GEOCHEMICAL ASSESSMENT REPORT

for work performed on the

KOOSE-KOOSE PROPERTY

Koose $1 - 8$	YC 94658 - YC94665
KR North 1 – 114	YD 30801 - YD30914
KR Pan 1 – 48	YD30915 - YD30962
KR Ron 1 – 56	YD30963 - YD31018
Yarrow 1–4	YC94666 - YC94669
KR 1 – 14	YC 26710 - YC 26723
KR 17 – 32	YC 26724 - YC 26739

NTS 115G14 Latitude 61° 46' 58" N; Longitude 139° 18' 7" W

in the

Whitehorse Mining District Yukon Territory

prepared by:

SCOTT BERDAHL

Claims owned by:

RON S. BERDAHL & 18526 YUKON INC.

Work performed: JUNE 17 - 19, 2011

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INTRODUCTION

The Koose-Koose property (Yukon *MINFILE* 115G 107) is located in the southwestern Yukon Territory and is owned by Ron Berdahl and his company, 18526 Yukon Inc. The property lies to the southeast of and is contiguous with Berdahl's "Toshingermann" gold property. Koose-Koose covers a steep, north-facing hillside crosscut by a pronounced NW-SE shear zone, marked by carbonate members, in which gold-bearing pyritic quartz was discovered in 1990.

This report describes the June 2011 soil sampling program conducted on the Koose-Koose property by 18526 Yukon Inc. The survey was designed as a follow-up to promising rock and soil samples collected in 1990 and 1991. The primary author selected sample locations and supervised the 2011 field program. A grid of 202 samples was collected over a 1300 by 900 m area, covering roughly the western quadrant of the Koose-Koose mountainside. Results of the survey reveal a NW-SE trend of anomalous gold-in-soil geochemistry (to 434.1 ppb Au) running parallel to the dominant structural fabric of the mountainside and continuing off the edges of the survey.

WORK HISTORY

Ron Berdahl initially staked claims in the Toshingermann and Koose-Koose areas in 1990, after following up on anomalous geochemistry reported in stream sediment samples collected by the Geological Survey of Canada. No prior work or mineral claims were known in this area, and no evidence of previous mineral exploration activity has been found.

Initial prospecting consisted of geological and geochemical sampling and general mapping, leading to several discoveries. On the Koose-Koose property (then the "MPS" claims, a satellite to the Toshingermann project), grab samples of pyritic quartz vein and stockwork material returned values of up to 1.294 g/t Au. A silt sample taken from a primary drainage farther along the Koose-Koose mountainside returned 302 ppb Au, and the few sporadic soil samples collected ran up to 45 ppb Au and 1.2 ppm Ag (*Hulstein, 1992*).

Noranda performed a brief property evaluation in 1991, running a line of soil samples down each of four prominent ridges along the mountainside. The results were encouraging. Three of the ridges returned values above 150 ppb Au, to a maximum of 470 ppb Au. Of 10 soil samples taken along one ridge, four returned values of 230 ppb Au or higher. Arsenic ran as high as 2568 ppm. Unfortunately the precise locations of Noranda's soil samples were not well documented and cannot be determined with confidence. The four ridges, however, are clearly marked with associated sample numbers in *Hulstein, 1992*, and original assay sheets are also reported.

Prior to the 2011 soils program, no further work had been done on the Koose-Koose property. The initial MPS claims were allowed to drop and were partially restaked by the author in 2009 as the "Koose" 1-8 claims. Further staking in 2010 and 2011 on behalf of Ron Berdahl and 18526 Yukon Inc. covered the rest of the original claim block and much of the surrounding area.

PROPERTY INFORMATION

The Koose-Koose property, together with the contiguous Toshingermann property, comprised 260 mineral claims at the time of the 2011 soils survey. All claims are currently registered with the Whitehorse Mining Recorder in the names of Ron S. Berdahl and 18526 Yukon Inc. (Table 1). Ninety-one claims have since been added to the two properties. The 2011 soils program was conducted and paid for by 18526 Yukon Inc.

Table 1 - Claim Tenure Information

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Owner</u>
KR 1 - 14	YC26710 - YC26723	Ron S. Berdahl - 100%
KR 17 - 32	YC26724 - YC26739	Ron S. Berdahl - 100%
Yarrow 1 - 4	YC94666 - YC94669	Ron S. Berdahl - 100%
Koose 1 - 8	YC94658 - YC94665	18526 Yukon Inc 100%
KR North 1 - 114	YD30801 - YD30914	Ron S. Berdahl - 100%
KR Pan 1 - 48	YD30915 - YD30962	Ron S. Berdahl - 100%
KR Ron 1 - 56	YD30963 - YD31018	Ron S. Berdahl - 100%

LOCATION AND ACCESS

The Koose-Koose property is located 255 km northwest of Whitehorse in the southwestern Yukon (Figure 1), latitude 61° 47' N longitude 139° 18' W, on NTS mapsheet 115G14. The Alaska Highway runs approximately 22 km to the south of the property.

Access to the 2011 soils program was provided by Kluane Helicopters Ltd. using an ASTAR helicopter, from a camp near an abandoned lodge at mile 1118 on the Alaska Highway. Various safe locations for helicopter drop off and pickup exist along the steep Koose mountainside, particularly near the mineralized shear zone, and the alpine vegetation of the ridge top and surrounding mountains lends itself to helicopter access. Tincup Lake is immediately to the east of the property, and can be accessed by float plane. An old tote road, presumably overgrown, runs along the east side of the Kluane River near the western edge of the property.







PHYSIOGRAPHY

The Koose-Koose property is located in a mountainous region of the Kluane Plateau. Elevations in the area range from below 700 m (2300 ft) in the broad, glacial valley bottoms to over 1950 m (6400 ft) along the highest ridges. The property itself spans a cluster of unnamed mountains in the northwestern Ruby Range, and is bound on two sides by ribbon lakes: Toshingermann Lakes to the northwest, and Tincup Lake to the east. The north-flowing Kluane River runs along the western edge of the property.

Summers in the area are generally warm and relatively dry, though conditions can vary considerably hour-by-hour and throughout the season. Mid and late summer temperatures peak in the high 20's to just over 30 °C, though average daily highs are generally 15-20 °C. At higher altitudes dustings of snow can occur at any time of year. Afternoon showers are common, and while annual precipitation amounts to about 30 cm, wet conditions can last for days. Winters are long and cold, with snow arriving at higher altitudes in late August or September and lasting into May and June. Winter temperatures on the Kluane Plateau can dip solidly below -40 °C.

Much of the Koose-Koose property lies above treeline, which varies in elevation on different slopes, but generally extends no higher than 1280 m (4200 ft). Alder, dwarf birch ("buckbrush") and willows are common above treeline to 1675 m (5500 ft), above which vegetation consists primarily of mosses, grass, lichen and alpine flowers.



View from the author's tent during initial Koose claim staking in 2009, looking north across the headwaters of Thirty-two Creek. Schists of the Finlayson assemblage exhibit heavy quartz veining in the foreground. Topography at the 2011 soil survey area is steeper.

The "Koose-Koose zone," target of the 2011 soils survey, is situated on a steep, north-facing mountainside (herein referred to as the "Koose-Koose mountainside") that extends west from Tincup Lake. The mountainside forms the southern bank of Thirty-two Creek, and rises over 1000 m from the creek to a maximum elevation of 1860 m. A prominent NW-SE trending structure, interpreted as the surface expression of a regional thrust fault, crosscuts the mountainside at approximately 1340 m (4400 ft) elevation. Above and along this structure the mountainside is steep, with many cliffs and exposures of bedrock interspersed with talus, scree and creeping soils. Below the fault structure colluvial fans overlap, so bedrock exposure is less common. Vegetation is also thicker below the structure, with alder chutes and dwarf birch congesting much of the hillside, and thick permafrost beneath the vegetation.

REGIONAL GEOLOGY

The oldest rocks in the project area belong to the Snowcap assemblage, a metamorphosed assortment of mainly sedimentary rocks that accumulated on the northwestern Laurentian margin prior to the Late Devonian opening of the Slide Mountain ocean (Piercey, 2009). After rifting away from Laurentia, the Snowcap assemblage served as a basement for the upper Devonian to lower Mississippian metavolcanic and metasedimentary arc to back-arc units of the Finlayson assemblage, also present on the property. Both Finlayson and Snowcap assemblages are unconformably overlain regionally by the Klinkit assemblage, a suite of intermediate to mafic metavolcanics with prominent, locally fossiliferous marble units (Colpron, 2007). Together, these units form the lower parts of the allocthonous Yukon-Tanana terrane. They amalgamated with other peri-Laurentian and oceanic terranes and accreted back onto the continental margin during the Triassic and Jurassic, and are now emplaced at the western end of the Intermontane super terrane.

In its present position, much of the Yukon-Tanana terrane lies between the NW-SE trending Tintina and Denali faults, both of which have seen dextral offsets of hundreds of kilometers. The terrane is intruded by and emplaced adjacent to the Paleocene Ruby Range batholith, which appears to have formed synkinematically with this early Cordilleran deformation (Johnston, 2007). Synmagmatic, district-scale faults extending from within the Ruby Range batholith into the Yukon-Tanana terrane and crosscutting the Koose property may have served as conduits for the observed mineralization and anomalies (Murphy, Don C., personal communication, 2010).

LOCAL GEOLOGY

The most prominent geological feature of the Koose-Koose property is a roughly SE trending, moderately south-dipping, district-scale fault structure which crosscuts the north-facing Koose mountainside at around the 1250 m elevation mark. This fault structure runs for several kilometers locally, and has been interpreted to stretch for tens of kilometers into the Ruby Range batholith. On the Koose property, the fault places a series of metavolcanic chlorite schists of the Finlayson assemblage to the south over higher grade psammitic garnet-muscovite-quartzofeldspathic schists and marbles of the Snowcap assemblage to the north (Scott, Steven M. D.¹, personal communication, 2011). Prior investigations (*Hulstein, 1992*) have interpreted the structure as a thrust fault, though the relative ages of the two units suggest that local offset has been primarily normal. The orientation of the fault appears to match the orientation of primary foliation on the overall mountainside, paralleling the NW-SE trend of the Cordillera.

Prominent carbonate units are exposed as bluffs and cliffs along the Koose-Koose mountainside in the sheared fault zone, both structurally above and below the fault. These have been interpreted elsewhere on the property as three distinct carbonate units – two marble units belonging to the overlying Finlayson assemblage above the fault and a third underlying unit of intercalated calcite marbles and quartzite, likely belonging to the Snowcap assemblage (Scott, Steven M. D., personal communication, 2011). An alternate interpretation places this underlying carbonate and surrounding facies in the Klinkit assemblage, which would suggest that the prominent fault structure on the Koose hillside is in fact a thrust fault (or an overturned normal fault), and would require a normal fault in the valley of Thirty-two Creek to place the entire package above the Snowcap assemblage to the north (*ibid*).

The presence of carbonate units along the dominant fault structure, as well as carbonate-altered schists and orange-stained marble breccias, lends itself to the idea that Koose-Koose may represent an orogenic gold occurrence. Certain anomalous samples recovered by the 2011 soils survey correlate with a zone of lighter coloured carbonate-altered schists between the much darker metavolcanic chlorite schists and marble units of the Finlayson assemblage, suggesting a redox front which precipitated gold from passing, mineralized fluids. Euhedral pyrite also been observed along this boundary (Scott, Steven M. D., personal communication, 2011). Farther downslope, in a shear zone related to the fault, the initial gold discovery consists of a mineralized pyritic quartz stockwork through gouged schists.

Interestingly, where the trace of the mineralized fault zone on the Koose property intersects the Toshingermann property, 9 km to the northwest, grades of up to 6.8 g/t Au have been recovered in grab samples of pyritic quartz-carbonate stockwork through intensely-sheared host units.

¹ At the time of writing, Steven M. D. Scott is a Master's student at the University of Ottawa, completing a field thesis on the lithological and structural history of the Tincup Lake area.

SURVEY DESCRIPTION

The 2011 Koose-Koose soils sampling program was conducted on the 18th and 19th of June by a team of nine workers hired, trained and supervised by 18526 Yukon Inc., as well as the author. Members of the crew ran a claim staking program concurrently on the 18th of June, expanding the Koose-Koose claim block.

Soil samples were taken at 50 m intervals along survey lines spaced at 100 m and running down the hillside. The rugged nature of the target slope, as well as poor sampling conditions, resulted in some gaps in the survey, and many of the soil lines were truncated towards day's end by a large cliff crosscutting the hillside. Difficulty traversing the terrain resulted in a slow pace for samplers. In total, 202 samples were collected and analyzed from 14 lines, covering an area roughly 1300 by 900 m (Figure 3).

Sampling targeted the "C" horizon, though highly variable conditions were present across the survey. Local obstacles included permafrost, loess, volcanic ash, exposed bedrock and distorted soil profiles resulting from downslope creep and slides. In any conditions, samplers targeted the deepest mineral soil available. Sample depths ranged from 5 to 130 cm, and averaged 45 cm throughout the survey. Soil augers were the primary tool used for sample collection, though picks and shovels were also used to assist with collection. Tools were cleaned of residual soil between sampling stations.

At each station, samples were laid on a clean plastic sheet to be photographed and described before being collected into KRAFT 4 x 6" paper sample bags. Precise sample locations were recorded at the time of sampling using handheld GPS units. Each sample location was also photographed and marked with orange flagging tape.

Samples were air dried briefly at camp and then in a dry facility (diurnal summer temperatures ~ 5 to 20 °C) before being delivered to ACME Analytical Labs in Whitehorse, Yukon. Each sample was screened by ACME to 180 microns and shipped Vancouver, British Columbia for analysis. Thirty gram pulps were processed using hot (95 °C) Aqua Regia digestion and analysed for 36 elements (ACME's "1DX3" package). After analysis, ACME disposed of the samples.









139°19' W

January 2012

RESULTS

Figure 4 shows gold concentrations returned from the 2011 soils survey on the Koose-Koose property. Anomalous values of up to 434.1 ppb Au were detected, with elevated to anomalous samples stretching over 1.1 km along the northeastern boundary of the survey. A sporadic cluster of elevated to anomalous gold values also occurs in the southern half of the survey, towards the ridge top. Of 202 soil samples analysed in this survey, 11 (5.4%) returned concentrations above 80 ppb Au, with 4 of those samples returning over 250 ppb Au.

Anomalous arsenic levels were also present, up to 1491.4 ppm As in the eastern corner of the survey (sample KE0800). Increased arsenic appears to correlate with increased Au levels ($R^2 = 0.29$) on a per-sample basis, and geographically, anomalous arsenic values define the same NW-SE trend along the northeastern survey boundary as gold does. Arsenic concentrations also increase less obviously towards the southern corner of the survey.

Antimony is more sporadic, and does not correlate as strongly as arsenic with gold concentration, though values of up to 18.6 ppm Sb were returned. Similar to arsenic, the highest antimony values were found in the eastern corner of the survey, at the eastern sampling limit of the previously mentioned NW-SE trend.

No significant silver values were returned, though neither were any silver values returned historically on the area covered by the 2011 soils survey.

A copper anomaly with values over 100 ppm Cu, to a survey-wide maximum of 143.3 ppm Cu, occurs near the 500 m mark of lines KI, KL, KM, KN and KO, stretching for at least 400 m. This zone appears to be spatially distinct from other anomalies, though it also runs parallel to the NW-SE structural fabric of the hillside.

Strontium values do not bear a strong correlation to gold values ($R^2 = 0.05$), nor should they necessarily be expected to. However, on a spatial level, elevated strontium appears to correlate very well with the NW-SE trending Koose-Koose zone, and it also defines the less obvious zone of elevated to anomalous Au, As and Sb towards the southern corner of the survey.

Additional elements are included in the ACME Analytical Labs assay report in Appendix A. Sample coordinates and field notes are included as an excel spreadsheet on the accompanying compact disk (CD).

INTERPRETATION AND CONCLUSIONS

Anomalous gold and arsenic values along the NE boundary of the 2011 soils survey appear to correlate with a broad, NW-SE trending fault zone crosscutting the Koose-Koose mountainside. This fault zone is highly visible from a distance, marked by cliffs, recessive shear zones, light-weathering carbonate units and pale orange zones of what is likely carbonate alteration in schists.



Approximate sample sites plotted on a composite photograph taken from KF0900, facing south. Note the abrupt increase in Au, As and Sb concentrations as the slope passes from overlying metavolcanic schists (dark) into possibly ankerite-altered schists (light orange) and carbonate units (light) of the Finlayson assemblage, associated with the major fault zone. This alteration pattern continues for an undefined distance both southeast and northwest along the mountainside.

The observed alteration may have resulted from acidic fluids propagating along the prominent fault structure reacting with the local carbonate units. The resulting redox reaction would have lowered solubilities within the fluid, prompting the precipitation of dissolved metals, including the observed pyrite. If this orogenic model holds, it is a likely source of the anomalous gold geochemistry encountered in the 2011 survey, and thus would explain the character of the overall mineralized trend.

Available evidence suggests that the trend continues along strike off the edge of the 2011 survey, perhaps for a considerable distance. Geological units, shear zones and alteration all appear to continue to the southeast. A soil sample taken by Noranda in 1991 on the next ridge to the southeast, 380 m from the survey's eastern boundary, returned 160 ppb Au (*Hulstein, 1992*). Ron Berdahl's 1990 prospecting program recovered a stream sediment sample from the drainage between these two ridges which returned a highly anomalous 302 ppb Au (suggesting potentially higher Au values just off the eastern edge of the 2011 survey), and a soil sample taken by Berdahl farther to the southeast, some 970 m from the eastern survey boundary and along strike

with the 2011 trend, returned 41 ppb Au (*ibid*). If these soil anomalies are indicative of the same shear zone, this opens the door for a mineralized structure running 2.1 km or more.

To the northwest, the shear zone is likely buried, or it meanders due to structure or topography. The overall fault structure has preliminarily been traced to areas of significant gold mineralization the Toshingermann property, some 9 km to the northwest.

The results of the 2011 survey merit follow up. The current soils grid should be extended to cover the rest of the Koose-Koose mountainside, and could be infilled to a 50 x 50 m spacing in known anomalous areas. As frozen ground was a problem in June of 2011, especially on samples taken farther down the slope, any large soils program would best be performed in late summer or early fall. Alternatively, special sampling techniques might be used to retrieve mineral soil samples from beneath the permafrost. Ridge and spur and/or contour sampling should be performed on other parts of the property as well to search for additional anomalies.

Detailed geological mapping of the Koose-Koose mountainside is needed to define units, shear zones, alteration patterns and mineralization across the current area of interest, and broader geological mapping of the property will assist in targeting new areas (priority should be given to tracing the extent and finding continuations of the known fault system), as well as in understanding the structural and lithological history of the area. An accompanying prospecting program on the mountainside would prove valuable in locating additional mineralization and in delineating the overall Koose-Koose trend.

Trenching and/or chip sampling, particularly in the area around samples KF0800, KF0850, KE0800 & KE0850, is recommended. Due to the steep nature of the mountainside, hand-trenching is likely the most practical option for preliminary trenches. And given the abundance of exposed bedrock across the upper half of the mountainside, direct chip sampling would be possible (and preferable) in many areas.

Contingent on positive results from further sampling, prospecting and trenching, the Koose-Koose gold prospect would make for an attractive drill target.

REFERENCES

Colpron, M., Nelson, J.L. and Murphy, D.C., 2007. "Northern Cordilleran terranes and their interactions through time." *GSA Today*, vol. 17, no. 4/5, p. 4-10.

Hulstein, R., 1992. "Summary Report on the Tosh Project." Assessment Report #093021.

Johnston, S.T. and Canil, D., 2007. "Crustal architecture of SW Yukon, northern Cordillera: Implications for crustal growth in a convergent margin orogen." *Tectonics*, vol. 26, TC1006, doi: 10.1029/2006TC001950.

Piercey, S.J., and Colpron, M., 2009. "Composition and provenance of the Snowcap assemblage, basement to the Yukon-Tanana terrane, northern Cordillera: implications for Cordilleran crustal growth." *Geosphere*, vol. 4, p. 439-464.

STATEMENT OF EXPENDITURES

Expenses for the 2011 soils program were as follows.

Helicopter & Fuel	\$21,200	
Crew Wages	\$8,400	
Equipment & Food	\$713	
Assays	\$5,050	
Report Preparation	\$1,500	
Total	\$36,863	

STATEMENT OF QUALIFICATIONS

I, JAMES SCOTT BERDAHL, hereby certify that:

- 1. I am a geologist employed by 18526 YUKON INC., Box 11250, Whitehorse, Yukon, Y1A 6N4.
- 2. I am a graduate of the Massachusetts Institute of Technology, with a degree in geology (B.Sc., 2008).
- 3. I have been employed in mineral exploration, as a prospector's assistant or as a project geologist, annually for over a decade, and full-time for the past year.
- 4. I am a member in good standing with the Society of Economic Geologists, the Yukon Chamber of Mines, the Prospector's and Developer's Association of Canada and the Association for Mineral Exploration British Columbia.
- 5. I supervised and assisted with the geochemical survey described above in June of 2011.
- 6. The data contained herein is true and correct to the best of my knowledge.

January 1, 2012