Equipment Survey:	16 field days	\$4,060.00	\$64,960.00
Project Support:			
Expenses (consumables eg. Sample bags, flagging, etc)			\$900.00
Fuel Jet B (supplemental to base camp fuel	2 barrels	\$396.00	\$792.00
Food (\$/man day)	68 person-days	\$40.00	\$2,720.00
Camp Rental (including mobe/ demobe)	17 days	\$120.00	\$2,040.00
Expediting	48 hours	\$85.00	\$4,080.00
Satellite Communication	15 days	\$20.00	\$300.00
Sample Analysis: Soils/ silts	720	\$40.70	\$29,304.00
Sample Analysis: Rocks	80	\$56.00	\$4,480.00
Helicopter:			
helicopter charter	7.2 hours	1922.5	\$13,842.00
Report:			
report details-technical time (hours)	40	\$60.00	\$2,400.00
report details-professional time (hours)	48	\$100.00	\$4,800.00
Subtotal			\$138,158.00
Contingency 5%			\$6,907.90
Estimated Budget (Total Phase 2)			\$145,065.90

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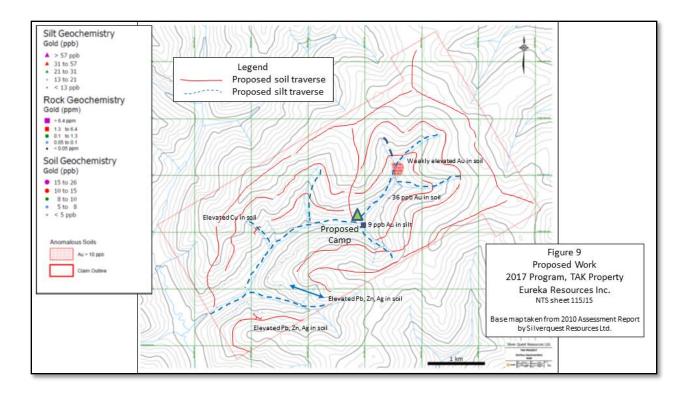


Figure 9: Proposed Work

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Respectfully submitted,

April 7, 2017

Aurora Geosciences Ltd.

Carl Schulze, Project Manager

Eureka Resources Inc.

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#### **10 REFERENCES**

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#### APPENDIX A. STATEMENT OF QUALIFICATIONS

I, Carl Schulze, BSc, with business and residence addresses in Whitehorse, Yukon Territory do hereby certify that:

- 1. I am a graduate of Lakehead University with a B.Sc. degree in Geology obtained in 1984.
- I am a Professional Geoscientist registered with the Association of Professional Engineers and Geoscientists of British Columbia (registration number 25393), Association of Professional Geoscientists of Ontario (registration no. 1966) and with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG, registration number L3359).
- 3. I have been employed in mineral exploration as a geologist since 1984, primarily on projects in the Yukon Territory, Northwest Territories, Nunavut, Alaska and British Columbia.
- 4. I supervised the work described in this report and wrote this report.
- 5. I am a member of the Syndicate which vended the Tak property to Eureka Resources Inc. I have been issued 100% of the share payment due to me, as stipulated in the sale agreement.

Dated this 7th day of April in Whitehorse, Yukon Territory.
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Respectfully Submitted,		
Carl M. Schulze, BSc. P. Geo.		

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## Appendix 2: Statement of Expenditures

## February 2017 Ground Geophysical Surveying, TAK Property

Mobilization & demobilization		
Crew & equipment preparation (3.5hrs @		
\$65/hr.)	\$227.50	
Preparation of digital maps (4hrs @ \$75)	<u>\$300.00</u>	
Total - Mobilization & demobilization	\$527.50	\$527.50
Geophysical survey		
Mag / VLF survey: 1 day @ \$1,570 (geophysicist,		
technician, instruments and equipment)	\$1,570.00	
		\$1,570.00
Support costs		
Helicopter charter (Jet Ranger, 4.6hrs + fuel)	\$5,760.56	
Cargo - Mag/VLF shipping to Whitehorse	\$219.08	
Field supplies	\$100.00	
Project management (1.5hrs @ \$100/hr.)	<u>\$150.00</u>	
Total - Support costs		\$6,229.64
Report		
Data processing, figures and interpretation		
(11hrs @ \$75/hr.)	\$825.00	
Report preparation (10hrs @ \$100/hr.)	\$1,000.00	
Total - Report		\$1,825.00
Total Project Costs		<u>\$10,152.14</u>

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